

School of Management and Marketing

**Building Entrepreneurial Self-Efficacy
through Entrepreneurship Education:
Understanding the Pedagogical Designs**

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Doctor of Philosophy
of
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DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) (updated March 2014). The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number # HRE 2019-0776.

Signature: 

Date: 06 October 2023

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ABSTRACT

The extant literature establishes that entrepreneurship education (EE) develops entrepreneurial self-efficacy (ESE), the necessary and persistent self-belief that initiates new venture creation. However, the current pedagogies (teaching methods) employed in tertiary-level entrepreneurship courses that can develop ESE have not been fully explored and described in a systematic manner. As a consequence, it remains unclear as to which specific learning actions, educator roles and pedagogies (or combinations thereof) best develop ESE.

This research explores contemporary ESE-enhancing pedagogical designs using a phenomenological approach, requiring in-depth semi-structured interviews with 77 course designers from 26 countries. The findings of this research improve our knowledge of how ESE is developed in tertiary entrepreneurship students, in order to develop more highly efficacious graduate entrepreneurs. These improvements can assist in developing greater self-awareness and entrepreneurial awareness that may lead to the start-up of new ventures (ESE). An interpretative (thematic) description of EE designs that develop ESE has been created using an initial framework of research foci related to the nature of the pedagogies and learning contexts adopted.

The 77 EE course designers investigated have varying emphases on specific pedagogies and roles, which do result in multiple learning experience combinations, with some patterns evident. An important emerging discovery of this research identifies a new source of ESE development, namely internal and external entrepreneurial awareness. These two sub-forms of entrepreneurial awareness are evidently designed to enable entrepreneurial activities and reflexivity that lead to ESE enhancement. In addition, another key finding for entrepreneurship education is the desirability of designed role-transitioning capacity between multiple educator roles. When present, this role transitioning design has the potential to enable and support greater levels of entrepreneurial action and growth. Other observations include the beneficial impact of the curation of certain catalysts of ESE sources that facilitate ESE.

The thesis explores the exciting implications of these findings, which opens up multiple opportunities for entrepreneurship education design enhancement. Whilst offering guidance on entrepreneurship training designed to increase ESE, there is also a call for future research to further understand and validate these discoveries in other settings and contexts.

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LIST OF ACRONYMS AND RESEARCH TERMS

Acronyms or Terms	Explanations
Academics	Lecturers, professors, coordinators and instructors in tertiary institutions who design entrepreneurship courses and/or programs and teach students entrepreneurship.
Advisory	Advisory-focused coaching. An educator role performed by an advisor who imparts feedback based on academic and/or entrepreneurial outcome assessments.
BMC	Business Model Canvas (BMC), a framework or template that connects components of any business or revenue model together; key activities, channels and suppliers to create value matched with target customer segments.
CD	Entrepreneurship course or program designers (CDs) who are either academics or practitioners. CDs are also referred to as educators in this thesis.
CSE	Creative Self-Efficacy (CSE) is the enduring self-belief of capability to produce creative outcomes (Tierney and Farmer 2002, 1138).
Curation	The meticulous selection of entrepreneurship methods, educators, role models and other sources of knowledge and inspiration in the entrepreneurship education domain.
ECA	Extra or co-curricular activities (ECA) with some or no connections to the main EE curriculum, but complementing it, within or outside the boundaries of the university.
EE	Entrepreneurship education (EE), including lecturing, coaching and mentoring to equip and encourage students to become entrepreneurs.
EEA	External entrepreneurial awareness (EEA) is a cognizance of accessible or inaccessible relationships (social capital) and resources (entrepreneurial capital) vital for entrepreneurship and start-ups.
EED	Entrepreneurship education design (EED) consists of learning actions, pedagogies and educator roles adopted in an entrepreneurship course or program.
ELT	Kolb's Experiential Learning Theory (ELT) advocating 'cycles' of actions or concrete experiences and subsequent reflective observations.
EPG	Entrepreneurship Education Pedagogy Grid (EPG), the discussion device of this research, classifying or coding pedagogies.
ESE	Entrepreneurial self-efficacy (ESE) is the persistent self-belief to initiate and manage a new business capably (Newman et al. 2019). ESE is the awareness or perception of an entrepreneur's confidence in their abilities in starting-up (Li et al. 2020).
FLG	Focus Learning Groups (FLGs) are small groups where students present, share, emotionally support and/or critique each other's ideas, findings or projects.
GRE	Graduate entrepreneurship or graduate entrepreneurs (GRES) who completed at least one entrepreneurship course and had initiated entrepreneurship activities, business planning, market research and/or achieved initial sales.

IEA	Internal entrepreneurial awareness (IEA) is an evolving cognizance of one's self-identity (an awareness of one's roles as a unique individual) and one's self-concept (a belief in one's personal characteristics, in relation to one's social context and entrepreneurship).
Participants	Those who were interviewed, both course designers (CDs) and graduate entrepreneurs (GREs).
Inquiry	Inquiry-focused coaching. An educator role performed by an inquirer who asks critical reflective questions to enable reflection on personal and contextual conditions and subsequent decision-making (reflexivity).
Instruction	Instruction-focused coaching. An educator role performed by an instructor to impart entrepreneurship and start-up methods and/or theory.
IPA	Interpretative phenomenological analysis (IPA) focuses on investigating how individuals derive meaning from their life experiences (Pietkiewicz and Smith 2014).
Lifelikeness	An indication of how an EED is further from or closer to real-life business, societal and industry contexts, and true to entrepreneurial reality. An EED is either less or more lifelike.
Pedagogy	A set of learning cognitive and/or executional actions.
Pitch	Pitching is presenting a business model, proposal or plan. It can be a formal or informal presentation to any audience including: academics, practitioners, peers, family and friends, as assessors and/or potential mentors/investors.
Practicality	Pedagogies, activities and student involvement designed to generate entrepreneurial outcomes and experiences, and not simply studying entrepreneurship theory. An EED is either of lower or higher Practicality.
Practitioners	Entrepreneurs or domain experts contracted by tertiary institutions, such as adjuncts and part-timers who design and teach entrepreneurship courses, and mentor students.
Recursive	An alternating, backwards and forwards relationship between two components. In this research, recursive relationships exist between pedagogies of lower and higher Practicality, and between pedagogies of less and more Lifelikeness.
Reflexivity	Reflection on instruction, feedback and activity outcomes that guide subsequent understanding and action. Reflexivity also includes self-examination of one's beliefs, emotions, interests, skills and interpretation of the meaning of experiences.
Role-transitioning	Switching between educator types and roles by academics or practitioners to assist reflexivity on academic and entrepreneurial activities, or even to transition to become directly involved as investors/mentors (angel investors).
Self-Curation	The curation of ESE sources by tertiary students themselves, rather than being part of a controlled pedagogy by their educator.
Self-Authentic	A learning context wherein students utilise personally significant opportunities and reflect on personally meaningful ESE sources.

Start-up	Starting-up is initiating and developing entrepreneurial ventures which can be for-profit, business or non-profit. A proxy for ESE development (Litzky et al. 2020) in the nascent entrepreneurship context.
VL	Vicarious Learning (VL). Learning by observing others and/or role models.

1 INTRODUCTION

1.1 Background

The estimated number of tertiary institutions (hereafter institutions), in the world, offering entrepreneurship-related courses far exceeded 3,000 in 2017 (Kuratko 2017). Despite their burgeoning popularity, educators continue to differ on fundamental pedagogical definitions in entrepreneurship education (EE) (Hoppe 2016; Mwasalwiba 2010) and thus, the pedagogies to teach entrepreneurship (Fayolle and Gailly 2008; Hatt 2018). In contrast to more conventional education that primarily seeks to impart knowledge and skills, non-traditional active experiential EE was recommended (Higgins, Refai and Keita 2019), in order to develop entrepreneurial mindsets, attitudes and motives (Haynie et al. 2010). This involved a focus upon pedagogies that develop entrepreneurial self-efficacy (ESE), a type of self-awareness that is commonly attributed to the likely initiation of start-up activity that remains under-researched (Li et al. 2020). This under-researched area of ESE development in pedagogy design constitutes the domain of the knowledge gap being investigated in this thesis.

The researcher adopted an interpretative phenomenological analysis (IPA) methodology to understand objectively the first-hand ‘lived’ experiences of course designers (CDs) in the design of entrepreneurship courses. CDs are also referred to as educators in this thesis. The extant literature and his experiences as a former entrepreneur and CD assisted the author in the interpretation of these experiences. He had earlier experienced the closure of his start-up ventures. Driven by this experience he designed courses and taught entrepreneurship with a start-up focus to provide students, with what he believed were authentic entrepreneurial experiences. However, despite following the best practice of other published experiential programs of the time, relatively few students started ventures. From this lived experience grew a desire to improve and update our understanding of entrepreneurship education pedagogical design that could best develop ESE.

He developed an initial framework consisting of four research foci to guide this exploratory research. A discussion device, named the “Entrepreneurship Education Pedagogy Grid” (EPG), was devised to facilitate critical conversations with CDs, who shared their entrepreneurship education design (EED) experiences and their interpretations of how EE should be designed. By doing so, the accurate, verifiable and well-supported experiences of EED design and delivery by CDs were acquired and thematically analysed.

The extant literature has focused largely on EED from an Anglo-US perspective (Kakouris and Liargovas 2021). To obtain a more global and contemporary understanding of ESE-enhancing pedagogies, in-depth semi-structured interviews were conducted with a diverse sample of 77 CDs from 26 countries. They provided the rationale for, and the experiences related to, their pedagogical design. Experiences of ESE enhancement (or erosion) from a sample of graduate entrepreneurs (GREs), referred by their former educators elaborated on their course experiences and the perceived effect(s) upon their ESE.

1.2 Significance of the Research

This research strives to identify the educational pedagogies and practices that build tertiary students' self-confidence to perform entrepreneurship capably (ESE).

Studies investigating the relationships between EE outcomes and specific pedagogies are scarce and incomplete (Fayolle 2013; Nabi et al. 2017; Pittaway and Cope 2007b). There are surprisingly few prior studies that deeply consider the pedagogical designs of entrepreneurship from the CD perspective of facilitating ESE development. Indeed there are even some reported negatives effect on ESE (Section 2.3.4) from some entrepreneurship activities (Kassean et al. 2015). The current thesis addresses knowledge gaps in ESE development in EE, using an investigative approach that identifies a broad range of global EE practices and course designs that have been deployed, with a focus upon their ESE impacts.

Practical relevance of the research includes enabling readers to easily discover the EED used by a wide variety of tertiary educational institutions in 26 countries and consider the effectiveness of these methods to stimulate ESE. The research provides tertiary institutions with findings to assist in the development of policies to support their educators and students in developing effective ESE enhancing entrepreneurship programs.

1.3 Findings from the Research

This exploratory research and analysis resulted in five key finding areas, summarised briefly as:

- External entrepreneurial awareness (EEA),

- internal entrepreneurial awareness (IEA),
- role-transitioning,
- curation and
- catalysts.

The research highlighted external entrepreneurial awareness (EEA) as an outcome-based awareness of accessible entrepreneurial capital and relationships. The themes also revealed internal entrepreneurial awareness (IEA) as an awareness of one's self-concept and self-identity. These two groups of ESE sources were previously unidentified in EED literature. Guided by CDs, the students' reflexivity developed entrepreneurial awareness (EEA and IEA) that initiated entrepreneurial activities and reflexivity that consequently developed ESE.

Role-transitioning between educator types and roles initiated recursive (iterative) relationships between executional (activity) and cognitive (reflexivity) pedagogies. Specifically, role-transitioning between three educator roles, instructor, inquirer and advisor, facilitated reflexivity on entrepreneurial activities that developed and updated EEA and IEA. These two types of ESE sources enabled entrepreneurial self-perceptions and fostered perceptions of opportunity feasibility while countering the negativities (risk and uncertainty) associated with entrepreneurship.

The researcher defined curation in the EED domain as the careful selection of contextualised content and ESE sources by CDs and/or tertiary students. These ESE sources were educators and role models, such as guest entrepreneurs, practitioners, academics from other faculties, contract staff, seniors and graduate alumni. These supplementary roles augmented the pedagogical design and efforts of the coordinating CD of the entrepreneurship course.

ESE was also developed by educators and pedagogies that enabled recursive activity and reflexivity that improved students' entrepreneurial awareness. This research also identified that ESE in conjunction with catalysts were contributors to initiating entrepreneurial activity.

A set of figures and tables was subsequently developed to explain how educator roles, ESE sources, role-transitioning and curation enhanced ESE.

1.4 Outline of the Thesis

Chapter one introduces the background, the initial theoretical framework, methods, findings and significance of this research.

Chapter two, the literature review, provides an overview of the present stock of knowledge of the pedagogies, and educator roles related to experiential learning theory (ELT) and its variants. It also reviews literature on pedagogical designs that develop entrepreneurial self-efficacy (ESE) and highlights the knowledge gap that underscores the purpose of this research.

Chapter three highlights how the Entrepreneurship Education Pedagogy Grid (EPG), the discussion device, was designed to facilitate the collection of entrepreneurship education design (EED) narratives. The initial research framework, consisting of a theoretical model and four research foci, are established as guides in this exploratory research, essential to the data collection and analysis.

Chapter four explains the Interpretative Phenomenological Analysis (IPA) methodology that has determined the research design, data collection and data analysis methods utilised in this qualitative research. A discussion on the integration of thematic analysis into the IPA methodology is complemented by a set of research activities to collect data and enhance the validity of data collection and analysis.

Chapter five explains the overall structure of the research with the outcomes from the pilot study that determined the research protocol for the main and validation studies. Data patterns of the sample are presented in tables and concise descriptions. The results are also presented.

Chapter six highlights the analysis of lower and higher Practicality pedagogies and role-transitioning between educator types and roles that facilitated ESE development.

Chapter seven details the analysis of ESE development from less and more lifelike pedagogies, peer-enhanced ESE development, curation of authentic ESE sources and development of external entrepreneurial awareness (EEA) through reflexivity.

Chapter eight analyses how ESE is developed from combinations of Practicality and Lifelikeness in pedagogies, and reflexivity that develops internal entrepreneurial awareness (IEA).

Chapter nine analyses how graduate entrepreneurs (GREs) perceive their ESE development from multiple practical and lifelike learning experiences.

Chapter ten summarises the findings of this research together with the researcher's interpretation of ESE development through pedagogical designs and details the researcher's reflexivity and research limitations.

Chapter eleven discusses the implications of the research findings and suggestions for future research.

Chapter twelve concludes with the contributions of this research.

2 LITERATURE REVIEW

Overview. The chapter commences with definitions of entrepreneurship, entrepreneurial self-efficacy (ESE) and entrepreneurship education (EE). As no current consensus exists on these definitions, the researcher designated practical definitions for the purposes of his research, based on the most contemporary findings. The known antecedents (sources) of ESE are reviewed from the perspective of entrepreneurship education design (EED). Recent research on ESE enhancing (and eroding) designs are also presented. Though pedagogies were mentioned, the precise processes on how ESE was developed (or not) remained unclear. This critical review is not a comprehensive prescription of all necessary conditions to foster graduate entrepreneurship (GRE). The final section summarizes the poorly understood aspects of the development of entrepreneurship in tertiary students, the pedagogies (sets of learning actions) and educator roles adopted in EED.

2.1 The Entrepreneur and Entrepreneurship

Entrepreneurship is defined as the process of creating something novel and valuable (Amit and Zott 2012; Hitt et al. 2011; Felin and Zenger 2009). Entrepreneurs create innovations, resulting in economic prosperity. They initiate new ventures (start-ups), launch novel products, introduce production methods, open new supply sources that restructure (disrupt) markets and industries (Schumpeter 1934; McMullan and Vesper 1987). In starting-up, entrepreneurs coordinate flexible and innovative growth in the market (private) and public sectors (Casson and Wadeson 2007).

Social entrepreneurs solve societal problems rather than generate economic value (Chell, Nicolopoulou and Karataş-Özkan 2010; Dees and Anderson 2006; Santos 2012; Chell 2007). Entrepreneurship involves “transforming ideas into enterprises that generate economic, intellectual and/or social value” (Borasi and Finnigan 2010, p.1). The researcher designated enterprising (entrepreneurial) and entrepreneurship behaviour as ontologically similar.

Entrepreneurs transformed ideas into enterprises that generated economic, intellectual, and social value (Bacq and Janssen 2011). They produced social and/or economic values (Chell 2007; Gries and Naudé 2011; Korsgaard and Anderson 2011; Audretsch, Bönte and Keilbach 2008). Entrepreneurs possessed individual-specific cognitive resources to recognise new opportunities and the competence to assemble resources to create their ventures that create superior customer value (Alvarez and Busenitz 2001), undertaking these risky investments under uncertainty (Alvarez and Barney 2005).

Entrepreneurs frequently started ventures that were more likely to fail than succeed (Busenitz 1999). Entrepreneurs reduced start-up related risks through a complex balance of organisational structures, flexible strategy, financing, competitive advantages and outsourcing, to design, manufacture and market novel products (Christensen and Raynor 2013). “Enterprising behaviour [is] doing something new and making progress in conditions of uncertainty [namely] flexibility, innovation, initiative, creativity” (Bridge 2017, p.746). Entrepreneurs transformed new knowledge into products and services, moderated by individual perceptions of risk (Shane and Venkataraman 2000). Shane, Locke, and Collins (2003) observed that entrepreneurs took calculated risks, developed high degrees of competence and assumed personal responsibility for solving problems.

2.2 Entrepreneurial Self-Efficacy (ESE)

Wood and Bandura (1989, p. 364) defined self-efficacy as “(self) beliefs in capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives ... needed to meet given situational demands.” Self-efficacy was the degree individuals believed in their capabilities to organise the required personal resources (motivation and cognition) to meet specified situational challenges (Bandura 1986b). As an example, having access to finance was insufficient to generate intention to start-up unless combined with the perceived feasibility to do so (enhanced ESE) (Nguyen 2020). ESE was the persistent self-belief in one’s ability to initiate and manage a new venture capably (Chen, Greene and Crick 1998; Li et al. 2020; Newman et al. 2019).

ESE was a strong predictor of entrepreneurial intentions (Krueger, Reilly and Carsrud 2000; Peterman and Kennedy 2003). Enhancing ESE and strengthening social supports increased interest in entrepreneurial activities in 782 business students from China, Vietnam and the Philippines (Baughn et al. 2006). Individuals did not initiate challenging tasks unless they achieved a perceived minimum level of self-efficacy (Bandura 1977b; Bandura 2012). When individuals believed that they could perform entrepreneurial tasks, entrepreneurship-specific actions occurred (Boyd and Vozikis 1994; Frese 2007). Task achievement was supported by self-efficacy (I think I can do it) and outcome expectancy (I think I can achieve good results) (Bandura 1986b; Bandura 1977a). ESE was a reliable predictor of starting-up; whereas one’s outcome expectancy predicted start-up marginally (Townsend, Busenitz and Arthurs 2010).

The higher the initial perceived self-efficacy, the longer individuals persevered through challenges before they quit (Bandura 1993; Bandura and Wood 1989). The stronger the perceived self-efficacy,

the more challenging the goals they set for themselves. Highly self-efficacious individuals strove harder to fulfil their commitments and attributed failure to things within their control rather than blaming external conditions (Bandura 1994). Individuals acquired start-up intentions when they developed resilience and ESE (Bullough, Renko and Myatt 2014).

ESE underpinned an entrepreneur's motivation, perseverance and self-knowledge to acquire the necessary skills to perform innovative activities (Carayannis and Campbell 2011). ESE increased risk-taking behaviour (Krueger and Dickson 1994), and high ESE enabled recovery from adversity, start-up failure and stressful situations (Shepherd 2003).

High ESE entrepreneurs interpreted uncertainty as opportunities to explore entrepreneurship, but not those with low ESE (Schmitt et al. 2018). The “stigma (of failure) can function as a stimulus for entrepreneurs to defy the illegitimacy of the failed business and to actively ... engage in innovative behaviours” (Simmons, Wiklund and Levie 2014, p.485). These entrepreneurs were more likely to invest more effort for longer to accomplish entrepreneurial aims, persist through failure and obstacles, and develop superior plans and strategies (Shane, Locke and Collins 2003). They were comfortable taking risks (Chen, Greene and Crick 1998). Contrastingly, low ESE individuals likely avoided challenging tasks, perceived tasks and situations as difficult beyond their capabilities, and focused instead on personal failures and negative outcomes (Trevelyan 2011). They made fewer concerted, extended efforts and considered challenges as threats (Margolis and McCabe 2006).

Klyver and Schenkel (2013) determined from the *Global Entrepreneurship Monitor* data (2002-2004 across 41 countries) that perceived access to resources (capital) enhanced ESE but financial capital (measured as household income) impacted negatively on nascent entrepreneurship entry decisions. Gender, age, household income, education level, prior entrepreneurial experience and ESE positively related to the likelihood of nascent entrepreneurship. Social capital (defined as knowing someone personally who has 'started-up' in the past two years) positively related to an individual's likelihood to venture into entrepreneurship. Furthermore, possessing ESE, regardless of one's education level, moderated having entrepreneurs in one's social network and becoming an entrepreneur. Klyver and Schenkel (2013) stated that these findings had a potential risk of reverse causation; there was a possibility that some individuals reporting high ESE were already nascent entrepreneurs rather than their high ESE caused them to become entrepreneurs.

Most extant literature agreed that ESE studies advanced the understanding of the complexities of entrepreneurship. They suggested that ESE, as well as other important factors such as access to

resources, social capital and education, contributed towards graduate entrepreneurship. This thesis examines the link between ESE development and EEDs.

2.2.1 Graduate Entrepreneurship: Personal Enablers and Barriers

Graduates who started-up possessed entrepreneurial readiness (Coduras, Saiz-Alvarez and Ruiz 2016), entrepreneurial resilience (Zamfir, Mocanu and Grigorescu 2018), entrepreneurial passion (Cardon and Kirk 2015) and entrepreneurial preparedness (Pittaway and Thorpe 2012). Coduras, Saiz-Alvarez, and Ruiz (2016) suggested that individuals with entrepreneurial readiness possessed a union of sociological, psychological and managerial-entrepreneurial traits (ESE) that enabled them to analyse situations to decide how to creatively achieve their entrepreneurial aims. Harvey and Evans (1995) defined entrepreneurial preparedness as personal motivations, aims, psychological attributes, and perceived mastery (a source of ESE), to initiate start-ups. The researcher proposes that entrepreneurial readiness and preparedness are words used to describe different aspects of ESE.

Olugbola (2017) commented that entrepreneurial readiness (ESE) depended on entrepreneurial competencies to explore opportunities, based on the available resources. He demonstrated that EE can positively moderate the relationship between competencies and entrepreneurial readiness. Personal start-up experience towards the end of an EE program increased the likelihood of student start-up (a proxy for ESE development) significantly and positively (Shirokova, Tsukanova and Morris 2018).

Among GREs from 13 European countries, entrepreneurial resilience influenced an individual's persevering continuation or return to entrepreneurship (Zamfir, Mocanu and Grigorescu 2018). These scholars identified the situational conditions supporting entrepreneurial resilience: social networks, knowledge and skills, attitudes and values. The behaviour and experience of parents and entrepreneurial learning, behaviour and work attitudes (process-related conditions) were interdependent and determined entrepreneurial resilience (Duchek 2018). ESE and entrepreneurial resilience positively influenced entrepreneurial intentions (Bullough, Renko and Myatt 2014). These scholars obtained their data from Afghanistan, Iraq, Peru, Tajikistan, the US and Finland. However, adversity or challenging contexts, for example, wars and pandemics, hampered entrepreneurship and weakened the ESE-start-up relationship (Renko, Bullough and Saeed 2021). The development of ESE remained paramount in fostering graduate entrepreneurship.

Cardon, Glauser, and Murnieks (2017) mentioned that entrepreneurial passion directed the cognition and behaviour of entrepreneurs, and energized innovation and persistence. The relationship between ESE and persistence was mediated by entrepreneurial passion for invention and starting-up (Cardon and Kirk 2015). Entrepreneurial passion influenced entrepreneurial alertness (Li et al. 2020; Tang, Kacmar and Busenitz 2012) and ESE positively and significantly (Cardon et al. 2013; Murnieks, Mosakowski and Cardon 2014). Gedeon and Valliere (2018), based on Tang, Kacmar and Busenitz (2012)'s parsimonious scale, defined informational alertness as discovering, selecting, processing, recording and communicating new information proactively from diverse sources.

In Pakistani university students, EE positively influenced ESE that stimulated entrepreneurial passion (Arshad, Farooq and Afzal 2018). These scholars suggested case studies, simulations and actual start-ups as EEDs. Recently, Li et al. (2020) demonstrated that entrepreneurial passion positively and significantly influenced entrepreneurial alertness, ESE and entrepreneurial behaviour. These scholars recommended that students participate in live projects and innovative business planning, without elaborating on how these pedagogies enhanced passion and self-belief towards entrepreneurship. Furthermore, the effects of pedagogical combinations on ESE development were not investigated. There is a lack of understanding on how EED develops the desire for starting-up in students.

In a study of US and Portuguese tertiary students, prior personal and/or family business experience and ESE predicted entrepreneurial intention more in the US than in Portugal. Possible reasons included differences in entrepreneurial capital, culture and uncertainty avoidance. The authors suggested that "having the opportunity to start a business as part of entrepreneurship education may (be) useful in not only enhancing ESE but also in entrepreneurial intentions" (Litzky et al. 2020, p.1029).

Alertness to opportunities and ESE significantly correlated with an individual's decision to become an entrepreneur (Gedeon and Valliere 2018). Postgraduates from various disciplines who experienced an intensive two-week elective course, developed alertness to shared resources and relationships in creative collaborations (Warhuus et al. 2017). Network size influenced the quantity and diversity of social capital; whereas interconnectedness and interpersonal quality supported the interchangeability of resources among network members (Hernández-Carrión, Camarero-Izquierdo and Gutiérrez-Cillán 2019). These studies did not relate an awareness of relationships (social capital) and resources (entrepreneurial capital) to ESE.

A relatively low number of GREs in the UK likely stemmed from a lack of awareness of “entrepreneurial options” (Pickernell et al. 2011, p.187) and a lack of social networks (Hegarty and Jones 2008). Moreover, the degree of economic welfare or employment opportunities and economic situations could influence GRE rates (Wennekers et al. 2005). Country regulations also determined the ease of or hindrance to starting-up (Klapper, Amit and Guillén 2010).

Al-Dajani et al. (2014) identified UK graduate enterprise services as start-up workspaces, extra-curricular activities (ECA), peer and external networks, enterprise and entrepreneurship from ‘live’ projects. Sometimes termed a ‘live’ case, this required students to engage in real life situations (problems) as the context for entrepreneurial learning (Chang and Rieple 2013; Gibb 2002b). Kumar and Shukla (2022) recommended industry interactions through ‘live’ entrepreneurial projects and developing ‘realistic’ business plans to develop proactivity and innovativeness in students. The researcher observed a lack of focus on ESE development that initiated entrepreneurial activities in these studies.

This thesis examines the various pedagogical designs and extra-curricular activities (ECA) used in EE and their effect on ESE development in entrepreneurship students. The factors influencing students to start entrepreneurship ventures are also considered.

2.2.2 Self-Concept and Entrepreneurial Self-Identity

Self-identity can be simply described as reflecting upon “Who am I?”, one’s underlying nature and self-concept. Self-concept consists of one’s beliefs and thoughts about oneself (Gecas 1982), one’s perceptions about the qualities present in oneself (Bailey 2003).

Prior entrepreneurship experience and business education established an individual’s self-perception or self-image (Verheul, Uhlaner and Thurik 2005). Personality, past behaviour, parental role models influenced entrepreneurial identities within one’s self-concept that predicted entrepreneurial behaviour. Prior entrepreneurial activities enhanced self-identity over time (Obschonka et al. 2015). Individuals could experience difficulty coping with start-up role requirements and integrating an unfamiliar entrepreneurial self-identity into one’s self-concept (Hoang and Gimeno 2010).

Entrepreneurs integrated their cultural and creative identities into their entrepreneurial self-identity through self-reflection (Werthes, Mauer and Brettel 2017).. Self-identity established the

“entrepreneurial intentions of individuals, the perceived usefulness of EE, and, indirectly, their interest in participating in entrepreneurship education courses” (Liñán, Ceresia and Bernal 2018, p.222). Entrepreneurial (for-profit, societal, innovative) self-identities influenced ESE and nascent entrepreneurial behaviour positively (Brändle et al. 2018; Hand, Iskandarova and Blackburn 2020; Murad et al. 2022). Creativity matters in innovation and entrepreneurship. Indeed, creativity has underpinned entrepreneurial motivations and positive self-concepts in technology students and GREs (Nisula and Olander 2020). Besides self-reflection, it remained unclear how learning actions, pedagogies or educator roles impacted entrepreneurial self-identity and ESE. These areas are investigated further in this thesis.

2.2.3 Creative Self-Efficacy and Innovation

Entrepreneurs either discover/create opportunities (Barreto 2012; Schumpeter 1947). The creative entrepreneur, can innovate using untested technologies and embrace the risk uncertainty of newness (Matthews and Scott 1995; McMullen and Shepherd 2006). Innovative entrepreneurs have also creatively improved existing products and services (Okpara 2007) and created new or improved business models (Trimi and Berbegal-Mirabent 2012).

Entrepreneurs have faced many obstacles that require substantial creativity to overcome (Kirzner 1999; Fillis and Rentschler 2010). Creativity in entrepreneurship was related to innovation and profit that involved combining resources to produce novel and potentially useful ideas or products (Fillis and Rentschler 2010). Resource constraints were triggers of creativity and innovation (Baker and Nelson 2005; Gibbert and Scranton 2009; Hoegl, Gibbert and Mazursky 2008; Keupp and Gassmann 2013). Indeed, entrepreneurial success frequently depended on actively challenging conventional wisdom (Amabile 1988; Rushworth 2013). Creative problem solving required expertise, information processing skills, adaptability and wisdom (Mumford 1994).

Creative Self-Efficacy (CSE) was conceived by some researchers as an integral component of overall ESE. Tierney and Farmer (2002) defined CSE as the enduring self-belief in one’s ability to produce creative outcomes. Tierney and Farmer (2002) argued that individuals became more creative as they developed higher CSE. Self-belief in one’s ability to be creative (CSE) positively influenced creativity (Jaussi, Randel and Dionne 2007). Knowledge sharing within teams enhanced the positive effect of CSE on individual creativity, specifically in the development of new ideas (Richter et al. 2012). Shahab et al. (2019) demonstrated that high ESE individuals developed and applied original

ideas. ESE partially moderated the relationship between creativity and the innovation of products and processes (Ahlin, Drnovšek and Hisrich 2014). ESE fully mediated the relationship between creativity and entrepreneurial intention (Kumar and Shukla 2022).

Scott, Leritz, and Mumford (2004) suggested action-learning industry-situated approaches in developing novel and innovative business plans. Lantu et al. (2022) reported that working at start-ups developed creativity, ethics and adaptability in students. They did not investigate these and other actions and/or pedagogies that developed creativity or ESE.

The effects of pedagogical design on opportunity identification, problem solving and creativity (types of ESE) remains unclear. Whilst not the highest priority area of this thesis, observations and emergent themes from this thesis provided some exploratory findings into our understanding of the ESE/CSE pedagogical design factors observed. Hence, appropriate literature on CSE as it relates to pedagogical design aspects of ESE is retained to assist subsequent theme development.

2.3 A Review of Entrepreneurship Education Design (EED)

For this research, entrepreneurship education (EE) is the teaching, mentoring and coaching of students to equip and encourage them to become entrepreneurs. This section reviews how course designers (CDs) have employed experiential and industry-situated (authentic) learning in their courses. Its subsections highlight recent studies that attempted to develop ESE.

Nicolaou and Shane (2009) posited that individuals were born with varying degrees of entrepreneurial characteristics. However, socialisation and education developed or impeded genetic entrepreneurial endowments (Lange et al. 2014). Klein and Bullock (2006) believed that some aspects of entrepreneurship, opportunity identification, acquiring and managing resources were teachable to some degree; while adaptability (to change), managing uncertainty, development of alertness and innovation as the pursuit of opportunities, were not. Comments by the CDs and GREs interviewed by the researcher for this thesis suggest otherwise.

Entrepreneurs learnt experientially through trials and failures (Cope 2011; Ucbasaran et al. 2013; Hayward et al. 2010). Experiential pedagogies were employed in courses that incorporated the start-up process (Lackéus and Middleton 2018; Pittaway and Cope 2007a; Politis 2005).

Research into pedagogy had focused predominantly on knowledge transfer and lacked emphasis on small group learning methods (Davidson, Major and Michaelsen 2014; Kelly 2008). A lack of understanding existed regarding the effects of experiential and authentic pedagogies and educator activities on ESE. These are detailed in the following subsections.

2.3.1 Experiential Learning in Entrepreneurship Education

Experiential learning involves learning through doing, reflection and experience. Reflexivity is the ongoing reflection of one's situation and one's practices, perspectives, emotions and motives. Entrepreneurial learning derived from start-up related pedagogies was conceptualised as experiential learning, an iterative process of activity and reflections (Pittaway and Cope 2007a).

David Kolb first formalised experiential learning theory (ELT) as four learning modes where outcomes of actions were observed and reflected on (Kolb 1976). Later, Kolb and Kolb (2005) posited two recursive relationships: firstly, concrete experience and abstract conceptualization that comprehended experiences; and secondly, reflective observation and active experimentation that converted experiences into new knowledge. Morris (2020) updated Kolb's ELT to incorporate social learning, where learners who conducted active experimentation and made critical observations (reflection) on real-life problems generated entrepreneurial knowledge.

The efficacy of guided learning was predicated on specific instructions, knowledge and critical reflective discussions (Alfieri et al. 2011; Kirschner, Sweller and Clark 2006; Mayer 2004). Reflection generated insight, understanding and awareness through identifying non-obvious or neglected information or knowledge (Bolton 2010). Reflexivity could incorporate self-assessment of one's cognition, learning and relationships (Smith 2011). Reflexivity enabled students to evaluate their ability to change markets or societies, to enact unconventional value-led business models (Tennant 2015). A capacity for reflexivity contributed to one's ability to review, interpret and understand experiences (Higgins and Elliott 2011). Furthermore, Bolton (2010, p.13) defined reflexivity as "finding strategies to question our own attitudes, thought processes, values, assumptions, prejudices and habitual actions, to strive to understand our complex roles in relation to others."

Some scholars advocated experiential learning to practice entrepreneurship and reflect on real-life (authentic) entrepreneurship events (Cope and Watts 2000; Pittaway and Cope 2007a). Reflexive or

critical pedagogy required reflection on entrepreneurial activities (Higgins, Smith and Mirza 2013; Cunliffe 2002). Reflexivity on disruptive emotion-laden learning events resulted in the use of pedagogies, actions and roles that facilitated entrepreneurial activities and subsequent reflexivity (Cope 2003).

Gemmell, Boland, and Kolb (2012) demonstrated that technology entrepreneurs utilised active experimentation to accelerate their learning. They developed, validated and refined their ideas for novel products, processes or services. These scholars suggested that activity provided experiences that augmented the entrepreneur's practical and creative intelligence and consequentially ESE. However, the reflexive processes that potentially created a sense of ESE was not investigated.

The participating student reflections after a Master of Entrepreneurship degree revealed enhanced ESE and insights into the entrepreneurial self-identity and solutions related to the feasibility of their start-up ideas (Kirkwood, Dwyer and Gray 2014). Through internships, students developed ESE from solving problems, class-based discussion and reflection (Varghese et al. 2012). It was noted that these studies did not examine any educator roles (or role-transitioning) that enabled ESE-enhancing activity and reflexivity

CDs faced challenges in creating experiential learning and real-life based content for their students to reflect on self, actions and feedback. McGuigan (2016, p.38) commented that "educators need to give up control and allow the class to be messy and chaotic. The challenge is to create a meaningful and useful experience for students in a discrete amount of time."

Pedagogy such as reflective journaling demanded a disciplined form of reflective situational awareness and self-appraisal of emotions, motives and reactions (Rodgers 2002). The combination of more reflective and more active student involvement earlier posited by Garavan and O'Connell (1994) had not been investigated.

Despite the espoused importance of reflexivity, the effects of reflective (reflexive) pedagogies and educator activities on ESE have remained under-researched. These are studied further in this thesis through its four research foci.

2.3.2 Authentic Learning in Entrepreneurship Education

Authentic learning provides students with the opportunity to apply their knowledge to real-world issues and situations, enabling them to experience more realistic learning environments. EE pedagogies that are industry and/or socially situated generate entrepreneurship experiences through the practice of entrepreneurship.

In this research, a context describes the social learning environment where students interact with educational, ESE-related and entrepreneurial resources. Contextual learning occurs in a physical or an online environment or location wherein content, pedagogy, competencies and mindset are applied (Blenker et al. 2013). In Ndou et al.'s (2018) analysis of 105 curricular and extra-curricular programs offered by ten entrepreneurship (university) centres from seven European countries, no assessment of the influences of contexts was reported.

Yu and Man (2009) mentioned that students' entrepreneurial characteristics were developed and enhanced through four types of social interactions: with team members, instructors, teachers and business stakeholders. Pittaway and Cope (2007a) advocated that learning experience should be applicable to and approximate (simulate) real-life entrepreneurship tasks. Theoretically similar but contextually different to experiential learning, authentic learning through entrepreneurship activities developed entrepreneurship competencies (Kozlinska 2011) that encompassed collaborative problem-based, community-based or work-based learning (Lee, McGuiggan and Holland 2010).

Mueller et al. (2006) wrote that self-confidence, persistence and energy were more easily acquired through community activities and solving real-life challenges beyond the classroom. Amongst Pakistani students, access to incubation resources had the strongest effect on intention which in turn increased positive attitudes and ESE (perceived control) (Ahmed et al. 2020).

Knowledge was created within social learning contexts when people interact with and learn from each other (Vygotsky 1978). Students became more entrepreneurial and increased their ESE when they improved their understanding of their entrepreneurial environment through observation and participation in activities (Kubberød and Pettersen 2017). Entrepreneurs learnt through the discovery and development of opportunities based on their experiences and the cooperation with others to start-up (Rae 2007b). Self-determined learning entailed experiencing the outcomes of one's choices, taking control and responsibility for one's learning, to identify opportunities, acquire resources to solve

problems effectively (Jones et al. 2014). The author summarises the main authentic learning principles incorporated in EED in Table 2.1.

Table 2.1: Authentic Learning in Entrepreneurship Education

Authentic Learning Models	Entrepreneurship Education Authentic Learning
1. Ill-defined activities or complex tasks, ideally completed over a period of time with real-world relevance.	Situated learning incorporated the features, conditions and emotional states of an actual social and physical environment; learners perform real world entrepreneurial tasks (Cooper and Lucas 2006). Authentic (real-world) contexts encouraged autonomy, creativity, stewardship of one’s own learning, risk-taking and learning from failures (Luthans, Rubach and Marsnik 1995), assisted by prior knowledge Shane 2000; (Karagiorgi and Symeou 2005; Merrill 2002, 2007).
2. Multiple perspectives adopted, immersive real-world or online context (Herrington, Reeves and Oliver 2007).	
3. Problem solving through collaborative knowledge construction; impossible to solve independently. Team-based learning where students worked together toward common goals in small groups (Reinl and Kelliher 2010).	Networks and resources facilitated experimenting on alternatives when planning the form, location and value proposition new ventures (Autio et al. 2018). Reinl and Kelliher (2010) integrated ELT with internal and external societal and environmental conditions, resource constraints and social networks.
4. Authentic assessment by industry with reflection within authentic contexts and tasks (Vygotsky 1978).	Entrepreneurs developed or modified their knowledge and understanding in relation to a domain or environment through reflection as a way of understanding their experiences(Cope 2003; Kayes, Kayes and Kolb 2005b; Politis 2005). Effective authentic learning involved authentic assessments that created, reinforced or updated personally relevant knowledge and competence through action and reflective learning (Stein, Isaacs and Andrews 2004).
5. Articulation of one's argument, defending one's position to enable "formation, awareness, development and refinement of thought" (Herrington and Herrington 2007, p.72).	

Cope (2005a) conceptualised entrepreneurial learning (in Figure 2.1) as situated, workplace action-based learning, combined with reflection on mistakes. This type of learning generated a personal ‘stock’ of experiences (Reuber and Fischer 1999) and developed entrepreneurial preparedness (Harvey and Evans 1995).

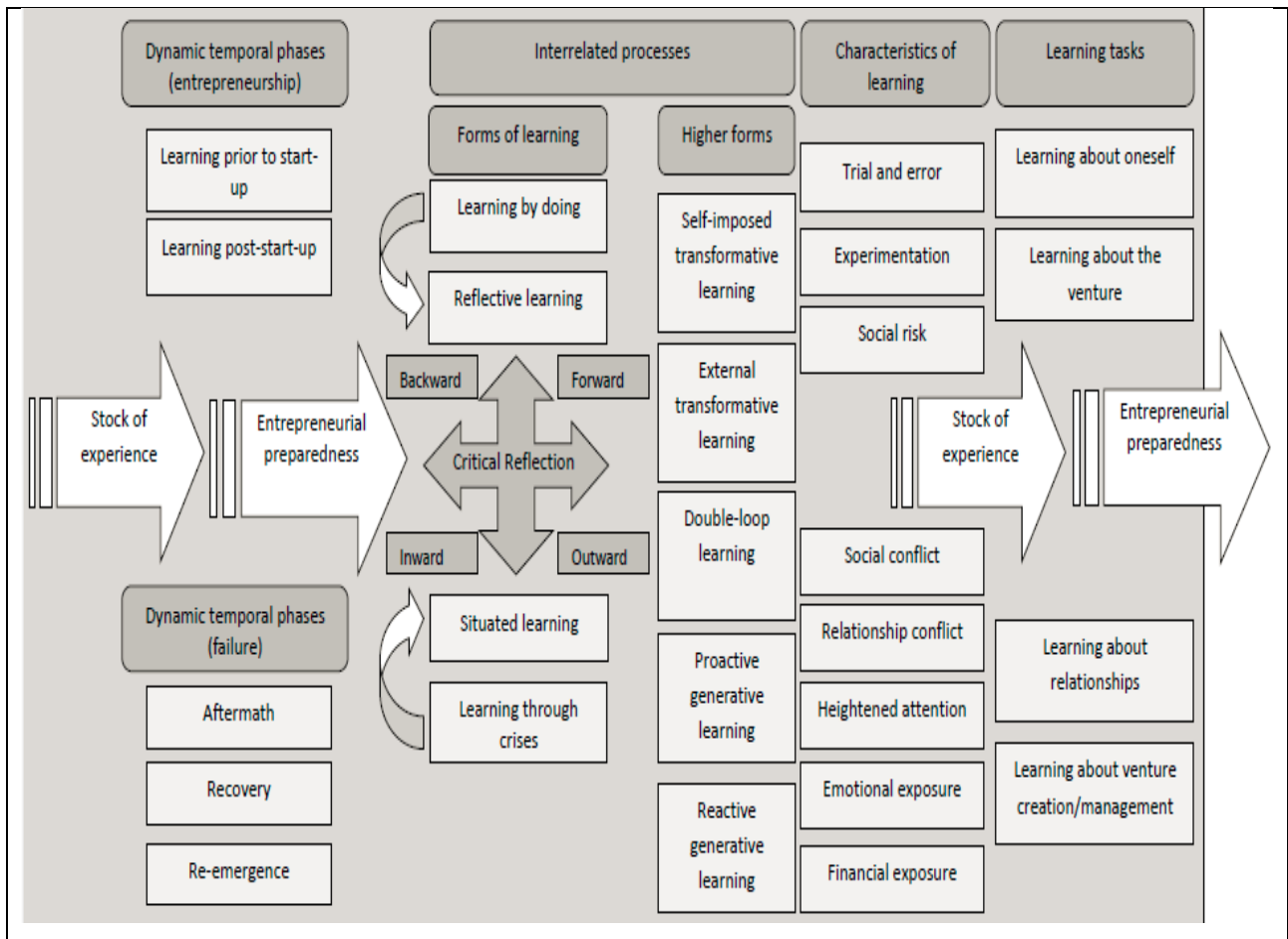


Figure 2.1: Cope's Entrepreneurial Learning Framework

Source: Cope (2005a).

Students participated in work-based, practice-based learning including internships, new product development and consultancy projects (Kozlinska 2011). In a 'live' case, students applied concepts, analysed and solved an actual entrepreneurial challenge, situated at the client's organisation (Solvoll and Haneberg 2022). Some students commercialised technologies in collaboration with industry (Blankesteyn, Bossink and Sijde 2021). In authentic contexts, cognitive apprenticeship or situated learning involved teamwork and decision-making in creating value propositions (Chan, Miller and Monroe 2009). In these examples of authentic team-based learning, CDs more likely became facilitators of learning instead of being an expert who disseminated information (Carey and Matlay 2011; Kolb et al. 2014).

A 2016 survey of EE programs in the top 25 US universities, assessed as 'best' for entrepreneurship by industry journals, highlighted industry-situated experiential pedagogies. Students initiated for-profit or not-for-profit new ventures, participated in entrepreneurial venture internships, incubator-

based or consultancy projects. Learning experiences included managing uncertainty and ambiguity, mentored by entrepreneurs, entrepreneurial collaboration, value exchanges with customers and suppliers, reflecting on achievement and failure, and discovering the meaning of being entrepreneurial (Mandel and Noyes 2016). Unfortunately, this US survey of entrepreneurship did not include a dedicated measurement of ESE development. This was despite the widespread advocacy for authentic learning. The processes of ESE-enabling entrepreneurial activities through pedagogies (our research gap) and thus, the roles in authentic or lifelike contexts in ESE development, remain under-researched.

Some start-up (business) planning courses have required students to develop business ideas and transform them into commercially viable propositions, and even into actual student initiated/led businesses (Wheadon and Duval-Couetil 2014). These student-initiated new ventures were sometimes incubator supported (Zotov et al. 2019; Hytti and O'Gorman 2004). Mukesh, Pillai, and Mamman (2020) demonstrated ESE enhancement from such an 'authentic' team-based entrepreneurship course, where students started small businesses, negotiated and acquired resources, sold products or services, over a ten-week period. This course required weekly progress presentations, feedback and reflection. These studies did not examine the effects of educator roles and learning actions undertaken by students upon ESE. Mukesh and colleagues did not evaluate the course at a later timeframe for enduring ESE or even business survival. The ten-week timeframe allowed within the course structure (possibly) not permitting sufficient trading to occur to lead to enduring changes in ESE.

Chen and Shen (2012) observed that internships were more successful than other pedagogies at preparing students for entrepreneurship. However, some students perceived unpaid internships as a mandatory annoyance to gain industry experience (Jacobson and Shade 2018).

These studies did not investigate the pedagogies and the people in industry contexts that assisted in developing ESE. Only Botha and Bignotti (2016) reported ESE enhancements in South African students through internships. However, they observed that a lack of mentors resulted a lack of internships in EE. Overall, it remained unclear how authentic learning enhanced ESE. Authentic learning was mentioned often by the interviewees in this thesis' research, and the results were incorporated into the research findings section.

2.3.3 Education Designs Enhancing Entrepreneurial Self-Efficacy

Karlsson and Moberg (2013) reported ESE enhancements from a year-long entrepreneurship master program that utilised entrepreneurial projects, business plan competitions, personal business mentors, guest speakers and business plan creation, complemented by traditional lectures and simulations. Piperopoulos and Dimov (2015) demonstrated that both practical and theoretical learning influenced the relationship between ESE and entrepreneurial intentions. However, no specific pedagogies were assessed in these studies and how they enhanced ESE. A learning-by doing-approach for ESE enhancement (Maritz and Brown 2013) was not attributed to any specific action.

ESE partially mediated in the relationship between formal education, entrepreneurial mindset and creativity on entrepreneurial intention (Wang et al. 2021). These scholars recommended that universities develop the entrepreneurial mindset through field expertise in the EE syllabus instead of focusing on classroom teaching, and through incubators and financial supports for student start-ups. Burnette et al. (2020, p.878) compared a knowledge-based design with growth mindset “intervention” projects experienced by undergraduates. The latter pedagogical design enhanced ESE and task persistence. Schenkel, D'Souza, and Braun (2014) demonstrated that ESE was more positively correlated to commitment towards entrepreneurship when students experienced ‘live’, not traditional, case studies. Over a year using a randomized control group design, Gielnik et al. (2015) discovered that action-based entrepreneurship training positively affected action-regulatory conditions namely entrepreneurial goal intentions, ESE, action planning and knowledge.

Malebana and Swanepoel (2014) measured the ESE of graduating commerce students from two rural South African universities. Students experiencing the entire EE program (three semesters) acquired more ESE compared to students with six months (one semester) of EE experiences. However, no pedagogies were investigated in the study. Increased exposure to pedagogies and the number of courses completed increased ESE (Kolvereid and Moen 1997; Orpen 1999). These findings suggested the need to increase the timeframe for exposure to EE to allow students sufficient time to develop ESE. Contrastingly, the findings from a four day, 40-hours contact-time ‘Enterprisers Program’ revealed positive development in innovation self-efficacy (Barakat, Boddington and Vyakarnam 2014).

Business education had a positive effect on perceived feasibility and ESE; feasibility also positively affected entrepreneurial intention (Deliana, Rahardjo and Afriyanti 2019). ESE partially mediated the

relationship between EE and self-employment intentions (Kisubi, Bonuke and Korir 2021). The ESE of Lebanese business undergraduates increased after completing an entrepreneurship course relative to those that did not complete it. In this study, Mozahem and Adlouni (2021), using the Gedeon and Valliere's (2018) ESE scale, discovered the largest ESE gain was in financial management, while the smallest gain was in self-management. Overall, the content in entrepreneurship courses was well-documented. However, the effects of specific pedagogies and educator roles on ESE enhancements were unclear. An MSc program in the Netherlands held three mandatory EE courses utilising lectures and case methods, two more mandatory courses involving active learning and field study, and one elective course utilising a combination of mentoring or guided learning, experimenting and pitches. The postgraduates developed in perceived behavioural control (a form of ESE) and positive perceptions towards entrepreneurship (Rauch and Hulsink 2015). Gachanja, Nganga, and Maina (2016) demonstrated that a combination of project-based, team-based and blended learning, interviews and mentoring could enhance ESE. Engineering students who completed elective courses with 'hands-on' experiences (related to market analysis, technology commercialization, business communication or internships within start-up companies) reported higher levels of employability and ESE (Duval-Couetil, Reed-Rhoads and Haghghi 2012).

Despite multiple authors recommending experiential and authentic pedagogies for improving entrepreneurship students' ESE, there is insufficient information about the specific pedagogies, educator activities and the role of reflexivity on learning experiences. This thesis researches these areas in detail.

2.3.4 Education Designs Eroding Entrepreneurial Self-Efficacy

Wilson et al. (2009) advocated investigations into how perceived beliefs regarding personal capabilities (ESE) changed due to course content and pedagogy. Indeed, contrary to expectations, Cox, Mueller, and Moss (2002) reported lower ESE in a post EE course group of US undergraduates than the pre-course group. They suggested that a course containing efficacy-enhancing elements, intended to develop awareness of entrepreneurship among students with little or no prior entrepreneurial exposure, might decrease their ESE. It was also possible that these students evaluated the challenges of entrepreneurship as 'greater than expected' and decided against entrepreneurship. Unfortunately, perceived self-efficacy was also easily undermined in individuals who experienced only quick successes and then naively expected repeating similar quick results that did not eventuate.

Indeed, setbacks and challenges when pursuing one's goals were useful in teaching that success frequently requires sustained effort (Bandura 1989).

In a study by Zieba and Golik (2018) of 72 students in a three year entrepreneurship program in Poland, they discovered that some graduates started the course with existing moderate levels of ESE, while others did not. Of those with moderate ESE, 77% of them maintained their ESE levels while the remainder lowered their ESE over the three-year period. Those with enduring ESE were much more likely to have business ideas. Only one-third of the non-ESE group gained ESE during their studies.

In a problem-based business-planning course of 18 students, Bell, Dearman, and Wilbanks (2015) discovered that at the end of the course, more entrepreneurial knowledge was acquired and students' ESE increased but more students became averse to entrepreneurship. They questioned whether the educator's personality might affect student ESE, and suggested further research into the effect of problem-based learning compared to other pedagogies.

Students at Croatia University demonstrated a higher propensity for entrepreneurial behaviour and a higher probability of starting their own business when they perceived greater ESE. They reported that curriculum-based learning did not significantly improve their ESE as compared with community-based experiences from student associations and clubs (ECA). Sedlan-Koenig suggested that ESE could be enhanced through pedagogies, and "in order to influence entrepreneurial behaviour it is necessary to make better use of experience-based learning and supplement university courses with components of informal and/or non-formal education" (Sedlan-Koenig 2016, p.311). She recommended that students participate more in communities of practice such as incubators, spin-offs and community service projects.

ESE in 15 South African tertiary students did not increase after one semester of traditional pedagogies such as literature review and closed book exams (Lebusa 2011). Lebusa agreed with Cooper, Bottomley, and Gordon (2004) that student participation in authentic EE (such as vicarious learning from entrepreneurs and projects involving real businesses) should help in enhancing ESE.

It appears that designing for ESE development is complex and ESE outcome is unpredictable. In addition, the extant studies have not fully examined the specific aspects influencing ESE development or erosion. The reasons for ESE erosion remain inconclusive due to a lack of research. Possible reasons include a lack of experiential and authentic pedagogies, a lack of confidence-building

activities and insufficient use of non-curriculum learning opportunities. This thesis explores this further via the design of pedagogies and learning opportunities on ESE development.

2.4 Sources of Entrepreneurial Self-Efficacy

Bandura (2000) posited that mastery experiences, observational vicarious learning (VL), social persuasion, and self-assessments of emotional arousal developed self-efficacy. Boyd and Vozikis (1994) first established a set of propositions with these four ESE sources based on Scherer et al.'s (1989) role modelling postulations, to investigate entrepreneurial career preferences. These ESE sources influenced strategic decision-making in entrepreneurs positively (Forbes 2005).

Segal, Schoenfeld, and Borgia (2007) conducted an initial online survey based on the perceptions of 34 entrepreneurship educators to rank which of 20 pedagogies best enhanced four sources of students' ESE. These sources were mastery, social persuasion, VL and stimulated emotions. Internship and consulting projects were perceived as the most effective pedagogies to develop mastery. The most effective VL sources were identified as internship and entrepreneur guest speakers. Mentoring and internships were seen to provide the most social persuasion to students. Role play and starting-up were considered the most effective in helping students develop positive emotions. The survey did not research the reasons for the results obtained.

Sherman, Sebor, and Digman (2008) advocated for an experiential design where students undergo the process of starting-up to gain mastery experiences, social persuasion, model the successes of others (through VL) and experience the emotional changes associated with entrepreneurship. Other sources of ESE are people such as educators, coaches, mentors, peers, family members and catalysts.

2.4.1 Entrepreneurial Self-Efficacy Development: Mastery Experiences

Mastery experiences, including experiences of perceived success, are based on past personal achievement and/or successful performance (Bandura 1977a; Lans et al. 2010). Such experiences provided the most authentic evidence of the wherewithal one can marshal to succeed on subsequent tasks (Bandura 1997). Perceptions of task mastery stimulated feelings of competence and confidence in superior performance on similar tasks (Bandura 1977a, 1982). Mastery experiences facilitated an individual's perception of start-up feasibility (Krueger and Brazeal 1994). Krueger and Brazeal

(1994, p.97) emphasised that “promoting self-efficacy is more than teaching competencies; students and trainees must fully internalise those competencies through perceived mastery.” In this research, mastery is synonymous with ability, capability or competencies (types of ESE).

Mastery experiences, when perceived as authentic, strengthened individual self-efficacy, enhanced through experiences of hard work against obstacles over time (Barr et al. 2009; Schunk 1989; Van Dinther et al. 2014; Bandura 2000).

Mastery accrued after overcoming problems or performing well on challenging tasks (Gist 1989), especially when others find the problem challenging (Bandura 1982). Success built up self-efficacy whereas failure undermined it, especially if failures occurred before self-efficacy was firmly established (Bandura 1982, 1997). "Development of resilient self-efficacy requires some experience in mastering difficulties through perseverant effort" (Bandura 1989, p.1179).

Chandler and Jansen (1997) earlier demonstrated that repeated performance accomplishments (mastery) enhanced ESE. Simulated or actual entrepreneurship (Wilson, Kickul and Marlino 2007) or internships (Lucas et al. 2009) were important in developing students’ perceived mastery. The use of mastery experiences in entrepreneurship courses is further explored in this thesis.

2.4.2 Entrepreneurial Self-Efficacy Development: Social Persuasion

Social or verbal persuasion as feedback or instructions supported and encouraged an individual’s ability to perform a nominated task (Bandura 1977a). Feedback was a double-edged sword. Feedback valence (the motivation to achieve and learn) depended on whether the feedback was positive or negative (Kluger and DeNisi 1996). Supportive messages augmented learners’ effort and self-confidence, when supplemented by conditions and instruction that favoured success (Usher and Pajares 2006b). Negative ‘persuasion’ conversely undermined self-efficacy (Hattie and Timperley 2007).

Students obtained social persuasion as they listened and interacted with entrepreneurs as guest-speakers (Chen, Greene and Crick 1998). The effectiveness of social persuasion depended on the credibility, trustworthiness, and expertise of the persuader (Bandura 1977a, 1986a). Social persuasion from parents, teachers, and peers whom individuals trusted, bolstered their self-belief (Usher and Pajares 2008). Knowledgeable and credible role models have the potential to guide individuals

towards achieving success (Bandura 1997, 2008; Erikson 1980). Feedback from realistic, positive, encouraging and reassuring sources were more likely to lead to greater efforts to implement their chosen tasks (Gist 1987; Wood and Bandura 1989).

Self-assessed emotions associated with social persuasion enhanced or eroded ESE. The obvious risk from overtly positive feedback is that self-efficacy may be increased to unrealistic levels (Boyd and Vozikis 1994). Sub-optimal persuasion (encouragement without specific instructions on how to achieve success), though intended to bolster self-efficacy, precipitously annulled it from disappointing results from one's effort (Bandura 1994). Both persuasive specific performance feedback and discussions provided information regarding mastery in performing a task (Gist and Mitchell 1992).

Blended personal and peer group coaching supported mastery enhancement. Kutzhanova, Lyons, and Lichtenstein (2009) defined personal coaching as preparing entrepreneurs for change through a process of self-realisation, assisting reflection, providing feedback and challenging assumptions. Group coaching assisted the entrepreneurial learning process by building social capital that provided moral support, advice, multiple perspectives on issues and innovative problem solving.

2.4.3 Entrepreneurial Self-Efficacy Development: Vicarious Learning

Vicarious learning (VL) or role modelling is learning through observing others (BarNir, Watson and Hutchins 2011; Bosma et al. 2012; Scherer et al. 1989; Zozimo, Jack and Hamilton 2017; Hoover, Giambatista and Belkin 2012; Lefebvre and Loué 2008). Students learned about themselves, their self-identities and entrepreneurship as they reflected on their observations (VL) and entrepreneurial experiences (Cope 2005a; Rae 2005; Taylor and Thorpe 2004).

One could observe the actions and outcomes of others before participating in experiential learning (Hoover, Giambatista and Belkin 2012; Bandura 1977a; Gist and Mitchell 1992; Kanfer and Ackerman 1989). VL experiences influenced self-efficacy through comparative social 'inference': observed patterns (of knowledge and skill) in others, constituting benchmarks to assess one's future performance (Bandura 1982; Schunk 1990; Bandura 1977b).

Exposure to role models strengthened ESE (Bosma et al. 2012; Krueger, Reilly and Carsrud 2000; Scherer et al. 1989; Laviolette, Lefebvre and Brunel 2012). The more mastery entrepreneurs gained,

and the more they learnt vicariously from other successful entrepreneurs, the more likely they believed that they could perform competently and overcome environmental obstacles (Stajkovic and Luthans 1998a; Bandura 2008; Gartner 1984). Trainees viewed videos of successful entrepreneurs in the same challenging context and then imitated their performance step-by-step (Luthans and Ibrayeva 2006). The role model's persistent effort and success enhanced the observer's self-belief that he/she (too) possessed the capabilities to succeed in comparable activities (Bandura 1995; Schunk 1989).

In situations where no absolute evaluation criteria of competency existed, individuals gauged their capabilities relative to the performance of others; namely, students would compare themselves to specific individuals such as classmates (peers) (Usher and Pajares 2009). Successful role models generated positive attitudes and emotions towards entrepreneurship in 276 French entrepreneurship students. Additionally, fictional and unsuccessful role models also positively enhanced ESE and entrepreneurial intentions (Zozimo, Jack and Hamilton 2017; Laviolette, Lefebvre and Brunel 2012).

Elective courses likely attracted like-minded students who were interested in entrepreneurship (von Graevenitz, Harhoff and Weber 2010) that could facilitate peer observational learning (Gordon, Hamilton and Jack 2012; Zozimo, Jack and Hamilton 2017). Peers and sources of advice imparted VL through social networks (Rasmussen and Sørheim 2006; Ravasi and Turati 2005). Entrepreneurs learnt how to innovate by observing “competent models (parents and mentors but not academic models)” (Abecassis-Moedas, Sguera and Ettlé 2016, p.2840). Individuals exposed to entrepreneurial peers learnt vicariously about opportunities that enabled starting-up (Kacperczyk 2013). Exposure to peers reinforced ESE and strengthened the relationship between creativity and entrepreneurial intention in tertiary students (Bellò, Mattana and Loi 2018).

Guest speakers sharing about entrepreneurship, business plan competitions (Wilbanks 2015), and entrepreneurship clubs (Pittaway et al. 2015) facilitated VL. Individuals developed positive views (attitudes) on entrepreneurship in society through greater exposure to entrepreneurial models through personal, family and external networks (Collins, Hanges and Locke 2004). Children modelled after their parental entrepreneurial models (Kickul et al. 2008). Entrepreneurial parents were potent sources of entrepreneurship knowledge and socialization (Laspita et al. 2012). By observing and interacting with their self-employed parents, they benefited from an ‘intergenerational’ transfer of business and industry knowledge and a foundational understanding of the opportunities and challenges of an entrepreneurial career (Eesley and Wang 2017).

Case studies exposed students to expert performances and process modelling - how an actual practitioner behaved in real-life situations (Herrington and Herrington 2007). Similar to cases, guest speakers shared about new venture creation experiences (Laviolette and Lefebvre 2008). Successful role models reinforced model identification that generated favourable attitudes toward the message, thus enhancing self-efficacy and entrepreneurial intention. Reflection on success stories from entrepreneurs constituted practical information (Kassean et al. 2015).

Unsuccessful entrepreneurial models also reinforced the ESE-intention relationship positively, as students critiqued and pondered on a diversity of creative business models (Laviolette, Lefebvre and Brunel 2012). Observing peer entrepreneurs who were not educators resulted in innovation (Abecassis-Moedas, Sguera and Etlie 2016). Students who reflected on entrepreneurship failures and relationships formulated realistic perceptions of entrepreneurship. They subsequently improved their adaptability, experimentation and access to start-up resources without them having to experience it themselves (Valenzuela et al. 2020a). This study did not examine the pedagogies and roles that enabled critical reflection on social and entrepreneurial capital that developed start-ups. These students learned vicariously from failure, appreciated the trials and errors involved in entrepreneurship.

This thesis exposes VL as an important aspect of EE that is often facilitated using guest speakers and the students' observation of their peers.

2.4.4 Entrepreneurial Self-Efficacy Development: Self-Assessed Emotions

Positive and negative emotions were validated as distinct ESE sources (Adebusuyi, Adebusuyi and Kolade 2022). Positive emotions (positivity) fostered high motivation, learning and countered negative emotions (negativity), for example, problem-solving frustration (Du Boulay et al. 2010) or feeling of difficulty (Efklides 2009). Positivity enhanced self-efficacy whereas low-spirited emotions (anxiety, fatigue and stress) diminished self-efficacy (Kavanagh and Bower 1985). Venture initiation depended on positive self-perceptions, outcome desirability, motivation, proposal feasibility and ESE (Fitzsimmons and Douglas 2011; Guerrero, Rialp and Urbano 2008; Krueger 1993). “Strong identification with entrepreneurship activities engendered ... positive intense feelings” (Cardon and Kirk 2015, p.1028).

Self-efficacy stimulated emotions and influenced one's thinking and actions. There were less emotions aroused and higher performance when one had a higher level of self-efficacy (Bandura 1982; Wood and Bandura 1989). The intensity of the emotional or physical reactions was not relevant or significant but rather how emotions were perceived and interpreted (Bandura 1995). Perceptions of mastery were influenced by one's emotional reactions experienced during challenging situations (Bandura 1989). Opportunities, crises or provocations were potentially valuable learning opportunities for the entrepreneur (Cope 2003; Hjorth 2011). The realities of operating a start-up venture might generate negativity that dampened ESE (Cox, Mueller and Moss 2002). However, ESE might strengthen perseverance through the challenges of start-up (Hechavarria, Renko and Matthews 2012).

Negativity generated by failure could adversely affect learning as entrepreneurs could dwell on the negative emotions instead of processing feedback. Despite the opportunity to learn from processing information related to failure, the negativity from grief might be exacerbated when entrepreneurs received too much feedback (Shepherd 2003). Based on *Global Entrepreneurship Monitor* data from Iran, Farashah (2013) demonstrated that desirability for entrepreneurial careers predicated on fear of failure, entrepreneurs' status in society, and ESE.

Politis and Gabrielsson (2007) discovered that the experience of closing down a failed start-up was strongly associated with a more positive attitude towards failure. Entrepreneurs who had prior successful businesses were more competent in separating themselves from the "powerful emotional shackles of failure" than those who had not previously owned a successful business (Cope 2011, p.614). Educators perceived class exercises and role play as effective in developing positive emotions when encountering challenges (Segal, Schoenfeld and Borgia 2007; Van Gelderen, Kautonen and Fink 2015). Interviewing, researching and reflecting on the experiences of entrepreneurs enabled learning from failure, without experiencing the emotions of failure (Valenzuela et al. 2020b)

Mezirow (1997) proposed emotive transformative learning. This pedagogical design involved learning-by-doing, followed by reflexivity (Cope 2003; Mälkki 2012) on a "disorienting dilemma, a real-life crisis, or other, more cumulative set of instances [which] arouse discontent ..." (Mälkki 2010, p.55). Negative critical learning events were valuable in gaining both confidence and knowledge, through reflection on the consequences of one's actions and actively ensuring that such events did not reoccur (Cope 2005a). "Any major challenge to an established perspective could result in a transformation. These challenges [though] painful, often called into question deeply held personal values and threaten our very sense of self" (Burbules 2000, p.168). Emotion-laden events were linked

to the formation of entrepreneurial identity, increased ESE, tolerance for ambiguity and self-insight (Lackéus 2014).

Simulations in the EE domain, for example, a production-trade game (Memar, Sundström and Larsson 2021), developed entrepreneurial behaviours (Hauge et al. 2013). Simulations enabled repetitive practice, learning-through-play and situated reflection on emotional outcomes (Fox, Pittaway and Uzuegbunam 2018). However, successfully simulating the emotional dimensions of entrepreneurship within an EE pedagogy in its entirety was challenging (Pittaway and Cope 2007b).

Mentees claimed to have developed more from emotions-based learning than cognitive forms of learning (St-Jean and Audet 2009a). Indeed, positivity motivated seeking and achieving new opportunities, and countering problems that arose (Parker, Bindl and Strauss 2010). Failure significantly decreased task-specific self-efficacy (Smith et al. 2006). Entrepreneurs could learn to accept feedback and challenges (Bell 2015; Florin, Karri and Rossiter 2007; Prabhu et al. 2012), learn from failure (Shepherd, Patzelt and Wolfe 2011) and be unthreatened by negative emotions such as negative self-talk or by comparison to the success of others (Kolb and Kolb 2009; Nelson 1996).

A study of Estonian, Finnish and Namibian entrepreneurship undergraduates showed that the main sources of their emotions were from new learning environments, collaborative learning and challenging tasks. These included dealing with uncertainty, time constraints and overcoming competence deficiencies (Arpiainen et al. 2013). However, the study did not connect these emotions to ESE development. Arora, Haynie, and Laurence (2013) reported that high-efficacy people were likely to view emotions as an invigorating catalyst to perform. Vice versa, those plagued by self-doubts regarded their feelings as debilitating.

In a UK study, 75 non-business students who completed an entrepreneurship skills and thinking development module reported increased "self-confidence, determination, self-belief, drive to succeed by hard work and the acceptance of possible failures" (Vij and Ball 2010, p.86). Although most students derived a positive experience when creating business plans for their proposed enterprises, it remained unclear how many of them actually started new ventures. Furthermore, this study did not investigate the specific emotions or the pedagogies that developed ESE.

Baluku et al. (2019) demonstrated that undergraduates from both developing and developed countries developed ESE through mentoring and optimism. The interactions between cognitive, motivational

and emotional self-regulating processes in EE remained under-researched (Kyrö 2008; Ruohotie and Koiranen 2000).

Research for this thesis showed that students’ emotions affected their resilience and ability to recover from setbacks and their ESE development.

2.4.5 Entrepreneurial Self-Efficacy Development: Educator Roles and Catalysts

Kolb et al. (2014) proposed (in Figure 2.2) that educators coached, inspired, evaluated, imparted expertise and facilitated reflection. Coaches could be problem-solvers and tutors who counselled, listened to and asked open-ended questions to their mentees to establish aims (Eleyan and Eleyan 2011). Within the EE domain, guest speakers counselled, provided psychological and emotional support and social persuasion (Malebana and Swanepoel 2014). Advisers, guides, teachers, coaches, models and counsellors supported the endeavours of entrepreneurs (Abiddin and Turiman 2009).

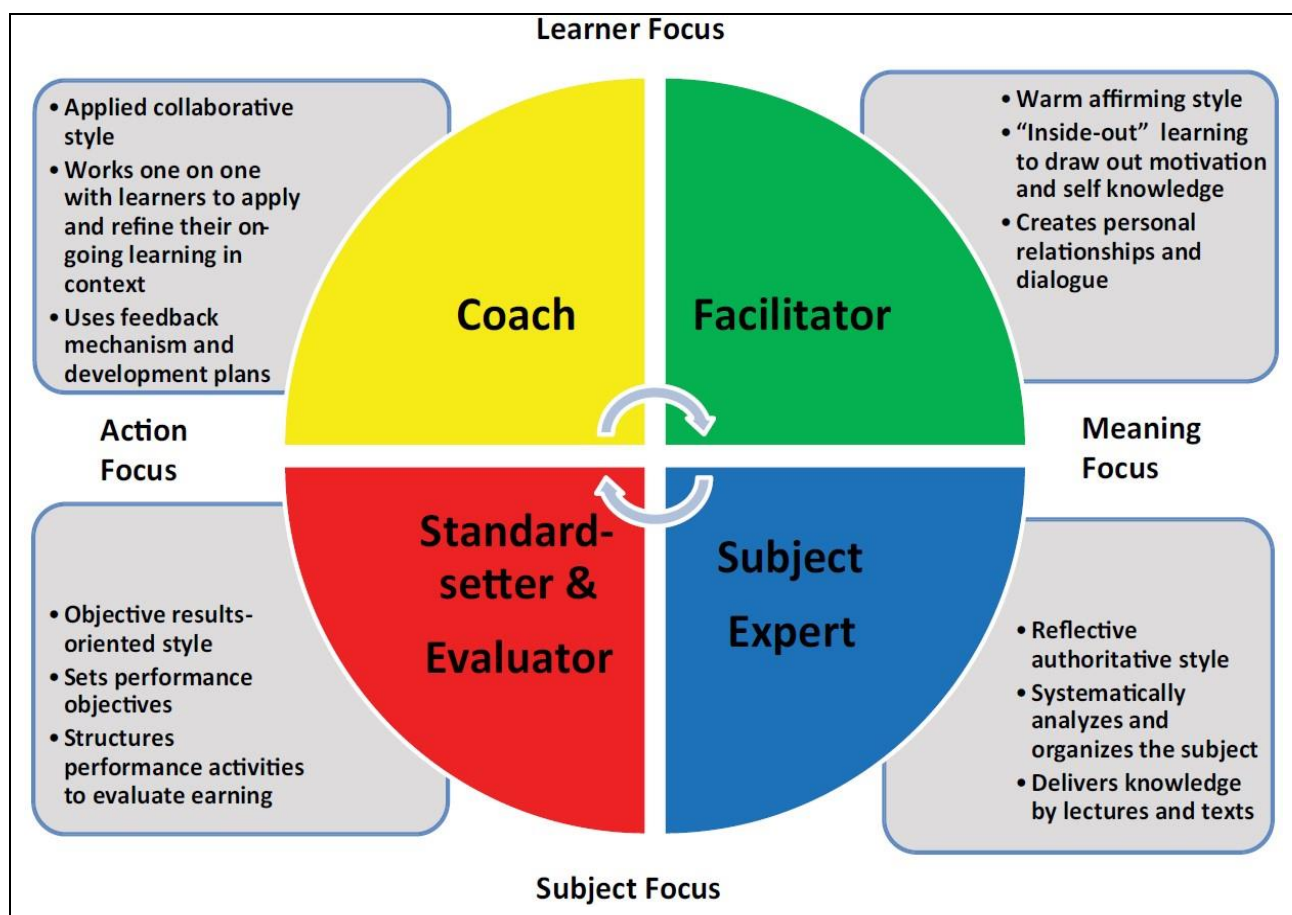


Figure 2.2: Kolb et al.'s Educator's Roles

Source: Kolb et al. (2014)

Coaching assisted entrepreneurs in achieving success through multiple-role competence development to initiate new ventures. This form of entrepreneurial group and peer coaching assessed the entrepreneurial, managerial, technical and personal mastery within individuals with defined levels of skill (Lichtenstein and Lyons 2001). A coach developed and honed a specific skill in trainees. Coaching was not industry specific. Coaches evaluated performance and identified, resolved and monitored specific weaknesses in individuals. With access to advice, coaching and training developed start-up skills and knowledge (Van Burg et al. 2008).

Mentors imparted social persuasion that improved decision-making, opportunity recognition and networking skills (Bisk 2002; St-Jean and Audet 2012) Mentors provided guidance and support through difficult situations, enhancing self-confidence (Schunk and Mullen 2013; Fletcher 2000). Social persuasion from mentors related to 'situated' psychological encouragements and feedback as part of skill development (St-Jean 2011a). A mentee's self-belief in his/her ability to recognize opportunities increased as he/she learned more from a mentor (St-Jean and Tremblay 2011b; Sullivan 2000). Direct feedback on performance (persuasion) strengthened one's self-efficacy and provided opportunities for mastery experiences (Bandura 1977a; Gist and Mitchell 1992; Bandura 1986a).

St-Jean and Mathieu (2015) reported a negative effect of mentoring on ESE, mediating the relationship between satisfaction of being an entrepreneur and remaining employed. They attributed this result to an awareness regarding the limitations of their initial business project. Regarding ESE development, St-Jean and Mathieu (2015) recommended peer mentors to assist in the reflection of authentic entrepreneurial experiences for developing exploratory, creative and pragmatic knowledge. Mentoring assisted novice entrepreneurs in adjusting their self-efficacy in opportunity recognition to a more realistic level(St-Jean and Tremblay 2020). Women peer mentors reported increased ESE and in problem-solving and diversity awareness in engineering and computer science (IT) programs (Elliott, Mavriplis and Anis 2020). However, no delineation between ESE-enhancing actions by mentors or coaches was made.

In a US 'blended' online and face-to-face counselling program, 11,000 volunteer coaches provided small business mentoring and advice (Evans and Volery 2001). These scholars defined counselling as imparting 'how-to' guidance and assisting inexperienced entrepreneurs to discover customized solutions to their challenges. The counsellor intervened by structuring the problem and worked with the entrepreneur to discover strategies and suitable solutions. "The counsellor can become a mentor if he/ she works with the entrepreneur on an on-going basis, accompanying the entrepreneur in the

start-up process and further, by sharing his or her experience, providing guidance, and often introducing the entrepreneur to his/her business contacts”(Evans and Volery 2001, p.338).

Li, Li, and Du (2016) recommended that mentors, guides and counsellors help students' innovation activities, real-life operations and entrepreneurship to foster their entrepreneurial spirit and abilities. They did not relate these activities to ESE development. Evans and Volery (2001) indicated a switch from counsellor to mentor but did not investigate its implications on experiential learning (activity and reflection), and ESE development.

Mentors who were experienced entrepreneurs provided more holistic personal and professional development, support and guidance (St-Jean and Audet 2012). Mentoring ‘interventions’ focused on learning-to-learn rather than imposing solutions (Deakins and Freel 1998). Mentors guided entrepreneurs from start-up initiation to the product development and growth phases (Memon et al. 2015). Authors who recommended a less instruction-based mentoring for entrepreneurs, with more autonomy to increase their self-confidence, included Evans and Volery (2001); Cull (2006); McAdam and Marlow (2007).

Mentors could adopt the roles of leader, coach, teacher, trainer, advisor, tutor and friend (Kent, Dennis and Tanton 2003). Mentors facilitated experiential learning and guided reflection (Lee 2007). Mentees also benefited from personal and professional development (Sijde and Weijman 2013). Over five years, real entrepreneurs (mentors) imparted social persuasion in interpersonal interactions, specifically in the areas of business launching and fund-raising (Lefebvre and Redien-Collot 2013). These studies indicated that mentors performed various educator roles that imparted the social persuasion (instruction, guidance, advice and feedback) and were role models to aspiring entrepreneurs (VL).

Jones, Penaluna, and Penaluna (2019) posited the concept of ‘Academagogy’ where educators led students to experience pedagogy (educator-supported learning), andragogy (self-directed learning) and heutagogy (student- led learning with mutually negotiated learning aims) (Jones et al. 2014).

Table 2.2 shows educators choosing between the teacher, consultant or student-focused activities depending on the learning objectives (Wraae, Brush and Nikou 2022). These scholars may have implied switching between educator roles but the process of role-transitioning was not investigated.

Table 2.2: Wraae, Brush and Nikou's Perceived Learning Objectives and Foci

Perceptions	Teacher-focused	Network-focused	Student-focused
Perception of educator role	<ul style="list-style-type: none"> - Is the center of attention- Is responsible for a wide range of activities from designing the framework to asking questions to supervision and to get the process going 	<ul style="list-style-type: none"> - Considered to be more a consultant or a facilitator - Their main role is to guide and provide support for the student 	<ul style="list-style-type: none"> - Their role is defined based on the students' demand and expectations - Students have the central role
Perception of student role	<ul style="list-style-type: none"> - Must be independent - Must be active and take a leading role - Learn about life and business - They need to be critical - They must be opportunity seeker 	<ul style="list-style-type: none"> - Person with responsibilities and having an obligation - Contributing to business community and sets framework 	<ul style="list-style-type: none"> - They need to be open-minded - They have to take responsibility for their own learning - Should have entrepreneurial mindset - They are at the center - They are the judges - Innovation management - Student success - Student satisfaction
Perception of learning objectives	<ul style="list-style-type: none"> - Gaining knowledge for business life - Passing the exam- Teaching students to learn and do something about public sector - To create someone with entrepreneurial mindset 	<ul style="list-style-type: none"> - See people grow Teaching different skills and mindset - Skill development 	<ul style="list-style-type: none"> - Innovation management - Student success - Student satisfaction
Core values and emphasis	<ul style="list-style-type: none"> - Values tradition, discipline, and equality - Emphasis on curriculum, learning, knowledge, and processes 	<ul style="list-style-type: none"> - Values achievement, student success, creativity - Emphasis on processes, relationships, and role development 	<ul style="list-style-type: none"> - Values environment, equality, creativity, and peace - Emphasis on learning, innovation, facilitation
Background information	(Female oriented, below 50, mostly business and having teaching experiences)	(Male oriented, below 50, mostly business and having both teaching and entrepreneurial experiences)	(Mixed gender, below 50, business and having both teaching and entrepreneurial experiences)

Source: Wraae, Brush, and Nikou (2022)

Gimmon (2014) discovered that twice the number of students who had mentors for at least one semester reported significant enhancements in their personal entrepreneurial abilities (perceived mastery) and higher ESE than those that did not. St-Jean, Radu-Lefebvre, and Mathieu (2018) reported optimum ESE development when a group of mentees perceived high similarities between their mentor and themselves and perceived their mastery as unchanging. Another group of mentees, who perceived their mastery as changeable, experienced ESE development with less mentoring. The

latter group reported a decrease of ESE to the same level of ESE as the former group. St-Jean, Radu-Lefebvre, and Mathieu (2018) reasoned that the former group sought feedback and validation to achieve more than what their perceived competencies could achieve; whereas the latter reduced their overconfidence to match the ESE of real-life entrepreneurs. These studies indicated that ESE sources were interrelated with each other.

EE programs were suggested as important catalysts for motivating entrepreneurial activity (Hynes and Richardson 2007; Nicolaides 2011). David et al. (2018, p.331) advocated that educators, policymakers and “others to deliver enterprise programmes and be a catalyst for entrepreneurship”. Isenberg (2010) suggested that start-ups required entrepreneurial ecosystem support (catalysts) that included favourable policies, infrastructure, financing, culture, local and global markets, human capital (mastery, knowledge, experience), mentors, advisors and EE.

Shwetzter, Maritz, and Nguyen (2019) advocated major universities as catalysts in establishing entrepreneurial ecosystems. Ratten and Usmanij (2021) suggested that EE operating in communities could catalyse entrepreneurial behaviour. Active EE that included consultancy for a real-life company was identified as a catalyst for deeper (action and reflexive) learning (Curtis, Moon and Penaluna 2021). Wadee and Padayachee (2017) cautioned that inappropriate pedagogies to prepare students for entrepreneurship, a lack of role models and activity opportunities for students in the entrepreneurial ecosystem, may not encourage entrepreneurship.

The literature did not specify which components of EE besides CDs acted as catalysts for the students to start-up businesses. Extant studies did not specify how the various educator types such as coaches and mentors (potential sources of ESE) facilitated learning actions that developed ESE. How these sources of ESE interacted to developed ESE was also unclear. The transitioning between educator roles and its effects on ESE development had not been investigated. This thesis explores these areas further through the comments made by both the educators and the graduate entrepreneurs.

2.5 Contextual Conditions Affecting Graduate Entrepreneurship

In this study, a graduate entrepreneur (GRE) was someone who initiated a start-up soon after graduation. The rates of GRE development varied widely as shown in Table 2.3. Entrepreneurship was demonstrated as a multi-variate phenomenon where individual (internal) conditions interacted with economics, organisational, cultural and societal conditions (Wennekers, Uhlaner and Thurik

2002; Wennekers et al. 2007). This section reviews internal and contextual conditions that could influence the rates of GRE.

Table 2.3: A Selection of Graduate Entrepreneurship Rates by University and Country

Country, Program	Main Entrepreneurship Education Design/Outcome	Rates Of Graduate Entrepreneurship
France, MINES ParisTech	Lectures, start-up case studies, interviews with entrepreneurs, teams creating ‘real’ start-ups (some incubated in large firms), how to deal with entrepreneurial situations, deep involvement in a three-month ‘practical’ project and personalized mentoring (Mustar 2009).	41%
Chalmers University, Sweden	Open intake’ entrepreneurship school compulsory systematic process where industry and academic inventors student guided start-ups. The University reduced fee services or raised monies to fund patenting and legalities (Lindholm Dahlstrand and Berggren 2010).	42%
Halmstad University’s ‘Open Intake’ Entrepreneurship Program, Sweden	Real product development prototype-based project; with supportive environment- business development funding, proximity to industry, start-up planning with advice from patent agents (Åstebro, Bazzazian and Braguinsky 2012; Berggren and Lindholm Dahlstrand 2008). Students’ interdependence and co-operation with an established local company (Eriksson 1996).	Between 12% and 36% (Eriksson 1996)
Norway	In a Norwegian business student sample, 42.9% preferred self-employment. However, only 13.5% estimated their chances of becoming entrepreneurs to be 75% or higher (Kolvereid 1996).	13.5%
China and US	Comparison study of alumni who started businesses from MIT in the US (Hsu, Roberts and Eesley 2007), and Tsinghua University in China (Eesley et al. 2016).	24% for MIT, Stanford and Tsinghua
US	Between one to five years after graduation, 17 out of 115 US graduates became part-time entrepreneurs while holding a full-time job; only eight were full-time entrepreneurs (Miner 2000).	15%

Despite up to 71% of US, UK and European students reporting a preference for self-employment, only 4% Greene and Saridakis (2006) to 7% (EOS Gallup 2002) of graduates started-up. Approximately 10% of students worldwide would like to start-up immediately after graduation, with 30% aiming to become entrepreneurs five years after graduation (Sieger, Fueglistaller and Zellweger 2011, 2014; Welter 2011).

Hu and Ye (2017) reported that only 2% of Chinese graduates initiated start-ups. Kirkwood, Dwyer, and Gray (2014) also lamented that the number of students starting a business after graduation was minimal. Undergraduate EE did not necessarily produce new ventures as graduates frequently sought work experience from employment (Kirby and Humayun 2013).

In Canada, Menzies and Paradi (2003) reported the time lag between graduation and business ownership. Approximately a third (32%) of the one-entrepreneurship-elective-course group started businesses within two years of their graduation. This compared with only 19% for the control group. However, both cohorts of business owners were relatively entrepreneurial prior to graduation; 23% of the former and 19% of latter started a business prior to their graduation. About a third of both groups (35% and 31%) started their businesses three to seven years from graduation. In the UK, 2 to 2.5% of the alumni started a business immediately after graduation (Brown 1990). Hegarty and Jones (2008) commented that few were entrepreneur-ready and that only a minority became GREs after a considerable time lag of up to ten years after graduation. For comprehensive explanations of entrepreneurship enablers, refer to Valerio, Parton, and Robb (2014).

Nabi, Holden, and Walmsley (2010b) attributed the dynamics of the student-to-entrepreneurship transition to the readiness and maturity of individuals, entrepreneurship mastery and the complexity of their business ideas. “A graduate with higher entrepreneurial maturity may display a much more mature, reflective sense of self (entrepreneurial identity), where a self-employment career has been explored and thought through realistically” (p. 398). These scholars advocated that universities provide support for “reflection on career options, the labour market, and the engagement and use of support interventions, both formal and informal, to assist confidence and readiness to pursue an entrepreneurial career; understanding of the self; and understanding the role of the entrepreneur and business start-up tasks and challenges” (p.397). These observations emphasised the importance of reflexivity on self-perceptions and entrepreneurial contextual conditions. These scholars also suggested connecting students with the wider entrepreneurial context.

Entrepreneurial resources comprised tangible and intangible assets utilised to exploit competitive imperfections in markets (Alvarez and Busenitz 2001). Entrepreneurial resources were an entrepreneur’s personal resources and competencies (Wu 2007). These resources encouraged university students to engage with communities and businesses to develop graduate entrepreneurship. Zhou and Xu (2012) reported that EE in America received more financial support from industry and government while EE in China lacked funding even from government. They also observed that ECA

in America provided competitions and internships to facilitate entrepreneurial mastery while clubs and guest speakers enhanced awareness of entrepreneurship.

GREs benefited from opportunities generated from knowledge spill-overs (for example, technology transfers from universities to GREs) that generated novel products (Audretsch and Belitski 2013). Learning ecosystems provided essential capital for entrepreneurship (Stenholm, Acs and Wuebker 2013), including access to entrepreneurial assistance and advice networks (Schenkel et al. 2015).

An individual's 'readiness' was characterised by access to start-up capital, information and social networks (components of entrepreneurial opportunity), founded on one's entry decision into entrepreneurship (Indarti and Kristiansen 2003). Entrepreneurial knowledge and experiences, readiness and risk propensity positively influenced ESE among Pakistani university students (Memon, Soomro and Shah 2019). EE in a supportive environment developed entrepreneurial readiness, entrepreneurial knowledge and experience (Darmanto and Yuliari 2018).

Yemeni students' perceptions of ESE, their need for achievement, age and entrepreneurial experience positively influenced entrepreneurial intention, while gender, EED and entrepreneurial readiness did not (Nabil and Zhang 2020). These scholars suggested entrepreneurship centres and incubators to support start-up, as aspects of informal and formal entrepreneurship training. These studies had not investigated the relationships between pedagogical designs, entrepreneurial personality, an awareness of entrepreneurial opportunities and ESE.

Besides providing entrepreneurial knowledge and ESE development, some universities organised external funding, coordinating entrepreneurial activities between industry, academics and students-competitions, pitching, alumni networking), networking, and collaborative entrepreneurship (Cheng et al. 2019; Liu et al. 2019). However, Nabi, Holden, and Walmsley (2010a) observed a barely discernible number of start-ups despite substantial efforts to attract students who possessed strong start-up intentions.

Klinger and Schündeln (2011) reported that potential entrepreneurs (notably Central American female) faced obstacles, namely regulatory, cultural and social barriers, barriers to entry, lack of finance (both early-stage capital and long-term financing), infrastructure, the fear of failure and economic uncertainty. Business training (EE) by a non-tertiary organisation that developed entrepreneurial mastery increased the probability of start-ups. These scholars did not investigate the effects of pedagogies on ESE in tertiary contexts.

Belwal, Al Balushi, and Belwal (2015) discovered that university students from Oman were willing to acquire knowledge on how to perform entrepreneurship. However, fear of failure and unwillingness to take risks were their major obstacles related to culture and infrastructure. Those who succeeded were confident, sociable, determined, energetic, capable in managing challenging situations and possessed useful connections with role models and established entrepreneurs. They recommended interdisciplinary classes, clubs, competitions and real-life business plan development guided by academics or business owners. This study underscored the importance of social and entrepreneurial capital (relationships and resources) in enabling graduate entrepreneurship.

From US-based observations, Saxenian (1994) found that entrepreneurship was supported by venture capital funding, supply network support, legal personnel, technology from universities, affordable business infrastructure and entrepreneurial culture. In a 44-country study, the regulatory environment hardly affected the formation of innovative, high-growth new ventures. For high potential entrepreneurship, opportunities generated by knowledge spill-overs and the necessary capital mattered most (Stenholm, Acs and Wuebker 2013). Learning communities, partnerships and university-industry-government cooperation (Harris, Jones and Coutts 2010; Rampersad 2015) could facilitate the sharing of knowledge and develop relationships to assist start-ups (Belitski and Heron 2017; Harris, Jones and Coutts 2010; Rampersad 2015).

University-industry collaborations could foster the knowledge and skills for GREs to realize an almost-immediate entry into self-employment (Stephan 2001). Private sector delivery of EE (facilitating authentic learning) was highly correlated with entrepreneurial activities and self-employment (Cho and Honorati 2013). At Halmstad University, Sweden, industry orientation, peer influence and 'spirit of entrepreneurship' were the hallmarks of their EE programs. Despite their relatively high rates of graduate entrepreneurship, scholars questioned whether their courses enhanced graduates' start-up rates (Åstebro, Bazzazian and Braguinsky 2012). MIT's entrepreneurial ecosystem included alumni-supported start-ups (Roberts and Eesley 2011).

Access to entrepreneurial assistance and advice networks were positive and significant to the development of entrepreneurial intent to start a new venture immediately following an introductory EE course (Schenkel et al. 2015). Students who had decided to become entrepreneurs upon graduation enrolled in multiple co-curricular activities and university financial support programs. Counterintuitively, financial support from the university negatively affected start-up activities. This negative relationship between financial support and start-up activities was positively moderated by

business experience (Morris, Shirokova and Tsukanova 2017). They suggested that the availability of funds itself might not incentivize pursuit of start-up activities. They posited that the amount of financing available demotivated students as it was insufficient to achieve meaningful goals. Furthermore, the pursuit of financing could distract students from performing significant activities (market research), ensuring start-up actualisation.

A tolerance for risk, perceived feasibility and desirability (desire to start-up) forecasted self-employment intentions significantly (Segal, Borgia and Schoenfeld 2005a). However, when perceived desirability was low, perceived feasibility influenced ESE more significantly, moderated by industry support. EED remained the most influential university support condition to develop ESE (Li and Zhang 2020). The development of ESE was advocated to counter personal and societal conditions that influenced entrepreneurial desirability among 6,000 students in a multi-branch university (Abdelkarim 2021). Perceived educational support had the greatest influence on ESE, followed by concept and business development support (Saeed et al. 2015).

Although EE was implicated in developing perceived feasibility, no actions, pedagogies or roles were investigated. Indeed, the combined effects of EED processes with societal and industry support on ESE, perceived desirability and feasibility remained unclear.

2.5.1 Culture Supporting (or Hinder) Graduate Entrepreneurship

The social and cultural effects on ESE enhancement are complex and mixed. The prevailing national culture could either hinder or foster entrepreneurship (Busenitz, Gomez and Spencer 2000; Lee and Peterson 2000; Mueller and Thomas 2001; Pruett et al. 2009; Shane, Kolvereid and Westhead 1991; Stephan and Uhlaner 2010). A society's culture, history, policy and business environment could influence students' views toward entrepreneurship (Kelley, Singer and Herrington 2016). Personality traits could be shaped by culture, for example, the need for achievement and autonomy, locus of control and self-efficacy (Brandstätter 2011; Carland et al. 1984; Rauch and Frese 2007a; Baum, Frese and Baron 2014; Carland et al. 2007).

The characteristics of national culture likely influenced the supportiveness of the external environment towards entrepreneurship. Shirokova, Tsukanova, and Morris (2018) discovered that with more individualistic cultures, the relationship between student engagement in university EE programs and the scope of start-up activities were more positive. Contrastingly, countries with

stronger hierarchical cultures diminished the effect of EE programs on the scope of student start-up activities. Their study also revealed that risk averse societies weakened the positive effect of EE on the number of student start-up activities.

In the UK , graduate perceived constraining conditions in starting creative and digital ventures were contradicting advice, and the lack of general business knowledge, sector-specific mentors, finance and experience of familial entrepreneurship. Perceived enabling conditions were co-mentoring from business partners, course content, financial gain, and creative and innovative ideas (Smith and Beasley 2011). Ayalew and Zeleke (2018) determined that EE and entrepreneurial attitudes significantly predicted students' entrepreneurial intention in Ethiopia.

Giacomin et al. (2011) investigated the major motivators and barriers to start new businesses amongst universities students from all disciplines in the US, China, India, Spain and Belgium. Motivations included pursuing profit and social status, desire for independence, personal development and professional dissatisfaction. Barriers to entrepreneurship included lack of support structure and fiscal or administrative costs, lack of knowledge and experience, economic climate, lack of entrepreneurial competencies and self-confidence, and risk aversion (Giacomin et al. 2011). These scholars discovered that entrepreneurial disposition and intentions, and the sensitivity to each motivator and barrier, differed by country. For example, unlike the Indian students, the Chinese students were less motivated by professional dissatisfaction compared to the American, Spanish and Belgian students. Necessity-driven entrepreneurship for financial and social status motives was stronger for the Indian students compared to China, Spain or Belgium (Bosma et al. 2007).

In a 33 country study across Asia, Europe and the US, the probability of being an “opportunity” rather than a “necessity” entrepreneur was higher for male, younger, wealthier, proactive, and optimistic business-owners (van der Zwan et al. 2016). Furthermore, those with business ownership preferences and more favourable perceptions of financial start-up support were more likely to be an “opportunity” versus a “necessity” business owner. Volery et al. (1997) earlier observed that nascent entrepreneurs believed they lacked financing and skills to start new ventures. Shinnar, Pruett, and Toney (2009) found that students perceived the economy as a bigger barrier than did their educators. Two other key barriers that their educators indicated as significantly important barriers to business ownership were the lack of entrepreneurial competence and fear of failure.

The impact of EE on students' entrepreneurial intentions in South Korea was much greater than in the US, but US students had greater entrepreneurial intentions, likely because of a more entrepreneurship-

oriented culture (Lee, Chang and Lim 2005). The entrepreneurial propensity of Egyptian students was higher than that of their UK counterparts (Kirby and Ibrahim 2011).

Pruett et al. (2009) found that culture could be a strong predictor of entrepreneurial intention, but that culture could also introduce conflicts. Luthje and Franke (2003) earlier stated that one may have the desire to create a business but fail to pursue that desire due to negative perceptions of the socio-economic conditions. Individual and socio-cultural perceptions as well as perceptions about entrepreneurial opportunities, affected the entrepreneurial intention of individuals across nations (Liñán, Santos and Fernández 2011).

Ojala and Heikkilä (2011) recommended the need for cultural adaptation of training programs developed originally for US new ventures towards the needs of Finnish entrepreneurs. US programs concentrated primarily on risk taking, raising capital and US market entry soon after launching. Finnish entrepreneurs preferred to grow their businesses in a more manageable and profitable manner. Lee, Lim, and Pathak (2011) also recommended EE programs be tailored consistently to the cultural context and entrepreneurial orientation of the country. Although the type of role models used and the extent of entrepreneurial experience varied between individual countries, students from developing economies were more likely to aspire towards future entrepreneurial careers and were more positive towards entrepreneurship than their industrialised European counterparts (Davey, Plewa and Struwig 2011).

The education industry is very multi-cultural by nature, and this thesis covers research data from 26 English-speaking countries. No impactful cultural differences (in the EE pedagogical domain) were identified amongst the interview participants. It was indeed the case that each interviewee had his/her own unique perspectives but were observed to share some common CD perspectives as expected of EE design experts.

2.5.2 Gender Variations in Graduate Entrepreneurship

Gender, risk conditions related to profession/ employment choice and academic training were found to significantly affect students' interest in and motivation for starting their own business (Gerry, Marques and Nogueira 2008). The ESE development of female entrepreneurs was based on the gender congruency of the industry in which her business operated (Sweida and Woods 2015). Perceived

gender stereotypes and differences in social comparisons influenced ESE development of males and females differently (Sweida and Reichard 2013).

Findings on ESE variations due to gender were mixed. No significant differences in ESE between male and female US postgraduates were found (Mueller and Dato-On 2008; Zhao, Seibert and Hills 2005; Wilson, Kickul and Marlino 2007; Wilson et al. 2009). In another US study, EE influenced the development of ESE more positively in female students than for their male counterparts (Wilson et al. 2009).

The effects of perceived learning from courses, previous entrepreneurial experience and risk propensity on entrepreneurial intentions were fully mediated by ESE. Gender was not mediated by self-efficacy but had a direct effect in that women reported lower entrepreneurial career intentions (Zhao, Seibert and Hills 2005). Male entrepreneurs possessed greater ESE and risk propensity towards innovation (Yu and Chen 2016). Initial findings also suggested that male students tend to overestimate their CSE as predicted by their abilities than their female counterparts (Karwowski et al. 2013).

Entrepreneurial intentions influenced by ESE did not change in a statistically significant way for either gender at the beginning and at the end of a semester-long, introductory entrepreneurship course (Shinnar, Hsu and Powell 2014). Though ESE increased for both genders, this enhancement was significant statistically only for the male students. A stronger relationship between ESE and entrepreneurial intentions for the female subsample was identified. Being “overly confident and optimistic, (males) may pursue entrepreneurial ventures without the necessary skills, possibly encountering higher failure rates” (Shinnar, Hsu and Powell 2014, p.568). They further suggested exposing female students to female entrepreneur cases or having female entrepreneurs as guest speakers to enhance VL and role modelling, to counter perceptions that an entrepreneurial career is solely ‘masculine’ (Gupta et al. 2009).

Chowdhury, Endres, and Frye (2019) advocated the value of business process knowledge, supervisory experience and graduate-level business education to enhance women’s ESE. Nowiński et al. (2019) observed that women generally have lower ESE and entrepreneurial intentions; thus, they benefited more than men do from EE. The positive influence of EE on ESE was stronger for women MBA students than for men (Wilson, Kickul and Marlino 2007). Gender had a crucial role in determining the level of learning due to more dominant ‘preferential’ sources of self-efficacy (Morris and Schindehutte 2014). Students’ perceptions of the entrepreneurial ecosystem influenced

entrepreneurial intentions both directly and indirectly by ESE, with significant differences between male and female Saudi Arabian undergraduates. Elnadi and Gheith (2021)'s recommendations included adequate institutional infrastructure, support structures, and a supportive culture that enhanced students' ESE and their entrepreneurial intentions.

Although some gender differences were noted, the research and findings from this thesis were believed to be relevant and existed at similar frequencies and levels across genders.

2.6 Summary of Literature Review

Entrepreneurs transform ideas into enterprises that generate economic, intellectual, and social value (Bacq and Janssen 2011). However, only 4 to 7% of graduates actually initiated entrepreneurship (new businesses) (Hannon et al. 2006; Greene and Saridakis 2006). The pedagogies employed in entrepreneurship courses that developed ESE have remained under-described (Nabi et al. 2017).

Initial evidence revealed varying degrees of ESE development in EE (Malebana and Swanepoel 2014; Mozahem and Adlouni 2021). Theoretical courses aimed to increase awareness of entrepreneurship (Fayolle and Gailly 2015; Klapper and Tegtmeier 2010), while practical-oriented courses were more likely to produce GREs (Lundqvist and Williams-Middleton 2013; Piperopoulos and Dimov 2015). However, these studies did not investigate the pedagogies that developed ESE.

Gachanja, Nganga, and Maina (2016) discovered that projects, team-based and blended learning, interviews and mentoring enhanced ESE positively. Conversely some research suggested that the impact of EE on stimulating the number of new ventures was relatively ineffective (Nabi, Holden and Walmsley 2010a). This raised the vexed question of whether EED was impacting ESE sufficiently or not, and whether ESE itself was a valid predictor of graduate entrepreneurship or not. Abaho, Olomi, and Urassa (2015) found a significant positive relationship between ESE and lecturers' business experience and a positively significant correlation between lectures' business experience and the choice of teaching methods. The extant literature is unclear on the effects of educator roles on ESE.

Abaho, Olomi, and Urassa (2015) found that simulations and business plan competitions had no significant effect on ESE. However, self-study, presentations, fictitious cases and interacting with successful entrepreneurs enhanced students' ESE. (Kassean et al. 2015) discovered that simulations, interviewing entrepreneurs, business plan writing and starting-up (experiential pedagogies that

generated real-world experiences) negatively affected ESE. Short and intensive pedagogies like Hackathons could have been more effective in developing ESE than semester-long courses (Szymanska et al. 2020). A Hackathon was an event where a group develop a new software or solve a challenge collaboratively within a relatively short timeframe. Presentations and discussions under the guidance of trainers positively influenced ESE (Gielnik et al. 2015). It remained inconclusive which actions and pedagogies enhanced or eroded ESE.

The implementation of authentic, industry-situated experiential pedagogies also created challenges related to time and resource coordination (McGuigan 2016; Pittaway and Cope 2007a). This could potentially lead to the creation of more easily implementable curriculums consisting of more conventional pedagogies. Indeed, the most common pedagogies were reported as lectures, cases, simulations, guest speakers and business planning (Carrier 2007; Mwasalwiba 2010).

Nonetheless, experiential pedagogies have gained popularity in entrepreneurship courses. Experiential course designs included reflection on entrepreneurial activities (Hynes, Costin and Birdthistle 2010; Lackéus and Middleton 2018; Pittaway and Cope 2007a; Pittaway and Thorpe 2012; Mandel and Noyes 2016). However, the effects of educator roles and actions that enabled reflexivity on ESE remain under-researched. Moreover, the effects of pedagogical processes combined with societal and industry support on ESE remain unclear.

It remains unclear whether traditional or experiential pedagogies, or a combination of both, influence ESE positively. Most concerningly, some research showed that the effect of pedagogies on ESE could be marginal (Zieba and Golik 2018), inconclusive (Bell, Dearman and Wilbanks 2015) and negative (Karimi et al. 2016).

This literature review highlights the growing prevalence and importance of various authentic (industry-equivalent) pedagogical designs and roles employed to develop ESE. However, the effects of these pedagogies and educator roles remain unclear or inconclusive. How CDs design the teaching and coaching of entrepreneurship is largely undocumented from the perspective of developing ESE. A knowledge gap exists as to how CDs design courses that lead to positive ESE development in students. This thesis addresses some of these knowledge gaps.

EE is useful both for the development of entrepreneurs and for graduates who may benefit their future employers by their entrepreneurial behaviour. This thesis aims to study ESE development in tertiary EE courses, as self-confidence is an important factor in entrepreneurship.

Very few qualitative studies have been done to explore the pedagogical processes that enhance ESE. Indeed, most studies on ESE in all contexts have been quantitative in nature and tend to focus on single countries. These studies have demonstrated that entrepreneurship education enhances ESE levels, but there is insufficient information about how the effect and design of varied pedagogies enhance ESE. This thesis utilises a qualitative approach (Interpretative Phenomenological Analysis) to examine details of ESE enhancement, by encouraging all participants to share deeply about their insights and 'lived' experiences. Details are in the Methodology and methods chapter.

The low rates of graduates starting-up is a known issue worldwide, and it is due to many factors including the need for financial security, students' competencies, culture and lack of entrepreneurial resources. The decision to start up can also be delayed by several years while graduates build up experience and resources, making start-up statistics difficult to collect. Another important factor to starting-up is self-confidence or ESE. The focus of research in this thesis is ESE development rather than the rates of starting-up, although the two issues are inter-connected and are therefore examined.

The thesis is structured into four research foci. The first three research foci relate to pedagogies and contexts adopted in entrepreneurship courses to develop ESE (practical, lifelike, and combining Practicality and Lifelikeness). The fourth focus is the validation study to interpret pedagogical designs experienced by graduate entrepreneurs.

The next section describes the thesis' research framework and the supporting literature used to develop the framework.

3 RESEARCH FRAMEWORK AND SUPPORTING LITERATURE

This chapter explains the creation of the research framework that guided the analytical outcomes from the pilot, main and validation studies. This research framework consisted of a theoretical model, a discussion device, the Entrepreneurship Education Grid (EPG), and the four research foci that guided the discovery of pedagogical designs that develop ESE. This framework guided the creation of a descriptive and interpretative (thematic) description of entrepreneurship education design (EED).

3.1 The Entrepreneurship Education Design Theoretical Model

The extant literature posited that individuals developed ESE through four known sources of ESE: vicarious learning (VL), social persuasion, mastery experiences and self-assessed emotions (Bandura 1982; Boyd and Vozikis 1994; Forbes 2005; Zhao, Seibert and Hills 2005). The composite theoretical model in Figure 3.1 displays traditional and experiential pedagogical combinations that were thought to impart ESE sources that developed self-belief (ESE).

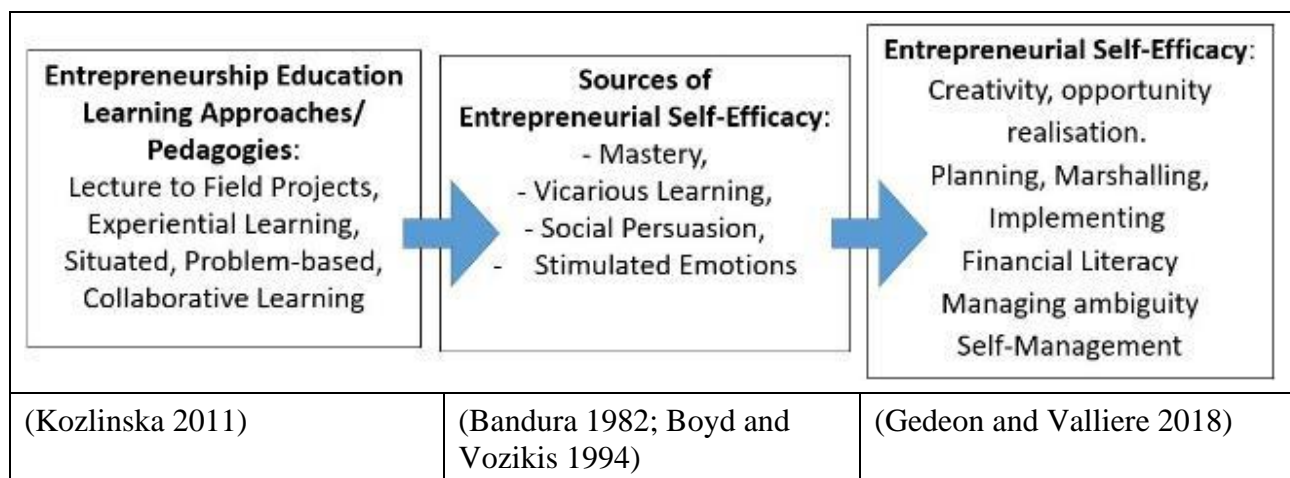


Figure 3.1: Composite Theoretical Model of Entrepreneurship Education Design

Source: Adapted from Kozlinska (2011); Bandura (1982); Boyd and Vozikis (1994); Gedeon and Valliere (2018).

3.2 The Entrepreneurship Education Pedagogy Grid (EPG) Discussion Device

The Entrepreneurship Education Grid (EPG) was based on the four research foci (detailed in Section 3.3). It was designed and described to participants as an incomplete model to lessen dependence upon

existing theories (Collins and Stockton 2018) The EPG discussion with participants also helped to develop a common understanding of the descriptive and interpretative visualisations of EED used. The EPG discussion process did not represent an endpoint to knowledge but simply an origin in a phenomenological journey with the EED community. It motivated the main study participants to provide critiques and more nuanced rationales and explanations of the contextual actions they intended in their entrepreneurship courses.

The EPG stimulated recall and in-depth explanations of challenges from CDs when they identified with educator roles, actions, pedagogies, content and additional ESE sources as part of their contextual designs. They also articulated their sense-making (interpretations) about what EED was definitionally or its similarities to other phenomena (Berglund, Hellström and Sjölander 2007), contrary to or in agreement with the representations made by the EPG. Initial feedback inspired further refinement in an iterative manner, particularly using concepts from Garavan and O’Cinneide’s (1994) Pedagogical Technique Grid (Table 3.1) and Kolb, Boyatzis and Mainemelis’ (2000) learning cycle and learning styles model (Figure 3.2).

Table 3.1: Conceptual Grid of Learning Styles and Pedagogical Techniques

<u>Concrete experience</u>	
<p>III <i>Active-applied</i> Changes in skills and attitudes Role plays Management simulation Processing discussion T-groups/encounter groups Learning diaries Field projects Management of learning groups Counselling</p>	<p>II <i>Reflective-applied</i> Changes in application Motives Applied lecture Limited discussion Cases Role plays Problem-oriented exams Programmed instruction with emphasis on skills</p>
<p><u>Active experimentation</u></p> <p>IV <i>Active-theoretical</i> Changes in understanding Focused learning groups Argumentative discussions Experiments/research Suggested readings Analysis papers Workshops Monitoring Coaching</p>	<p><u>Reflective observation</u></p> <p>I <i>Reflective-theoretical</i> Change in knowledge Theory lectures Required readings Handouts Programmed instruction with emphasis on concepts Theory papers Content-oriented exams</p>
<u>Abstract conceptualization</u>	

Source: Garavan and O’Cinneide (1994)

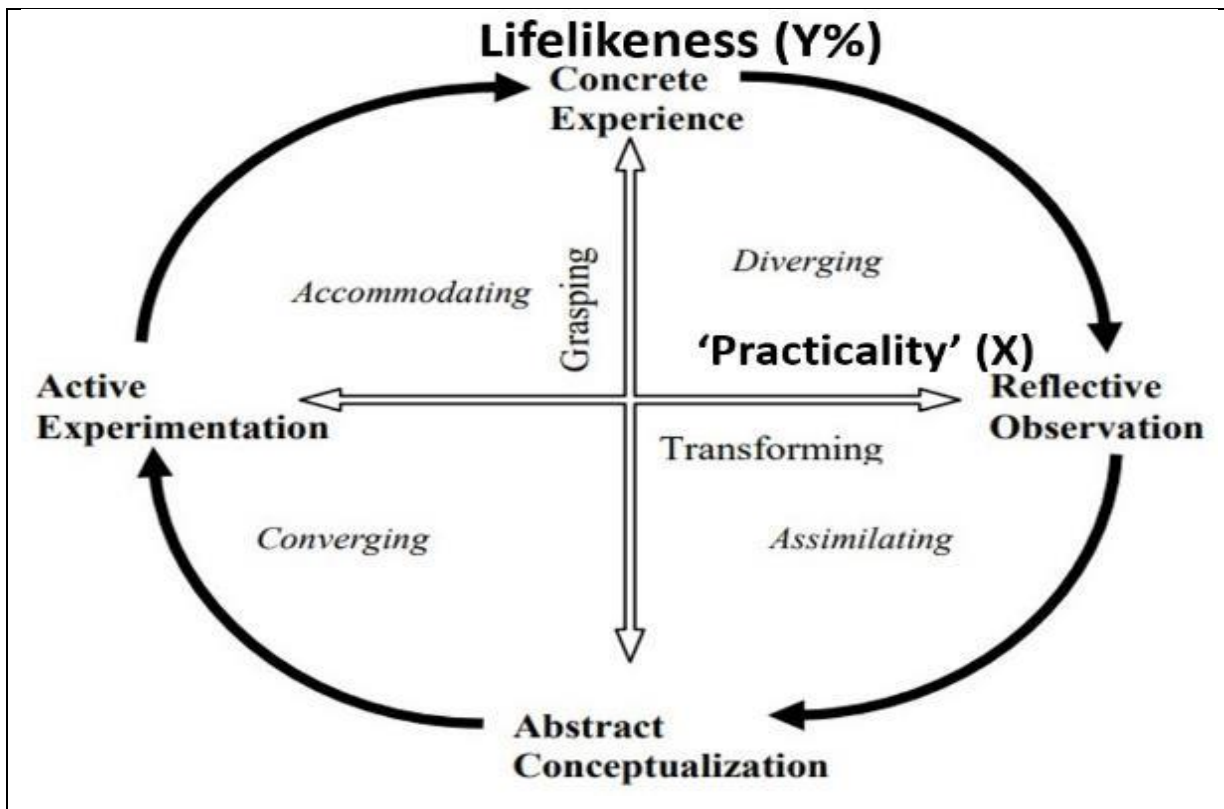


Figure 3.2: Kolb, Boyatzis and Mainemelis's Learning Cycle and Learning Styles

Source: Kolb, Boyatzis, and Mainemelis (2000)

The researcher superimposed two dimensions of learning: the degree of concreteness and nature of involvement (Manolis et al. 2013). These two dimensions were 'Lifelikeness' (Y) and 'Practicality' (X), respectively, to represent acquiring (grasping) real-life experiences and converting (transforming) them into learning actions. Two '0 to 10' Likert scales represented these bi-directional continuums in the pilot EPG, shown in Table 3.2.

The EPG's 'Real-World Theory Application' represented Lifelikeness. Practicality represented reflecting and experimenting. Some known pedagogies, namely the Business Model Canvas and discussion, were deliberately missing from the EPG to encourage CDs to talk about their own courses.

Table 3.2: Researcher’s Pilot Entrepreneurship Education Pedagogy Grid

Y Authentic/ Real World Theory-Application											
Quadrant 2: Reflective-Applied <i>Changes in application</i>					10	Quadrant 3: Active-Applied <i>Changes in skills and attitudes</i>					
1. Applied lecture, 2. Cases study, 3. Case-, problem-oriented exams, 4. Dialogue/ Interview 5. Guest lecture, 6. Field trips / study visits, 7. Learning software: skills, 8. Learning logs/ journals, 9. Networks / clubs, Listening, Observing, Reflecting					9	1. Apprenticeship, 2. Business simulation, 3. Coaching/ mentoring, 4. Counselling/ tutoring, 5. Feasibility Study/ business plan, 6. Field projects: consultancy, 7. Games / competitions, 8. Role plays, 9. Internship/ industry attachments, 10. Start and run a business, 11. Training / Encounter Groups, 12. Workshops, Proposing, Deciding, Experimenting					
					8						
					7						
					6						
					5						
					4						
					3						
					2						
					1						
					0						
					6	PRACTICALITY (X) Doing					
					5	6	7	8	9	10	X
Quadrant 1: Reflective-Theoretical <i>Changes in knowledge</i>					4	Quadrant 4: Active-Theoretical <i>Changes in understanding</i>					
1. Content-oriented exams, 2. Learning software: concepts, 3. Required readings, 4. Theory lectures, 5. Theoretical papers, Abstract/ Classroom Learning					3	1. Analysis papers, 2. Experiments, 3. Focused Learning Groups 4. Suggested readings					
					2						
					1						
					0						
					0						

The pilot EPG included coaching and applied learning pedagogies. Examples of applied learning pedagogies are initiating and operating a company, a student co-operative to serve real customers, and performing outsourced tasks or real-life projects for real customers on a contractual basis (Tautila 2010). Reflective pedagogies involved thought and reflection, and active pedagogies involved activities.

The EPG discussion process identified and classified pedagogies experienced by students, in terms of lower or higher Practicality, and more theoretical (less lifelike) or more lifelike contexts. Practicality identified a pedagogy by the actions performed, coded with ‘X’ integers.

The degree of Lifelikeness, ‘Y’ or ‘Y%’ was the time expended, or attention focused, on theory versus real-life content and context. An example of this classification was earlier used by Lourenço, Taylor, and Taylor (2013), for a lecture-case-activity combination where approximately 70% of student time was learning-by-doing (practising). The X and Y codes were not used in the final composite description of EED, as the primary aim of the EPG was to extract explanations and interpretations of EED from CDs.

Testing of the pilot EPG was conducted using the pedagogies in Thompson, Scott and Gibson’s (2010) ‘experientiality-competency’ model and Cooper, Bottomley and Gordon’s (2004) Ladder of Learning model. These were coded or classified using the pilot EPG by the researcher, in Table 3.3. This pre-pilot activity established a tentative identification system for EED actions.

Table 3.3: The Research Pre-Pilot Pedagogy Classifications Using the EPG

Pedagogies	Practical Learning Action ‘X’ Codes	Initial ‘Y’ Codes Entrepreneurial Learning Scenarios
Lecture.	X0 to 1: Passive or no involvement. Listen.	Y0 to 2: Theoretical entrepreneurship.
Text or video case study.	X1 to 3: Low involvement. Listen, observe and reflect.	Y3 to 5: Vicarious learning with online or textual elements.
Case study with entrepreneur in class. Entrepreneur-guided new venture visit.	X1 to 5: Moderate involvement. Listen, observe, question and reflect.	Y3 to 7: Vicarious learning with real-world elements.
Role-play, gaming, drama.	X5 to 8: High involvement including proposing solutions to problems.	Y5 to 6: Applied theory simulated entrepreneurship.
New venture creation, in-company projects, ‘live’ case.	X8 to 10: Doing actual entrepreneurial activities including experimenting.	Y6 to 10: New venture-based learning.

Source: Adapted from Thompson, Scott, and Gibson (2010) and Cooper, Bottomley, and Gordon (2004).

The next subsections explain the EPG in terms of the four research foci or guidelines that proposed how the varying degrees of Practicality (action) and Lifelikeness (context) in EED, and combinations of Practicality and Lifelikeness, could develop ESE.

3.3 The Research Guiding Framework

Literature related to Kolb's Experiential Learning Theory (ELT) and authentic learning were studied to create the EPG as an approximate representation of the four research foci. The first two research foci related to the nature of the pedagogies and contexts adopted in entrepreneurship courses to develop ESE. The third focus combined foci one and two, to capture as many EEDs as possible. The fourth focus was designed for the validation study to record and interpret pedagogical designs as experienced by graduate entrepreneurs (GREs).

3.3.1 Research Focus One: Practicality

This research uses 'Practicality' as the operational descriptor that defines EE pedagogies in terms of being more active 'hands-on' learning experiences, as opposed to being more passive and theoretical learning.

Higgins, Refai, and Keita (2019) summarised that conventional education imparted knowledge and skills, whereas experiential entrepreneurial learning (EE) changed mindsets (attitudes and motives). According to Lundqvist and Williams-Middleton (2013); Piperopoulos and Dimov (2015); Vincett and Farlow (2008), practical-oriented pedagogical designs taught and produced GREs, implying ESE enhancements.

Cooper, Bottomley, and Gordon (2004) suggested an EED that commenced with passive pedagogies (lectures) and progressed to extremely active pedagogies (field projects). Gibson, Scott, and Harkin (2009) presented levels of experiential learning ranging from zero (lectures) to ten (start-up). These scholars suggested lower and higher levels of practical hands-on entrepreneurial activities.

Formally stated, research focus one is: EEDs with higher Practicality will develop more ESE than EEDs with lower Practicality.

3.3.2 Research Focus Two: Lifelikeness

An entrepreneurship course can be further from or closer to entrepreneurial reality (real-life business, societal and industry contexts). This research uses 'Lifelikeness' to indicate the proportion of real-

life content utilised within an EED. Learning entrepreneurship theory is considered less lifelike, while pedagogies involving real industry experiences are more lifelike.

Rauch and Hulsink (2015) discovered that EE students exhibited an increase in positive attitudes and perceived behavioural control (ESE) when they participated in mentoring (guided learning) sessions with entrepreneurs or pitches to entrepreneur guest assessors. This indicated that EED can utilise real-life business, societal and industry contexts, which are true to entrepreneurial reality.

Haynie et al. (2010, p.218) advocated training that “enhance the student's ability to function effectively in dynamic environments”. Thompson, Scott, and Gibson (2010) suggested mastery development through new venture-based (highly authentic) learning and knowledge acquisition through lectures and cases (theoretical learning). Authentic pedagogies in entrepreneurship lifelike contexts including learning opportunities in small businesses (Munro and Cook 2008), in incubators and accelerators (Miles et al. 2017), with interactions with external stakeholders (Bliemel et al. 2019). Pittaway and Thorpe (2012) espoused the design of authentic contexts to develop a reservoir of learning experiences to enhance entrepreneurial preparedness. Internships, site visits and feasibility studies, ‘live’ cases, projects and simulations could facilitate mastery, attitudinal, emotional and motivational development.

Most lifelike pedagogies situated students in real-life or industry contexts. The extant literature indicated a range of authentic experiential pedagogies (Section 2.3.2). Generally, authentic experiential learning was demonstrated to enhance ESE (Duval-Couetil, Reed-Rhoads and Haghghi 2012; Gachanja, Nganga and Maina 2016). However, Ahmad, Abu Bakar, and Ahmad (2018) reported that no single traditional, experiential or authentic pedagogy was adequate to develop competence and ESE. Hence, further research into the Lifelikeness of EEDs was required.

Formally stated, research focus two is: EEDs with more lifelike pedagogies will develop more ESE than EEDs with fewer lifelike pedagogies.

3.3.3 Research Focus Three: Combining Practicality and Lifelikeness

Neck and Greene (2011) used a portfolio of pedagogies to teach entrepreneurship, consisting simulations, starting-up design-based thinking, and reflective practice. ESE development was implicitly mentioned as their ‘Entrepreneurship Method’ to train students to create new opportunities

and operate in highly ambiguous contexts (ESE). Neck and Corbett (2018), through a panel of experts, developed EE as participation in a portfolio of practices, across a range of contexts, to gain experience, knowledge, and skills to develop ESE as aspect of the entrepreneurial mindset.

Yamakawa et al. (2016) proposed a pedagogy that taught the Entrepreneurial Method, integrating theory and practice. Students learnt the theoretical framework that guided semi-autonomous practice, assisted by coaching. They received first-hand experiences from start-up activities. Besides connecting theory and practice, Gedeon and Valliere (2018) suggested that contextual conditions, namely classroom and start-up settings, developed ESE. Clark et al. (2021) highlighted their start-up EED as aligning with government policies and aims, based on local resources and experts (ESE sources), and utilising partnerships to access to entrepreneurs, capital and networks.

Kozlinska, Rebmann, and Mets (2020) demonstrated that experiential pedagogies developed entrepreneurial mastery, while traditional pedagogy remained more suitable for theoretical knowledge about entrepreneurship. UK's New Entrepreneur Scholarship participants engaged in a Stimulus-Construct-Instruct learning process involving integrating traditional lectures, role-play activities, visits to entrepreneurial firms in Silicon Valley and self-reflection sessions (Lourenço and Jones 2006). Their aim was to enhance opportunity-recognition ability to foster non-linear thinking patterns essential for entrepreneurial careers.

Some university venturing programs included mentoring (Deakins et al. 1998; Kirwan, Sijde and Klofsten 2008; Klofsten and Öberg 2012; Waters et al. 2002). Effective mentoring and positive emotions in founders guided students to transition to entrepreneurs (Ahsan et al. 2018). Bauman and Lucy (2021, p.8) suggested that "entrepreneurial communities will provide mentorship and opportunities for potential start-ups to assist and attract entrepreneurs to their community". Mentors, networks and participation in conferences were crucial social sources of information (Ozgen and Baron 2007). Based on these studies, pedagogical combinations that potentially develop ESE could include mentoring and coaching.

The Entrepreneurship Competence Framework (Appendix 5) advocated a progression from externally-supported to transformative value creation. These researchers proposed a combination of reflections on actions taken and on one's aspirations and aims (Bacigalupo et al. 2016). Students learnt about entrepreneurship through a combination of in-class experiential pedagogies, internships in new ventures and reflections on their suitability to entrepreneurship (Eisenstein, Goh and Istrate 2021).

Based on the extant evidence and proposals, it is plausible that ESE develops when Practicality and Lifelikeness are combined, when more practical and lifelike pedagogical combinations are employed.

Formally stated, research focus three is: ESE is developed from multiple learning experiences, from combinations of practical and lifelike pedagogies.

3.3.4 Research Focus Four: Graduate Perceptions of Pedagogical Combinations

This research focus guides the validation study of graduate entrepreneurs (GREs) of the interviewed CDs.

Ballereau et al. (2020) reported that perceived ESE was enhanced through mastery and VL, specifically from peers within interdisciplinary (art and management) project teams and industry experts. These teams performed business modelling to formulate start-up ideas in the arts. During class, each team presented its Business Model Canvas (BMC) to a jury of professionals. This project-oriented collaboration pedagogy facilitated the sharing of views and idea generation.

Cope (2011, p.616) discovered that disconcerting events, namely venture failures and “stresses, strains and pressure points of venture management” influenced learning outcomes. He had earlier proposed that real-life events combined with learning networks (dynamic learning) enhanced an entrepreneur's level of entrepreneurial preparedness for further entrepreneurial activities (Cope 2005a). Students obtained useful advice and guidance from social networks of GREs (Greene and Saridakis 2008). These extended social networks might provide learning opportunities and peer-to-peer interactions to acquire contextual entrepreneurial knowledge (Berggren 2011; Etzkowitz 2003; Gibb 2012; Hytti et al. 2010).

CDs also encouraged optional extra-curricular activities (ECA). Pittaway et al. (2015) found that experiential curricula and ECA increased the intensity of entrepreneurial activities that led to reflective practice that enhanced student ESE. Across 25 cultures and national borders, start-up activities by students were positively related to both ECA and entrepreneurship curricula, with varying effects due to cultural differences (Shirokova, Tsukanova and Morris 2018).

Social learning occurred in entrepreneurship clubs through social interactions that simulated EE (Pittaway et al. 2011; Pittaway et al. 2015). Entrepreneurship clubs also disseminated knowledge and experiences in the areas of financing and investing (Cox and Goff 1996; Grinder, Cooper and Britt 1999). These self-organised, student-led or externally-sponsored clubs organised learning activities such as guest presentations, seminar series, panel discussions, networking meetings, competitions, off-campus visits (Pittaway et al. 2011) and even community service projects (Evans and Evans 2001). Through these activities, students observed the experiences and mistakes of entrepreneurs (Pittaway et al. 2015; Zhao, Seibert and Hills 2005).

Based on the extant evidence, students encountered multiple learning experiences from ESE sources (social persuasion, mastery, VL and emotional stimulation) from peers, industry interactions and ECAs.

Formally stated, research focus four is GREs perceive that they develop their ESE from multiple learning experiences based on a combination of practical and lifelike pedagogies.

3.4 Summary of Research Framework

This chapter highlights the four research areas (foci) based on the researcher's theoretical model (Figure 3.1). These foci address the research question regarding which specific learning actions, educator roles and pedagogies develop ESE. To assist in data collection and analysis, the EPG was developed based on two major approaches, experiential learning and authentic learning.

The next chapter explains the methods that were used to analyse the data collected from the research.

4 METHODOLOGY AND METHODS

This chapter explains the rationale and purposes of the data collection, organisation and analysis activities of the pilot, main and validation phases.

4.1 Research Design and Paradigm

Methodology is the utilisation of a precise systematic research approach using methods, processes, instruments and techniques for data collection and analysis (Gioia, Corley and Hamilton 2012). A phenomenological methodology was utilised to understand the latest pedagogical designs (EEDs) from a substantial cross-section of global English-speaking CDs, with focus on ESE development.

Phenomenological research is the “description of what people experience and how is it that they experience what they experience” (Patton 2002, p.107).

Ontology is the study of the nature of reality. In Interpretative Phenomenological Analysis (IPA), reality consists of individual experiences related to a phenomenon. Epistemology, the theory of knowledge, is the study of how individuals discover meaning or interpret the phenomenon. Epistemology is a justification of the validity of obtained knowledge (Gray 2016).

Hermeneutic phenomenology, a form of IPA, reveals “common elements which are uniquely lived within phenomena” (Leigh-Osroosh 2021, p.1820). In IPA, the phenomenon is understood through interpretation and reflections on the essential themes (essence) of participants' experiences (Neubauer, Witkop and Varpio 2019). Hermeneutics is the interpretation and understanding of data to discover the meaning (truth) behind experiences (Larkin, Eatough and Osborn 2011).

First-hand narratives of ESE-enhancing EED (the phenomenon) formed the ontological base of this research. The descriptions of one's own experiences were regarded as “accurate depictions of what the participants lived through” (Giorgi and Giorgi 2003, p.248). The researcher identified the pedagogical designs used in courses that enhanced ESE (ontology) through IPA methodology.

This research adopted a phenomenological approach to guide interpretations of direct observations of EED experiences. A social interaction based structured description of EED was created with these

perspectives in mind. This exploratory research aimed to discover aspects of course design that relate to the development of ESE. Table 4.1 summarises research design in terms of research aspects.

Table 4.1: Research Design: Aspects and Features

Research Aspects	Research Aspect Descriptors	Research Design
Research problem. Knowledge gap established through literature review.	Low rates of GRE (Greene and Saridakis 2006) with much advocacy on authentic and experiential pedagogies but no conclusive approach to enhance ESE that should increase GRE rates.	A phenomenological approach was applied for research questions involving in-depth descriptions of EED as experienced first-hand by CDs. Subsequently, cautious interpretations and plausible explanations were developed for the observed pedagogical designs that developed ESE.
Research Focus.	Statements that guided data collection and analysis that related to the nature of EE pedagogies and their inferred effects on ESE development.	
Research Aim.	Identified new components or dimensions, to elaborate on a tentative pedagogy-to-ESE theoretical model (Figure 3.1).	
Research Methods.	Non-random purposive sampling (Merriam 1998), phenomenological thematic development of transcript data (Larkin, Shaw and Flowers 2019).	

In this research, interview transcripts (the collected data) captured both the experiences of CDs and those who experienced EE and the pedagogies of the CDs. The subsequent data analysis generated a description of ESE-enhancing pedagogical designs. First-hand experiences of CDs and GREs (data) were obtained through interviews and were analysed and interpreted.

This research was descriptive and qualitative in nature, designed without the intention to quantify the increase or erosion of ESE. It identified pedagogies that were observed to develop ESE, and recorded the perceptions and lived experiences of CDs and GREs.

The IPA methods of thematic analysis and imaginative variation were adopted to identify contemporary pedagogical designs considered by CDs as effective in developing ESE in tertiary students. Details are provided in Section 4.10.

4.2 Participant Recruitment in the Pilot and Main Studies

The primary recruitment method for CDs involved lead generation, invitation to participate and post-interview referrals. The study's inclusion criteria were experienced English-speaking full-time and part-time entrepreneurship CDs from tertiary institutions, including polytechnics.

Pilot phase participants were approached through email and/or cold calling (unannounced) from a list of Australian universities provided in a discussion paper on Australian Tertiary EE (Mazzarol 2014). In the main study, CDs from different regions were invited to participate through personalized messages by email, LinkedIn and/or Facebook. Some CDs were contacted directly from public directories (for example, the Global University Entrepreneurial Spirit Students' Survey; www.guesss.org) and the participant's institution's webpages. Some CDs referred the interviewer to other CDs via snowballing (Bae et al. 2014; Lackéus and Middleton 2015).

When performing reflexive thematic analysis, the researcher acknowledged that meanings from his initial interpretations were tentative. Hence, further interviews were required to validate or modify these interpretations. Using this approach, the number of participants required to achieve data saturation was undetermined in advance of analysis (Braun and Clarke 2021). Ideally, data saturation or cessation of interviews occurred when the researcher had sufficient information and when further coding became undoable (Fusch and Ness 2015). Achieving content validity meant that no new information emerged from additional participants during data analysis (Francis et al. 2010). The recruitment of new participants and data analysis continued until no new information, codes or themes emerged, when data saturation was achieved (Guest, Bunce and Johnson 2006).

A disproportionate quota sampling approach assured that the various groups were researched adequately, but "not in proportion to their original numbers in the population" (Sekaran 2003, p.208), as these figures would have been unattainably high. Six regions of the world were chosen, with a minimum of two countries from each region. A total of 18 CDs were interviewed as pilot participants and 60 CDs provided usable main study data. Detailed numbers of participants interviewed are shown in Table 5.4 in Section 5.2.

To maximise participant participation, the interviewer provided clear explanations about the purpose, value of the study and clear instructions (Krosnick 1991). Email reminders encouraged participation by highlighting the importance of the research, potentially creating feelings of regret from non-participation (Torres van Grinsven 2015). Pre-notifications and follow-ups significantly improved

response rates across all populations (Mellahi and Harris 2016). CDs were promised a summary of the latest EE pedagogical practices once all research analysis was completed.

4.3 Pilot Study Data Collection

A pilot study is a small-scale version of a planned research conducted to assess the data collection and analysis, with a small group of participants similar to those recruited later in a larger-scale study (Doody and Doody 2015).

The pilot study, using the pilot EPG (Table 3.2 in Section 3.2), finalised the main study protocol. It refined the design of open-ended questions and it also refined the design of the main study EPG (Table 5.6 in Section 5.3). The researcher modified the EPG according to the comments from the pilot participants for the main study.

4.4 Main Study Data Collection: Interviewing Course Designers

In the main study, a two-stage data collection design minimised superficial responses. The two stages were an online pre-interview followed by a video conference interview. In the pre-interview stage, an online pre-interview questionnaire allowed the participant to provide his/her informed consent. After choosing to participate, the participant identified ESE-enhancing pedagogies and educator roles associated with ESE sources- mastery experiences, social persuasion, VL and self-assessed emotions. The questionnaire (Appendix 3) provided participants with a preview of the interview questions and the option to enter their concise pre-interview responses.

The interviewer then processed data from the participant's pre-interview responses, his/her institution or personal webpages, and entrepreneurship course outline (whenever provided). He verified and audited the pre-interview responses during interviews that prompted further EED descriptions from the participant.

Before the video conference interview, the interviewees familiarised themselves with a two page infographic on classifying pedagogies using the EPG. Their efforts to classify pedagogies focused the interview on the four research foci (Section 3.3). The interviews were conducted during the COVID-19 pandemic, when universities were motivated to utilise online learning during lockdown periods.

It was unclear whether CDs would decide to revert to pre-pandemic pedagogical designs after the pandemic.

Before interviewing, the researcher ensured that his dicta-phone, internet and video-conference software were functioning properly. Accurate data recording was facilitated by asking one question at a time, staying on topic, providing necessary transitions between major topics, and neutral non-emotive reactions to responses (McNamara 2009).

4.5 Graduate Entrepreneur Recruitment and Data Collection

As a validation study of EE pedagogies, the participating CDs' graduate entrepreneurs (GREs) who had launched businesses were interviewed. Responses from nine GREs validated and elaborated on the description of ESE-enhancing or ESE-eroding pedagogies and educator roles (ESE sources).

The inclusion criteria of the GREs were English-speaking entrepreneurs who graduated not more than five years ago and had completed at least one entrepreneurship course (EED). The five-year criterion was introduced since after five years, other conditions unrelated to pedagogy could have influenced their ESE. The GREs had experienced curricular and extra-curricular EE activities. The GREs had initiated entrepreneurial ventures, including those that had failed.

The inclusion criteria encompassed micro- and small enterprises with low staff numbers (Nichter and Goldmark 2009), legal or formal enterprises (Klapper, Amit and Guillén 2010), unincorporated self-employed, informal or incorporated formal self-employed entrepreneurs (Levine and Rubinstein 2013), and closed-down ventures, 'constrained' or 'less successful' enterprises or businesses (Gindling and Newhouse 2012; Grimm, Knorringa and Lay 2012).

An expanded definition of entrepreneurship also included implementation of opportunities and ideas creating both economic and social value for others (Bacigalupo et al. 2016; Zahra et al. 2009) through social enterprises, community-based services, projects, online or small businesses, and 'spin-offs' from the organisation where GREs were employed. GREs need not necessarily be entrepreneurship major graduates. The researcher excluded entrepreneurs who did not complete their tertiary entrepreneurship courses, as this would bias the data collected (Krueger, Reilly and Carsrud 2000).

The critical incident approach was used to record specific ‘life-changing’ ESE developments (Hughes 2007). Previous studies on entrepreneurial learning (Deakins and Wyper 2010; Lans et al. 2008; Man 2012) utilised “the critical incident technique to collect observed incidents of special significance and meeting systematically defined criteria” (Flanagan 1954, p.327).

The GREs validated the main study themes, the pedagogical descriptions by CDs, by sharing their learning experiences and perceived self-efficacy developments. This comparative (validation) method minimised confirmation and self-reporting related biases (Lam and Bengo 2003; Podsakoff and Organ 1986).

The validation study of graduate entrepreneurs (GREs) sought to identify which pedagogies and conditions enhanced or eroded ESE. The results were useful irrespective of the pre-existing ESE of the GREs or which CD taught them.

The researcher minimised under-coverage bias (Davidsson 2006) by interviewing GREs who had experienced a range of pedagogies, including those which were more passive, less experiential, more conceptual, or less contextualised. The learning experiences that fostered creativity (a form of ESE) were also identified.

4.6 Validity, Confirmability and Reliability in the Research

Validity (credibility) is the accurate presentation of participants’ views (Tobin and Begley 2004). There are many approaches for providing validation for research. (Creswell 2013, p.249) suggested that validation in qualitative research be “an attempt to assess the ‘accuracy’ of the findings, as best described by the researcher and the participants.” He suggested using several strategies to achieve the validation of results. Two of the strategies suggested by Creswell were utilised in this research – negative case analysis and rich, thick description.

Negative case analysis involves the researcher refining the research foci when faced with negative evidence, and reporting this negative analysis to provide a more realistic assessment. The literature review and the data provided by the GREs provided a balanced view of ESE development, both the positive and the negative aspects, in this thesis.

Rich, thick description involves describing in detail the participants and their situations, enabling the evaluation of whether the findings were transferable to other situations. This thesis provided many detailed descriptions of both the EEDs and the GREs who experienced these pedagogies, with many quotations and background information.

Trustworthiness (dependability) through audit trailing assured that one's research process was logical, traceable and clearly documented (Nowell et al. 2017; Tobin and Begley 2004). It organised and linked initial codes from transcripts, through initial clustering and thematic development, into the final structure of themes and conclusions, enabling traceability (Tobin and Begley 2004). Segments of transcript data were coded or organised into NVivo20 'codes' (folders). A complete suite of the researcher's NVivo folders are in Appendix 2.

Confirmability is the demonstration of how the researcher arrived at the conclusion and interpretations using 'markers' or choices from the data (Tobin and Begley 2004).

Reliability (credibility, plausibility or trustworthiness) of the research involves adherence to the same questions or discussion points for each interview and performing analysis in a consistent manner. The analyses were performed consistently using the language and concepts used by the participants "consistent with the epistemological position of the analysis" (Braun and Clarke 2006, p.96).

Reliability is observed when one can use an " 'essential' description consistently" (Beck, Keddy and Cohen 1994, p.258). Adherence to phenomenological procedures, namely reduction and imaginative variation, ensures the validity of the eidetic findings (Giorgi 2008, 2010). The key features of IPA that generate reliable and valid findings are presented in Table 4.2.

The labels of all folders contained descriptive codes that facilitated theme development. This enabled the configuration of data into a sensible thematic map, detailed later in Research Findings (Chapter 10). The graphical presentation of a thematic analysis demonstrated rigor in qualitative research (Pratt 2008; Tracy 2010). The visual presentation of relationships between and among underlying constructs was checked, facilitating revisions, thus enhancing reliability (Finfgeld-Connett 2014). Additionally, understanding of situations contained in each of the courses or insights (Giorgi, Giorgi and Morley 2017) were stated.

Table 4.2: Integration of Phenomenological Study and Thematic Analysis: Enhancing Trustworthiness

Interpretative Phenomenological Analysis (Larkin and Thompson 2012)	Actions Ensuring Trustworthiness
Balance between 'idiographic focus' or attention to specifics with 'what is shared' within a sample. Identify cumulative patterns within transcripts.	Familiarisation of data. Pedagogies and educator roles that develop ESE identified using learning actions. GREs to confirm and elaborate data.
Coding data and questioning conspicuous features of the data with personal meanings temporarily suspended. Use of imagery and metaphors. Abstract categories (themes) from first-order coding. Cautious balance of presenting participants' experiences and theory application in making sense of the meaning of experiences.	Reflexive analysis of potential codes or themes based on horizons. A coding framework implemented in NVivo20, based on pilot and interim main study analyses. Stored and organised field notes and transcribed data in NVivo20.
Suitable level of contextual detail related to the extracts and participants. Considerable use of extracts and commentary to explain the data and to achieve transparency, especially on longer data extracts	An audit trail with sufficient details with thick descriptions of context (EPG-based) including code generation related to actions, pedagogies and roles.
Validation from a different perspective (from GREs) to test the plausibility of interpretations from CDs. Verifying credibility of transcript data	A thematic diagram showed 'sense-made' theme connections. Tables showing the development and hierarchies of concepts and themes were created based on participants' horizons and checked against literature (Gioia, Corley and Hamilton 2012).

Source: Adapted from Larkin and Thompson (2012) and Gioia, Corley, and Hamilton (2012).

Validity was achieved when the description of a phenomenon accurately captured the structure underpinning the phenomenon, the 'essence', a set of invariant and latent meanings (Kvale 2006; Osborne 1994). The researcher strove to understand the participants' experiences (accounts), describing 'what it is like' as close to the actual 'first-person account'. Whenever possible, the interviewer strove to glean the broader social, cultural and theoretical context of the EEDs from his interviews.

Blenker et al. (2014, p.706) recommended the utilization of "more refined forms of data analysis (to) enhance research from description to in-depth investigations into central mechanisms of entrepreneurship teaching and learning. ... with processual understandings, how (EE) works or does not work." A more precise sharing of EED experiences was derived using a discussion device, the EPG (Section 3.2).

Achieving validity entailed minimising biases; further details are in Section 4.8. To minimise participants overly emphasising more active (practical) pedagogies in more lifelike- authentic or real-life contexts, their EED experiences were verified with the experiences of GREs, and with their Qualtrics pre-interview responses and course outlines (wherever available). Response or participant bias could stem from cognitive biases that degrade the accuracy or truthfulness of participants' responses during data collection. There was an acknowledged potential for participants to anticipate the goals of the researcher or to change their answers or behaviour due to their own unique environment (Holbrook, Green and Krosnick 2003; Seidman 2013).

Analysis across a range of universities and countries revealed common patterns regarding the phenomenon to address generalization bias (Ndou et al. 2018), to a finite extent. Limitations of this research are detailed in Section 10.8.

Increasing the coverage of participants reduced self-selection bias (Bethlehem 2010). To maximise sample heterogeneity, the researcher strove to interview CDs who also taught non-EE courses; for example, an engineering lecturer who taught entrepreneurship (Bernard 2012). Mitigation of non-response and self-selection biases (Dillman 1978) also required selecting EEDs at the vocational, low-level and high-level undergraduate and postgraduate schemas. Interviewing CDs who utilised traditional or advanced/experiential pedagogies also enhanced sample diversity.

The interviewer analysed a wide variety of EEDs, pre-interview and interview data relating to pedagogies and approaches in the four contexts highlighted by Garavan and O'Cinneide (1994). The diversity of EEDs included two practitioners whose EEDs required refinements. They practised reflexivity to propose what they could have done better. Besides new venture creation, entrepreneurship courses included those focusing on creativity, entrepreneurial finance, family business and entrepreneurship in healthcare, and hospitality sectors. The data variations are displayed in Section 5.7.

During the data analyses, the researcher used reflexivity (detailed in Section 10.7) to continually improve his understanding of the themes and overall research (Wertz 2005).

4.7 Development of the Validation Study Protocol

The interview questions in Table 4.3 were generated after thematic analyses revealed known and previously unidentified constructs in the EED-ESE model.

Table 4.3: Validation Study Interview Protocol

Est. Time Duration	Questions And/Or Actions	Concepts
5-10 minutes	Entrepreneurial self-confidence is the 'yes I can' attitude, the realisation of one's 'newly found capability' or improvements in performance, the self-belief that one can be achieve entrepreneurial goals or be a capable entrepreneur. What learning activity (activities) helped you the most to develop self-confidence to be an entrepreneur? Why?	ESE Development
10-15 minutes	Describe the various coaching and mentoring methods that develop your entrepreneurial self-confidence. Participant estimated the proportions of the various methods (pedagogies), they experienced based on the time their former lecturer spent on each method.	Potential role-transitioning between educator roles (instruction and feedback).
5-10 minutes	Which combination was the most effective to develop your entrepreneurial self-belief? Why/ why not?	
5-10 minutes	Creative self- confidence is the self-belief that you can produce creative outputs and solutions. Which educator roles helped develop your creative self- confidence? Why (why not?)	Creative self-confidence
10-20 minutes	Describe as detailed as you can, your start-up journey.	'Entrepreneurial awareness' or cognizance of one's entrepreneurial scope.
5-10 minutes	Which learning activity (activities) helped you develop your 'entrepreneurial awareness?' Why (why not?)	
5 minutes	Questions to extract GRE's opinions and rationale: (A) Does recognising or understanding one's ability to access resources, and mobilising relationships within one's networks, help to evaluate feasibility and achieve entrepreneurial goals? (B) Is self-awareness trainable? (C) Can self-awareness initiate actions and reflection that develop entrepreneurial self-confidence?	
5-10 minutes	Perhaps earlier on your course (program) your lecturer directed you to specific cases, invited guest entrepreneurs who shared their experiences (to analyse) and required submissions of specific assignments (business plans, presentations, reports). Later on in the course (program), was there more self-study or 'self-discovery?' If so, describe how self-study (or learning with others) developed your entrepreneurial self-confidence.	Other ESE sources (roles), namely curated VL and self-assessed emotions.

The validation study was guided by research focus four (section 3.3.4) obtained and then thematically analysed data from GREs (experiences of EED), to elaborate the themes and findings of the main study.

4.8 Enhancing Validity in Interview Data Collection

The interviewer made straightforward requests to participants to commit to providing complete, accurate and honest responses (Hibben, Felderer and Conrad 2022). CDs were inextricably embedded within their institutions and might offer biased information. These might include perceptions of the effectiveness of their courses, derived from their institutions' ranking and/or achievements, for example, high teaching survey scores and/or highly positive student feedback. Neutral reminders focused on perceptions on EED experiences, instead of emotions related to student grades and course 'satisfaction' scores. Furthermore, sensitive information (Krumpal 2013) namely, course, program or student satisfaction scores were excluded from the scope of interview.

Before and at the interview commencement, sufficient rapport was built. The 'warm-up' positioned interviewees at ease (Burnard 1994). The interviewer reminded participants of the information-consent paragraph and that there was no one 'best' EE approach. He mentioned that the anonymised analysis of entrepreneurship course designs would contribute towards future course and program designs that enhance ESE. The more comfortable the interviewee, the more likely he/she would be motivated and accurate in sharing his/her EE experiences (Saunders, Lewis and Thornhill 2009). The degree of time flexibility depended on the nuances of each interview situation. The amount of time needed for main phase interviews was estimated based on pilot phase responses (Burke and Miller 2001).

Acquiescence and confirmation bias is the propensity to relate favourable (not unfavourable) and confirmatory perspectives respectively, among academics (Martin 2022) and in students (Liñán, Urbano and Guerrero 2011). Acquiescence can result from norms of conduct namely a tendency to be polite and agreeable and/or a tendency to defer to a person of higher status (Krosnick 2000). Methods to minimise these and other potential biases are in Table 4.3.

Table 4.3: Implemented Solutions to Minimise Method Related Biases

Potential Biases or Influences	Methods Implemented
<p>Minimising acquiescence or perceptions of the questions having 'socially favourable' (Fisher 1993; Nancarrow and Brace 2000) or 'socially desirable' answers (Bradburn, Sudman and Wansink 2004).</p>	<ul style="list-style-type: none"> • Reduced number of words with precise, easy-to-understand sentences. Obtained data from CDs from current courses, and from GRE's recent entrepreneurial initiatives. • Minimised recall from the past. • Provided verbal response categories rather than numeric labels, using familiar and unambiguous worded labels whenever possible. • Minimised task difficulty, for example, classifying pedagogies by actions for CDs. • Deconstructed open-ended questions into shorter clarification phrases, with references to previous responses. • Adhered to the interview protocol consistently to optimise the necessary cognitive tasks by participants, in a thorough and unbiased manner.
<p>Researcher biases (Mehra 2002; Poggenpoel and Myburgh 2003).</p>	<ul style="list-style-type: none"> • The researcher reviewed his assumptions at iterative theme development stages. • Utilised a pilot to refine the design of open-ended questions (Chenail 2011) and the discussion device (EPG). • Reviewed selected recorded interviews including those with 'challenging' participants, to improve his technique as an interviewer (King 2004a).
<p>The interviewer's behaviour, background, and psychological characteristics may influence the participants and vice versa (Jentsch 1998), arising in power and knowledge asymmetries between interviewers and interviewees (Heritage 1997; Kvale 2006).</p>	<ul style="list-style-type: none"> • The researcher mostly identified himself as a researcher aiming to discover the latest EEDs, deferring to the participants' expertise. • An attitude of being less knowledgeable than the participant on the topic assisted with openness of response and rapport-building (Leech 2002).
<p>Memory decreases over time making it difficult to recall distant events, unless they were highly important, unusual and memorable (Conway 1990; Schwarz and Oyserman 2001).</p>	<ul style="list-style-type: none"> • Sought responses pertaining only to courses CDs recently designed or were currently coordinating.

Source: Researcher's selection of relevant bias-minimising methods.

Blenker et al. (2014, p.697) cautioned “qualitative single case studies are ripe with contextually sensitive descriptions and best pedagogical practices but suffer from limited comparability and generalizability and biases of teacher-researcher conflation.” The researcher therefore interviewed a diverse range of participants (both CDs and GREs) and focused on a wide range of roles and pedagogies that generated both positive and negative experiences. The diversity of EED garnered in this research is shown in Table 5.4 in Section 5.2.

Throughout the data collection, the researcher's own perceptions were temporarily suspended to faithfully record all participants' experiences (Yüksel and Yıldırım 2015). The experiential claims, expressions, accounts and concerns of participants were faithfully preserved (Larkin and Thompson 2012).

To continually improve his technique, the interviewer took notes during and after interviews to identify areas of improvements. A properly paced interview allowed the participant to comprehend the questions with distractions minimised (Krosnick 1999). Emotional arousal was minimised by not associating any activity with ‘high stakes’, and socially desirable responses were also minimised (Paulhus 1991). Reminders, probes (for example, “you said ... because?”) and prompts kept participants focused on EE in a neutral tone.

The pre-interview responses (52 sets) and course outlines (25 sets) provided by CDs assisted in checking the veracity of their corresponding interview transcripts.

4.9 Thematic Analysis of Transcript Data and Theory Elaboration

Thematic analysis identifies, analyses and records repeated data patterns (Braun and Clarke 2006). This type of analysis requires interpretation in choosing codes and developing themes (Kiger and Varpio 2020). A textural theme describes the unchanging (invariant) characteristics of an experience. A structural theme describes how contextual conditions influenced participant’s experience (Moustakas 1994).

Thematic analysis is the development and analysis of themes, which are groups of similar significant words (horizons). In this research, horizons were significant statements or phrases that provided an

understanding of the participants' experiences. These significant words are shown as **bold text** in this thesis. The horizons were integrated and interpreted into themes.

Coding is the categorising and labelling of horizons to visualise connecting patterns to develop themes (higher-order codes) and aggregate dimensions (higher-order themes or constructs) from the data (Creswell 2012; Gioia, Corley and Hamilton 2012). A code is a word or short phrase containing significant, identifiable and suggestive traits.

In this research, some codes were also identifiers (metadata, data that describes other data) that assisted data-retrieval (Chi et al. 2018). Identifiers were previously utilised in identifying personal and societal levels, and conditions influencing entrepreneurship rates qualitatively (Galloway and Kelly 2009).

After collecting interview data, thematic analysis provided understanding of the inter-relationships between components- the structure that underpinned the phenomenon and the observed behaviour (Fisher and Aguinis 2017).

The researcher described the noema (the 'what', i.e., EEDs) and derived explanations of the noesis (the 'why', i.e., participants' perceptions about how course design experiences were ESE-enhancing). Both the 'noema' (textural) and the 'noesis' (structural) combined to understand the experiences described by participants and the phenomenon more comprehensively (Cilesiz 2011).

Thematic analysis began with highlighting participant codes before grouping similar codes into categories or phrasal labels (themes) (Gioia, Corley and Hamilton 2012). The data coding process eventually reduced the useful data categories to a more manageable number (Morse 2008). Whenever possible, themes retained the horizons used by participants. Subsequent analysis involved clarifying emerging themes by comparing them with extant literature to identify potential new discoveries.

Codes or metadata that identified unique actions, pedagogies, ESE sources and contexts were inserted into transcripts. These codes derived the norms (main characteristics of the sample) of data categories, namely the types of pedagogies, actions and roles. Coding of interview transcripts labelled and categorised horizons, what Moustakas describes as 'horizontalization' (Padilla-Díaz 2015).

Transcript guidelines preserved the original structure and morphology (pauses, words and phrasing), unless the conversation presentation could not be expressed consistently "with what is typically

acceptable in written text” (McLellan, MacQueen and Neidig 2003, p.65). Additional transcript protocols included parentheses or round brackets () containing the closest or simplest synonym whenever the meaning based on the participant’s voice was ambiguous. Square brackets [] contained metadata or the researcher’s field notes.

The researcher used NVivo’s text and word frequency count functions (Gess, Brivio and De Leo 2021; Wiltshier 2011) to determine the number of occurrences of pedagogies, roles and the types of ESE sources within a transcript. Wraae, Brush, and Nikou (2022) utilised a similar Text Query method to demonstrate the intensity (focus) of an academic’s opinion.

The use of coding facilitated the discoveries of previously unidentified ESE sources. EEDs were also categorised (using metadata) by the type of designer, geographic region and their academic level. Metadata (identifiers) further anonymised the participant’s name. Appendix 1 displays examples of metadata coding.

Integrative coding categorised emerging themes that evolved into a plausible thematic model that interconnected various themes together into a comprehensible description. Emerging themes and codes were organised for analysis using the NVivo software (Saldaña 2013). The themes identified pedagogies, educator types and roles and contextual conditions perceived by participants that developed ESE.

In this research, constructs and dimensions are used interchangeably. Table 4.4 describes active data categorisation (Grodal, Anteby and Holm 2021) that complemented Fisher and Aguinis’s (2017) theory elaboration methods and the researcher’s application of the methods to improve the validity of data analysis.

Table 4.4: Theory Elaboration and Active Data Categorisation Methods Used

Fisher and Aguinis (2017)'s Theory Elaboration	Grodal, Anteby, and Holm (2021)'s Active Categorisation	Researcher's Application of Methods
1. Improving logical, empirical validity		
1A. Examine how an existing theoretical insight (observations) functions in a context, different from the original context. 1B. Comparing a theory developed to explain constructs at one level of analysis with collected data to describe constructs at another level.	Complementing 1A, 1B, 3A: Contrasting categories with one another to identify relationships between them.	1A. Horizontal contrasting: educator activities across global regions. 1B. Vertical contrasting: EED across undergraduate and postgraduate.
2. Improving the validity and/or scope of an existing construct		
2A. Define entities or constructs not previously considered in existing theory. 2B. Delineate existing constructs into specific dimensions, describing more accurately the different elements of those constructs.	2A. Focus on unexpected yet salient data- EEDs with fewer or more ESE sources. 2B. Separate a category into two or more categories.	2A. New specifications: undiscovered ESE sources namely entrepreneurial awareness. 2B. Construct splitting: educator activities split into instruction, inquiry and advisory.
3. Structuring to improve explanatory and predictive adequacy of an existing theory		
3A. Identify and describe specific relations between constructs that have not previously been described or identify and describe the mechanisms that underlie known relations. 3B. Explore sequences between constructs. 3C. Describe 'recursives' between different constructs in the model.	3B. Sequence or organize categories between types of pedagogies and roles. 3D. Merging two or more existing categories to create a superordinate category.	3A. Specific relations: entrepreneurial awareness developed from recursive learning. 3B. Sequence relations in Figure 10.1. 3C. Recursive interactions between roles and between pedagogies (Chapter 6). 3D. Superordinate categories: IEA (Section 7.5) and EEA (Section 8.2).

Source: Adapted from Fisher and Aguinis (2017) and Grodal, Anteby, and Holm (2021)

4.10 Interpretative Phenomenological Analysis (IPA) Methods

An aim of this phenomenological research was to identify and explain the essence of ESE-enhancing EEDs through the experiences of participants. The essence is the defining structure or essential

characteristics of a phenomenon (Dahlberg 2006), the “inner core of what the ‘thing’ is, and without which it could not be what it is” (Larsson and Holmström 2007, p.59).

The interviewed CDs had designed a multitude of pedagogies and aimed to provide their students with a range of context-specific experiences. To venture beyond superficial narratives of EED, the researcher utilised a discussion device, the Education Pedagogy Grid (EPG, Section 3.2) to extract interpretative explanations from participants related to learning actions and the context where they coached or lectured. New interpretations of EED assisted discoveries using a consecutive hermeneutic (interpretive) process. The researcher interpreted the participants' perceptions from discussions on the ESE-enhancing EEDs. The researcher approached the data “with an openness to whatever meanings emerged” (Hycner 1985, p.280) in order to understand the meanings attached to the participants' experiences (Finlay 2014).

Giorgi, Giorgi, and Morley (2017, p.182) suggested firstly reading the entire transcript “to grasp the basic sense of the whole situated description”, then abstract meaning units from interview transcripts, focusing on the phenomenon. The researcher interpreted participants' horizons (significant words) to generate meaning to their experiences using the language of EE (Eddles-Hirsch 2015). He abstracted beyond the narrative to understand what was implied (Larkin, Watts and Clifton 2006).

Emergent codes, themes and dimensions were checked with the extant literature to delineate existing concepts from newly discovered concepts (findings). Theory did not fully explain the phenomenon experienced by the participants. The extant literature did not explain the data but offered, more cautiously, concepts that might prove useful for discussion when reviewing the phenomenon. Using this conceptual perspective, a richer, more insightful account of EED was achieved.

4.10.1 Imaginative Variation and Contextual Themes

Imaginative variation is also known as eidetic reduction. Moustakas (1994, p.97-98) explained this as "the task of Imaginative Variation is to seek possible meanings through the utilization of imagination, varying the frames of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, different positions, roles, or functions. ... Describing the essential structures of a phenomenon." The aim of imaginative variation was to describe the descriptive ‘essence’ of these themes that remain invariant when the context varied, while faithfully representing the participants' perceptions of the phenomenon (Yüksel and Yıldırım 2015).

After deriving textural themes, imaginative variation using the textural themes was used to craft structural (contextual) themes based on interpretations of experiences of the participants. Structural or contextual themes assisted in the elaboration of theory and the discovery of new components and dimensions. The EPG discussion process (Sections 3.2 and 5.3) facilitated in developing structural themes by examining the EED phenomenon across a range of learning contexts to discover context-specific commonalities.

Contextual conditions in this research included tertiary education levels and courses by CDs in different countries. Furthermore, when students interacted with peers, entrepreneurs and CDs within a context, the created group or network components became part of their experiential claims. The experiences of EED varied by country and culture, the academic year, student cohort, type of CD, additional ESE sources or roles adopted by the CD, and unexpected events such as self-initiated learning experiences by students.

The researcher discovered commonalities (data convergences) among the variations of the phenomenon from the structural themes. Data divergences were highlighted when compared with the convergences. He followed the principle stated by Finlay (2014, p.137), “it is necessary to be selective. It matters less what you leave out of the analysis; it is the quality of what you include that is important. Ask yourself what three things about the ‘lived’ experience ... stand out for you?” However, the textural themes that had high explanatory ability were not discarded but merely temporarily set aside when performing imaginative variation.

The researcher checked which theory offered the most accurate explanation in any given context (Bhaskar 2008). He identified conditions for which alternative or competing explanations derived different (ESE-enhancing) implications (Miller and Tsang 2011). He also assessed critically and eliminated less empirically adequate explanations (Zachariadis, Scott and Barrett 2013) and employed reflexivity to re-examine the extant findings (Sobh and Perry 2006). “The adoption of the disciplinary attitude brings the proper sensitivity to the analysis and provides a perspective that enables the data to be manageable” (Giorgi 2008, p.2). Following this principle, the researcher utilised the language from the EE domain to properly describe ‘essences’ applicable to this domain.

The methods explained in the subsections are summarised in Table 4.5. The researcher practiced IPA in conformance to the thematic analysis advocated by Braun and Clarke (2006).

Table 4.5: Thematic Analysis Procedures Adopted

Moustakas (1994)’s Phenomenological Steps in Analysing Entrepreneurship Education Design	Criteria for Thematic Analysis (Braun and Clarke 2006)
<p>1. Data familiarisation and phenomenological reduction to identify all significant statements directly related to how individuals experience the phenomenon.</p> <p>2. Data ‘horizontalization’. Derived textural themes from mutually exclusive horizons (words) that described how participants experienced the phenomenon.</p> <p>3. A textural description of the phenomenon was created from an integration of all textural themes from all participants (transcripts). The invariant (unchanging) components of the phenomenon were explained by textural themes.</p>	<p>Transcripts checked for accuracy. Equal attention given to each data item (horizons). Themes generated from a thorough coding process incorporated more than a few extracts (quotes) whenever possible. All extracts and transcribed data support developed themes. Themes are unique, comprehensible and analytically reliable.</p>
<p>4. Derived structural themes from imaginative variation (perceiving the possible meanings of the phenomenon from different contexts that described the unchanging nature of the phenomenon). The EPG discussion process facilitated development of structural themes, which were then integrated into a structural description.</p> <p>5. Textural and structural descriptions were combined into a composite description of the phenomenon. The essence of the phenomenon was described in the language of EED in the composite description (Eddles-Hirsch 2015).</p>	<p>Generate meaning and interpret data instead of paraphrasing. Convincing analysis matching the data, balanced between analytical narratives (researcher’s claims), themes (meaning units) and illustrated extracts (quotes). ‘Active’ generation of themes with assumptions and approaches clearly explained, justifying fit between how research is performed and research outcome. Concepts and language consistent with epistemological stance.</p>

Source: Adapted from Moustakas (1994) and Braun and Clarke (2006).

4.11 Ethical Consideration for Pilot, Main and Validation Studies

All participants were required to read and respond to the informed consent Qualtrics email, containing confidentiality assurances before participating in the study. Anonymity minimised any researcher-participants effects (Miyazaki and Taylor 2008). The data and findings relating to teaching practices that develop ESE (assessed as a non-sensitive topic), were anonymised.

In this thesis, all course and institution names were coded or de-identified. CDs and students were only indirectly identifiable by the courses they designed or the businesses that they operated. However, the identification of participants or sources of data was not important in understanding ESE formation related to exposure to EE pedagogies.

Potential harm or risk to participants was negligible. No identifiable public intra/inter-university comparisons (conclusions) were made concerning individual academic achievements, teaching proficiency or any entrepreneurial 'indicators' of any institutions. The study also did not relate any characteristic to any specific person or university institution.

Findings of the overarching study did have a comparative aspect capable of harming the reputation of the courses taught through possible perceptions that some courses and CDs were 'less effective' than the norm. Some publications within communities of practice could indirectly identify a participant; for example, where only one CD designed a course with unique pedagogical designs, identifying him/her as the designer and his/her institution. However, this would only happen where released findings to the public had known identities and results, showing an underperformance relative to another university's course. Such an outcome was nonetheless highlighted in the researcher's ethics application though never planned nor envisaged.

Furthermore, the researcher did not use any collected data or findings with sensitive topics against any participant (Mealer and Jones 2014). His supervisors were in control of the output of his research. Hence, this risk was minimised through their close involvement. Effectively, his thesis and findings could not be released without their approval. No publication of the findings would occur without the written permission of any directly named or identifiable participant.

4.12 Facilities, Resources and Data Storage

This study required a laptop or computer with NVivo20, licensed to Curtin University. Additional software, if any, was purchased using the author's allocated funds. The Qualtrics survey tool web access was gained via the OASIS link available to Curtin HDR students. Curtin Office of R & D provided PhD students with a stipend for purchasing books, papers, conference tickets, and software. A consumable fund was also available for stationery and incidentals. All data were stored in secure Curtin University server space and backed up to an encrypted hard drive. Only the researcher and his supervisors had access to these data.

Curtin Office of R & D organised HDR-related workshops and writing circles. Curtin University also provided access to its facilities such as its library, student workspace and server storage for retaining

a backup of survey data. These facilities were adequate for the proposed project. All major research activities and anticipated timeline are displayed in Appendix 4.

4.13 Summary of Methodology

The researcher sought to implement research methods that were backed by established theories and methods. These included the methods used to recruit and interview participants, ensure validity of the research and analyse of the data.

Due to the large amount of interview transcript data, the researcher discovered that the use of identifiers (metadata) to assist thematic analysis was greatly beneficial in identifying the pedagogical emphases and roles used by individual CDs. Further information is provided in the next section.

5 DATA ANALYSIS

This chapter explains the analytical outcomes that guided the thematic analysis in the pilot, main and validation studies. The themes that developed from the analysis validated known ESE sources in the literature (Section 2.4) and two new sources of ESE. Horizons, significant statements or phrases that provided an understanding of the participants' experiences, are shown as **bold text**. These analytical outcomes, thematic descriptions of EED, were incorporated into a final composite description in Table 10.2 in Section 10.1. These thematic analyses are explained in the following subsections.

5.1 Pilot Study Analysis

Using the pilot EPG, participants identified the learning actions by students within designed contexts consisting of content, pedagogies, educator activities and ESE sources (such as educators, guest entrepreneurs, mentors and/or investors). All 18 participants specified a main action for every identifiable pedagogy in their EED. This identification determined whether a pedagogy was more cognitive or more executional in nature. Executional EEDs used more practical pedagogies than cognitive pedagogies. A 'balanced' EED employed an equal number of cognitive and executional pedagogies. Table 5.1 shows the CD participants' identification of their EEDs that were either more executional or more cognitive.

CD participants were coded to ensure anonymity. "OCP" represented a pilot participant from Oceania (Australia and New Zealand).

Table 5.1: Cognitive and Executional Courses in the Pilot Sample

Type Of Course	More Cognitive EEDs	More Executional EEDs
Undergraduate	OCP4, OCP10, OCP14, OCP15, OCP16, OCP17, OCP20	OCP2, or OCP1/OCM1 *
Postgraduate	OCP6, OCP7, OCP12, OCP18	OCP3, OCP5, OCP8, OCP13, OCP19

*OCP1/OCM1 participated in both the pilot study and the main study.

During all interviews with CDs, pedagogy identification using the pilot EPG was emphasized as strictly for coding purposes. The interviewer checked whether the participants were able to justify their Lifelikeness estimates consistently.

Table 5.2: Pilot Thematic Description of the Lifelikeness Dimension

Learning Context	Lifelikeness Identifiers	Descriptions of Lifelikeness with Major Pedagogies
Theoretical	Y10 to 40%	<ul style="list-style-type: none"> • Theoretical with reference to very few real-life examples. • Pedagogies imparting, listening, explaining or studying theory as 10 to 40% (OCP1, OCP12, OCP15, OCP18, OCP20). • Read text, articles, papers (OCP7). • Self-study: analyse videos (OCP12). • Listen and explain theory in lectures (OP14).
‘Applied’, later renamed as moderated entrepreneurship in the main thematic analysis.	Y41 to 90%.	<ul style="list-style-type: none"> • Processing business information from real individuals, simulations, but not working with entrepreneurs. • Applied (‘how-to-perform’) lectures with many real-life examples (OCP6), including those by guest entrepreneurs (OCP3, OCP5, OCP10, OCP13, and OCP16, OCP12, OCP14, OCP18, OCP19). • Reflective discussions on real-life cases (OCP8, OCP12, OCP14 and OCP17). • Feedback on plans, ideas, pitches (OCP6, OCP7, OCP11, OCP12, OCP14) from Y60 to 80%. • Problem/ case-based exams from 50 to 90% (OCP11, OCP14, OCP17, OCP20). • Feasibility, business plans and pitches: 80 to 90% (OCP3, OCP6, OCP8, OCP13, OCP14, OCP17 and OCP20). • Testing business feasibility but not with actual customers (OCP20). • OCP18 considered individual reflections as Y90%.
‘Very lifelike’, later reclassified into authentic and Self-Authentic entrepreneurship	Y91 to 100%	<ul style="list-style-type: none"> • Relatively fewer theories applied; “learn as you go” in the real-world. Solving problems faced by real entrepreneurs. • OCP1/OCM1 emphasised on reflections on authentic project outcomes, such as building website, testing concepts and raising start-up capital, as Y100%. • Consultancy and field interviews as Y100% (OCP12). • Emergence of ‘theory-light’ pedagogies such as site visits containing “no theory at all” (OCP12), buyer-seller negotiated outcomes (OCP7), internship and other Y100% pedagogy (OCP19).

Emergent contexts from the pilot were classified into ‘theoretical’, ‘applied’ and ‘very lifelike’. Table 5.2 highlights these three learning contexts. Pilot participants estimated ‘levels’ of Lifelikeness (Y%) for their pedagogies, using a guideline defining the proportion of real-life content and context. The

pilot EPG was used in the main study to prompt for more discussion and information from CDs. Ultimately, the X and Y% were discarded when forming the final composite diagram.

OCP1/OCM1 (an academic in the pilot study who was reinterviewed in the main study), identified authentic and “personally relevant” projects and reflections as ‘Y100%’. OCP12 identified field consultancy as ‘Y100%’. OCP17 emphasized that students work on IT projects of interest. OCP19 identified internship as ‘Y100%’ where student groups “**work on strategic problems and present feasible justifiable solutions to real CEOs.**” Students of OCP19 worked “on a **go-to-market plan, use the BMC, interviewed potential customers, designed a new validated product**”, within an eight-week timeframe. Subsequently, they “**pitched to a panel of judges** in (the) last session, (a) simulation of a real entrepreneurial context”. These were the emergent indications of authentic learning.

OCP7 introduced lifelike elements into the classroom. ‘Y91% and ‘Y100%’ indicated students were “facing the ugliness of real problems” (OCP7, a practitioner). She also **simulated multiple rounds** of set pricing, product features, promotion, distribution and sales decision-making. Her emphatic preference was “not for students to polish up ‘business plans’ but rather focus on product validation and modifying or deleting their assumptions” (OCP7). OCP10, an academic, “used **real-life examples, a real business for learners to assess, critique, discuss on what is not going well versus what they can do better**”.

Classifications of learning contexts within the EEDs emerged from the pilot data. For example, OCP14, an academic, identified critiquing real business models (without contacting clients or customers) as Y70%. OCP6, an industry practitioner, identified his ‘Go-to-Market’ plan (with actual financials, role-playing and feedback from industry assessors) as Y90%. OCP20, an ex-industry practitioner, identified his business plan (implementing theory-driven environment analysis such as SWOT analysis with online research) as Y90%. Students of OCP3, OCP10, OCP11 and OCP18 performed strategy-based assessments in the field, to improve the innovation capabilities of real business corporations. These were the first indications of authentic industry-situated learning. Table 5.3 describes the lifelike learning actions that were described by the pilot participants. Theory lectures teach basic entrepreneurship concepts and theories. Applied lectures teach the application of theories and concepts. Dialogues refer to interactions with entrepreneurs, such as question and answer (Q&A) sessions or interviews.

Table 5.3: Lifelike Learning Actions Described by Pilot Participants

Lifelikeness (Y%)	Learning Actions (X)	Description Of Actions Within Pedagogies By Pilot Participants
Theory lecture: Y10 to 40%	X1 Listen. X2 Read or Observe. X3 Explain, Describe.	Students of OCP7, OCP12 and OCP16 self-study from resources, online material, videos before class. Study notes, e-textbook on commercialising opportunities (OCP13). Read, know, explain, present all risks involved in entrepreneurship (OCP14). Self-study, reading theory (OCP18).
Applied lecture, including guest lectures, applying theory: Y50 to 80%	X3 To 5 Describe, Reflect, Question. X4 Analyse. X5 Assess, Compare.	Idea creation/validation (OCP3), with sharing real experiences (OCP6). Read, reflect then experiment (OCP15). Listen to ‘start-up’ and corporate entrepreneurs (OCP18, OCP19). Apply effectuation to situation (OCP18). Assess why products were winners or losers; state three frameworks other groups could have used (OCP7).
Reflective discussion on cases: Y60 to 80%	X1 Read. X2 Observe. X3 Write. X4 Analyse. X5 Assess.	Games and reflection on cases and reports (OCP5). Self-study before discussions (OCP6). Reflect then decide, propose, recommend (OCP8). Apply theory to identify issues, valuation, strengths and weaknesses of firm, recommend potential solutions then reflect (OCP10). Real-life entrepreneurship cases discussion (OCP17). Present Business Model Canvas (BMC)-related progress (OCP19). Discuss short media articles and real scenarios (OCP15). OCP20 shared cases to refine students’ business plans.
Dialogues: Y80%		‘Q and A’ with entrepreneurs (OCP2),
Business plan. Presentation: Y 80 to 90%	X4 Analyse. X6 Propose. X7 Critique Or Justify. X8 Design Or Create.	Video business action plan (OCP2). Go-to-market plan (OCP12). Advice-to-entrepreneur briefing to achieve a successful launch, based on Morrison’s business model process, real prices and costs (OCP13). Generate reasonably realistic concept, write up on new local venture (OCP15).
Feasibility study. Experimentation: Y 80 to 90%	X9 Test or Try. X10 Do.	Critique real businesses, suggest improvements, opportunity assessments on what/why it worked or didn’t (OCP12, OCP14). BMC, obtain feedback on real customers and prototyping (OCP19). Go-to-Market plan (OCP16). Develop interest-based ventures, group pitch to simulated stakeholders (OCP17). Critical theory-driven opportunity assessment, test feasibility via secondary research (OCP20).
Learning journal: Y90%	X3 To 5 Reflect.	Reflect on key but unexpected learning moments in ‘start-up’ weekend (OCP2).
Study visit: Y100%	X2 Observe.	Postgraduates of OCP12 also interviewed creative entrepreneurs.

The pilot study indicated that CDs and their students switched between different learning actions as they reflected on outcomes (reflexivity). OCP12 indicated a switching between critical (“closed”) thinking and creative (“open”) thinking, utilised during creative business planning. “For innovation, you need an ‘open’ mind and (then) switch to ‘close’ implementation, critical thinking and to open mode again. The ability to switch between the two thinking modes, quite competently when a situation calls for it, they must switch to 'right' mode” (OCP12).

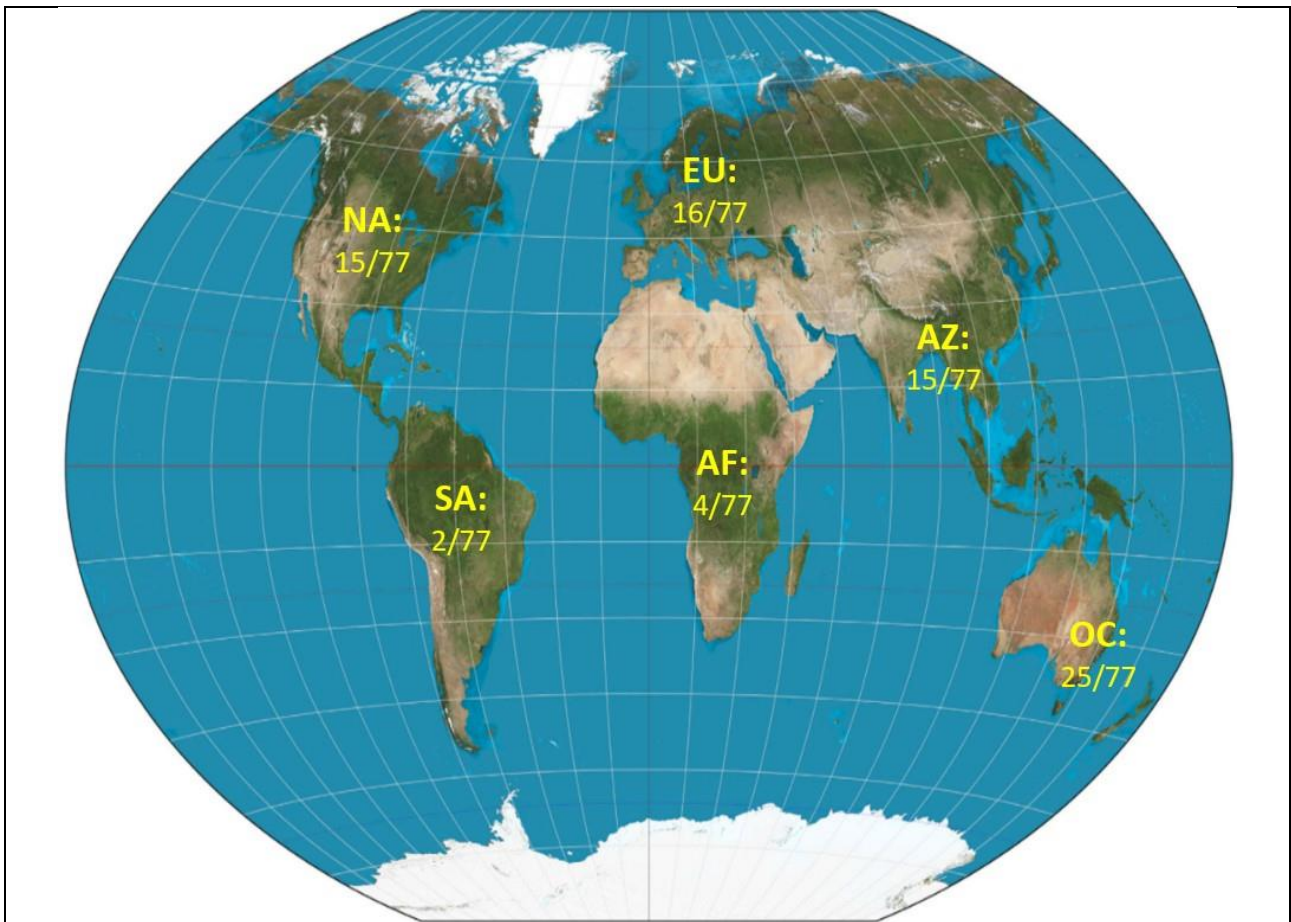
Students of OCP16 also evidenced switching when they learnt, acted, listened to and reflected on feedback when enhancing their plans. OCP4, OCP17 and OCP20 also highlighted reflection after actions. This prompted investigations in the main study into different knowledge types.

5.2 Features of the Main Study

The EPG discussion process facilitated the derivation of contextual horizons, codes and themes into a narrative of the pedagogies and educator roles that developed ESE. Guided by the research framework (Section 3.3), data coding and themes were developed.

A total of 78 transcripts of the interviews (18 pilot and 60 main transcripts) were analysed using identifiers. Theme development identified, described and classified participants’ horizons.

The 77 CDs (one CD participated in both the pilot and the main study) were from 26 countries, from six geographic regions who participated in this research (Figure 5.1). There were 63 male and 14 female CDs, 39 academics and 38 practitioners, teaching 43 undergraduate and 34 postgraduate courses.



Legend: AF: Africa, AZ: Asia, EU: Europe, NA: North America, OC: Oceania, SA: South America. P represents pilot study participants. For example, OCP2 is pilot participant number 2 from Oceania. M represent main study participants, for example, AFM18 is main participant number 18 from Africa.

Figure 5.1: Number of Course Designer Interviews by Region (Total 77)

The number of CDs interviewed compared to the target sample number is displayed in Table 5.4. Relatively fewer North and South American and African CDs responded probably due to the severity of the COVID19 pandemic.

Table 5.4: Main Study Participant Target and Interview Achievement

Countries by Geographic Regions	No. of Tertiary Institutions*	Target No. of Participants	Actual No. of Participants
<u>North America</u>			n = 15
USA	1600	10	7
Canada	60	5	7
Others			Mexico: 1
<u>Europe</u>			n = 16
England	53	5	6
Netherlands	19	3	1
Ireland	15	3	0
Sweden	9	3	2
Finland	38	5	0
Denmark	18	5	1
Others			Austria: 1, Germany: 1, Italy: 1, Norway: 2, Spain: 1
<u>Oceania</u>			n = 8**
Australia	39	5	5**
New Zealand	13	3	3
<u>Asia and Middle East</u>			n = 15
Israel	15	3	1
Singapore	11	3	5
United Arab Emirates	15	3	2
Others			Jordan:1, Hong Kong: 2, India: 2, Pakistan: 2
<u>Africa and South America</u>			n = 6
South Africa	11	3	2
Kenya	11	3	Egypt: 1
Others			Nigeria: 1, Columbia: 1, Uruguay: 1
Total:	1927 (estimated)	62	60
* Figures estimated from public domain data.			
** Figure excludes 18 pilot study participants.			

The main study themes were validated by the GREs before interpretive analysis commenced. The analysis of the research data according to the four research foci are in Chapters six to nine.

5.3 Main Study Entrepreneurship Education Pedagogy Grid

The researcher combined his pilot EPG with Wrigley and Straker’s (2017) Education Design Taxonomy model. The main study EPG was updated with four categories of knowledge shown in the EPG in Table 5.5.

Table 5.5: Researcher’s Learning Contexts and Knowledge Model

Major Learning Actions In EPG	Memory	Under-stand	Apply	Analyse	Assess	Create
Type Of Knowledge						
Factual knowledge: Specific details, basic elements, terminology that students must know to solve problems in a specific discipline.	Reflective-Theoretical learning generates changes in factual knowledge.					
Conceptual knowledge: Principles, categories, theories, generalizations and models.	Reflective- Theoretical and Active-Theoretical learning generates changes in understanding.					
Procedural knowledge: Criteria to determine appropriate procedures, subject-specific skills or techniques.	Reflective-Theoretical, Active-Theoretical and Reflective-Applied learning generate changes in application, procedural knowledge.					
Metacognitive knowledge: Awareness of one’s own cognition; self, strategic and contextual knowledge, including knowledge of cognitive tasks.	Reflective-Theoretical, Reflective-Applied, Active-Theoretical and Active-Applied learning generates skills, attitudes and metacognitive knowledge including ESE.					

Source: Adapted from Krathwohl (2002) and Wrigley and Straker (2017).

More learning actions and pedagogies identified by pilot participants in Table 5.3 (Section 5.1), were included in the main study EPG in Table 5.6. Cognitive pedagogies involved cognitive actions, for example, listen, observe, describe, understand, question, reflect, analyse, assess or compare. Executional pedagogies necessitated students to decide on actions, propose activities, critique the actions of self and others, justify decisions, create, develop, test, try, experiment, do and practice.

Table 5.6: The Main Study Entrepreneurship Education Pedagogy Grid

LIFELIKENESS (authentic, industry relevant)											
Y100%	Q2: More Critical Reflective-Applied; changes in application					Q3: More Executional-Applied; changes in skills and attitudes, procedural & metacognitive knowledge					
	Case-/ problem-oriented exams					Apprenticeship, internship or industry attachment					
90%	Dialogue with entrepreneurs- Q&A, Interview					Business Planning: Feasibility Study, Lean Canvas					
	Entrepreneurship clubs					Counselling, mentoring					
	Educator facilitated applied lecture					Focused Learning Group: debate, discourse					
80%	Guest entrepreneur applied-lecture					Field project- consultancy or 'live' project; start a real business; volunteering, services, with field notes					
	Learning software: skills					Field-researched Go-to-Market Plan					
	Learning journal, diary, log, portfolio					Presentation, pitch, proposal					
70%	Limited discussions, critiques, exercises, quizzes					Industry or 'live' case study					
	Movies					Simulation/ Serious Game/ Role-play					
	Real-life case studies					Training/ encounter group, Processing discussions					
60%	Site visits, study tours										
50%	Q1: More Reflective-Theoretical; changes in factual					Q4: More Executional-Theoretical; changes in					
40%	Content-oriented exams					Analysis papers					
	Learning software: concepts					Argumentative discussions					
30%	Required readings, handouts, short cases					Conceptual experiments/ research					
	Theory/ concept lectures, videos, online content					Coaching, monitoring					
20%	Theoretical papers					Suggested readings					
10%						ACTION					
	<i>Listen, observe/read, describe, analyse, assess</i>					<i>propose/ decide, critique, create, try/test, practise, do</i>					
Y0%	X1	2	3	4	5	6	7	8	9	X10	

The actions in the EPG were not an exhaustive list of all possible learning actions, as the EPG was a discussion device designed to prompt the participants to share their own course designs. Bacigalupo et al. (2016) advocated learning actions related to exploration, improvement and transformation to generate increasing levels of value-creation (Appendix 5). Their suggested actions were not included in the main EPG as the researcher assessed them as overly complicated to be of assistance in an exploratory study such as this.

The researcher’s main EPG included some of the latest EE pedagogies highlighted in the pilot study, for example, team-based discussions, business planning, simulations, ‘live’ cases and/ or projects (Lackeus and Middleton 2015). Notably, no CD suggested any other representations of EED besides the EPG. NAM32 and NAM52 expressed that the EPG was too limiting in design options. Naturally,

they subsequently explained the rationale and details of their EEDs. Their comments were reflected on by the researcher in Section 10.7.

5.4 Data Patterns Identified by Entrepreneurship Education Pedagogical Grid

Identifiers were processed by NVivo20 to reveal the pedagogical patterns within the sample. Table 5.7 displays the progression from horizons to codes to themes consisting of passive and active, cognitive and executional pedagogies. Active-cognitive and passive-executional pedagogies were more heavily utilised in EEDs than passive-cognitive and active-executional pedagogies, across all six geographical regions.

Table 5.7: Main Types of Pedagogies and Occurrences of Learning Actions in Transcripts

Themes: Type of Pedagogy	Passive Cognitive	Active Cognitive	Passive Executional	Active Executional
Horizons: Learning Actions	Hear (48), Observe (14), Read (36)	Explain (75), Question (31), Understand (88), Analyse (174), Assess (136)	Decide (102), Propose (156), Justify (145), Critique (77)	Create (92), Test (86), Iterate (41), Practise (54)
Horizons: General learning actions	Reflect, interpret (AZM14), integrate (EUM59)		Synthesis (EUM23)	
Codes: Pedagogies	Applied and Theory Lectures	Content or problem exam, reflective discussion and journal, analysis paper, field trip, dialogue.	Focused learning group, experiment, presentation.	Business planning, field projects, research, plans, 'live' case/project, simulations, internship.

Data patterns that emerged indicated a preference for more executional (higher Practicality) EEDs by both academic and practitioner CDs. Field-based pedagogies were more commonly mentioned than classroom learning activities. For example, compared to the academics, practitioners focused more on field research and field-based plans or reports. However, academics focused more on field projects than their practitioner counterparts. It was noted that practitioners focused on more testing and understanding (reflexivity) than did the academics.

There were also differences according to the course levels. Undergraduate courses focused more on executional tasks, such as deciding, testing and field projects, than their postgraduate counterparts. Compared to undergraduates, postgraduates had more dialogue with entrepreneurs (cognitive).

The researcher made no interpretations based on these data patterns alone. The data showed that there were more occurrences of executional actions compared to cognitive actions. Instead of instinctively or simply concluding that CDs designed courses with more Practicality, thematic analysis revealed that reflexivity (producing self-awareness) was also important for developing ESE.

Across all six regions, educator roles (instruction, inquiry and advisory) were complemented by reflective discussion and FLGs, which were the most common pedagogies. FLGs, the second most common pedagogy, included project progress updates, debating, proposing, justifying and critiquing solutions, combined with analysis and assessment (EUM23, OCM47). NAM30, NAM37, AZM35 combined FLGs with business planning and structured (creative) problem-solving.

The **repeatedly** used pedagogical combinations identified in the pilot and main studies are listed in Table 5.8. The ‘+’ signifies combinations of pedagogies in use. Reflective discussions emerged as the most common pedagogy, in varying combinations with all executional pedagogies.

EEDs in all six regions focused on applied lecture, reflection journal, Focus Learning Groups (FLGs, where students update and provide feedback to each other), business planning and presentations more than all other pedagogies.

North American and Asian entrepreneurship students experienced more testing than their counterparts in other regions. European entrepreneurship courses focused more on creating (for example, creating prototypes or small businesses) than all other regions. Internship was the rarest pedagogy. Section 5.7 highlights some pedagogical variations among the geographic regions.

Table 5.8: Entrepreneurship Education Pedagogy Combinations with their Identifiers

Pedagogies with their Transcript Identifier in (Brackets)	Pedagogical Emphasis	Pedagogy Combinations
Less Cognitive Pedagogies. Actions- hear, observe and read.		
1. Theory lecture (tlecture)	23	1 + guest lecturers, 2, 3, 15
2. Applied lecture (alecture)	53	2 + guest entrepreneurs, 4, 6, 7, 8, 16, 17, 19
More Cognitive Pedagogies. Actions- explain, question, understand, analyse, assess, interpret (AZM14), integrate (EUM59).		
3. Content exam (cexam)	7	None
4. Reflective discussion (refdisc)	101	4 + 1, 2, 5, 7, 8, 9, 11, 12, 15, 16, 17, 18, 19, 20, 21
5. Reflective journal or report (refjour)	43	5 + 2, 4, 7, 8
6. Analysis paper or report (apaper)	12	6 + 2, 4, 11, 14, 17
7. Field trip/ study tours (visit)	12	7 + 2, 4, 5, 8, 11, 16, 17, 18
8. Dialogue/ interview (QnA)	20	8 + 2, 4, 5, 7, 18
9. Problem exam (pexam)	5	9 + 3, 4
Less Executional Pedagogies. Actions- decide, propose, justify, critique, and synthesise (EUM23).		
11. Focus Learning Group (FLG-sharing) with feedback (flgpl)	83	11 + 1, 3, 5, 6, 8, 11, 15, 14, 17, 18
12. Focus learning group (FLG-arguments with feedback (flgarg)	13	12 + 2, 13
13. Experiments (ezperi)	7	13 + 5, 18, 19
14. Presentation, pitch, proposal (ppp)	40	14 + 5, 6, 11, 14, 16, 17, 15, 18
More Executional Pedagogies. Actions- create, test, iterate and practice.		
15. Business planning: feasibility study, BMC (bpfs)	43	15 + 4, 5, 6, 11, 16, 17, 14, 18
16. Field Projects- consulting, websites, start-ups (fieldproj)	27	16 + 4, 7, 11, 14, 17, 14, 18
17. Field research- testing concepts and/or prototypes (fieldres)	27	17 + 2, 4, 6, 7, 11, 14, 15, 16, 18
18. Field report, analysis and/or plan (frplan)	34	18 + 4, 11, 14, 15, 16, 17
19. 'Live'/ in-depth case or project-solve real problems for real people (lidcas)	8	19 + 4, 5, 11, 18
20. Simulations, role-play (simrpg)	26	20 + 4, 5, 11, 13, 14, 16, 18
21. Apprenticeship (Intez)	3	None

5.5 Classification of Entrepreneurship Courses According to Research Foci

Unique identifiers (metadata) were assigned to actions, pedagogies, educator types and roles, contexts and ESE sources. The major contexts within this sample were geographic region, tertiary education level, type of CD and size of institution.

The NVivo Text Query function registered every occurrence when a unique action or pedagogy was stated by each participant. The average occurrences (central tendencies) of specific identifiers were calculated and were used to compare EEDs. The relatively lower or higher emphasis of pedagogical components in a certain EED context (for example, undergraduate) was compared to the central tendencies and classified according to research foci one to three.

Entrepreneurship courses with nine or more types of ESE sources (central tendency calculation was 8.9) were classified as more experiential. Those with eight or less were less experiential. An EED with more than five lifelike pedagogies was classified as 'more' lifelike. An EED with four or more lifelike and executional pedagogies was considered as 'more' lifelike and executional.

The size of institution was classified as smaller or larger based on its current student enrolment in the year the interview with the CD occurred, as being lesser or greater than the sample average. The average student enrolment of this sample of 72 institutions was 24,871. Approximate student enrolment figures were obtained from public domain data.

CDs from 38 smaller institutions focused more on inquiry (84%) and extra-curricular activities (ECA) (50%) more than their counterparts in 39 larger institutions (49% and 33% respectively). Students enrolled in smaller institutions generally experienced more experiential EEDs than those in larger institutions.

These classifications were not quality or performance indicators assigned to any EED. Instead, all data patterns were considered to demonstrate variations in EEDs across contextual characteristics. No conclusions were derived based on any contextual comparisons. Identifiable data patterns are highlighted in bold in Table 5.9.

Table 5.9: Data Patterns Categorised by Contexts and Research Foci

Types of EEDs	Focus 1: No. of More Executorial EEDs	Focus 2: No. of More Lifelike EEDs	Focus 3: No. of Lifelike and Executorial EEDs	Courses with 9 or More Types of ESE Sources
Course Context				
<i>Smaller Institution</i> (Total 38)	19 (50%)	15 (39%)	13 (34%)	26 (68%)
<i>Larger Institution</i> (Total 39)	20 (51%)	13 (33%)	14 (36%)	20 (51%)
<i>Academics</i> (Total 38)	24 (63%)	17 (45%)	14 (37%)	20 (53%)
<i>Practitioners</i> (Total 39)	16 (41%)	14 (36%)	12 (31%)	25 (64%)
<i>Undergraduate</i> (Total 43)	24 (56%)	16 (37%)	20 (47%)	26 (60%)
<i>Postgraduate</i> (Total 34)	16 (47%)	12 (35%)	8 (24%)	19 (56%)
<i>Oceania</i> (Total 25)	11 (44%)	10 (40%)	10 (40%)	9 (36%)
<i>Europe</i> (Total 16)	11 (69%)	6 (38%)	5 (31%)	12 (75%)
<i>Asia</i> (Total 15)	7 (47%)	5 (33%)	5 (33%)	11 (73%)
<i>North America</i> (Total 15)	7 (47%)	5 (33%)	5 (33%)	12 (80%)
<i>Other regions</i> (Total 6)	3 (50%)	3 (50%)	3 (50%)	2 (33%)

European academics emphasised more on executorial pedagogies than their counterparts in other regions. Noticeably in Table 5.10, female CDs designed more lifelike and executorial pedagogies than their male counterparts. EEDs by male CDs emphasised more on concept testing or customer validation than their female counterparts. Fewer EEDs from Oceania had nine or more types of ESE sources compared to Europe, Asia and North America. There were more guest instructors in the EEDs from Europe and Asia than their North America and Oceania counterparts. Conspicuously, there was more focus on ECA and reflexivity in European entrepreneurship courses than in their Oceania counterparts.

Table 5.10: Male and Female CD Variations in Entrepreneurship Education Designs

Types Of EEDs	Focus 1: No. Of More Executorial EEDs	Focus 2: No. Of More Lifelike EEDs	Focus 3: No. Of Lifelike And Executorial EEDs	Courses With 9 Or More Type Of ESE Sources
Male CDs (Total 62)	33 (53%)	12 (19%)	19 (31%)	37 (60%)
Female CDs (Total 15)	7 (47%)	7 (47%)	7 (47%)	8 (53%)

Of the 15 Asian CDs, 11 were practitioners, whereas 12 of the 16 European CDs were academics. Of the 34 postgraduate EEDs, 20 were designed by practitioners. More undergraduates experienced EEDs with nine or more types of ESE sources compared to the postgraduates. More undergraduates also experienced more lifelike and executorial pedagogies than the postgraduates.

More experiential entrepreneurship courses, those with nine or more types of ESE sources, were more likely to include under-described ESE sources. These were ECA, sharing by practitioners, reflexivity, self-awareness and industry assessors, previously unidentified in EE literature. Table 5.11 highlights these five relatively rare ESE sources.

Table 5.11: Under-Described ESE Sources in Entrepreneurship Courses

EEDs with	8 or Less ESE Source Types (Out of 33)	9 ESE Source Types (Out of 12)	10 or More ESE Source Types (Out of 32)
Extra-Curricular Activity (ECA)	5 (15%)	3 (25%)	22 (69%)
Reflexivity (on emotions)	6 (18%)	6 (50%)	20 (63%)
‘Self-Awareness’ (of relationships)	3 (9%)	4 (33%)	16 (50%)
Practitioners sharing industry experiences	8 (24%)	2 (17%)	16 (50%)
Industry assessors	4 (%)	3 (%)	12 (38%)

More experiential entrepreneurship courses were more likely to require reflexivity to develop ‘self-awareness’. Courses with more than nine types of ESE sources also included less common ESE types such as mobilising people (Table 5.12). Of the 77 educators, only 27 asked questions (inquired) to enable reflexivity. ESE types one to five are well understood in EE literature as enablers of

entrepreneurship. Appendix 6 displays pre-interview responses related to EEDs that focused on ESE types.

Table 5.12: Entrepreneurial Self-Efficacy Types as Ranked by Main Study Participants

Relative Emphasis	ESE Types (Gedeon and Valliere 2018)	Educators Who Selected ESE Type (N = 42)	Equally Critical Types Mentioned by Educators
1	Critical thinking	39	
2	Creativity	38	Critical thinking, Adaptability (OCM1). Collaboration (OCM47). Marshalling (EUM42, AFM46). NPD (AZM35). Planning (OCM33). Entrepreneurial Marketing (EUM27). Innovation (SAM29).
2	Communications	38	
3	Entrepreneurial marketing	35	
4	Planning to start-up	34	Creativity (NAM36).
5	Collaboration (teamwork, networking)	28	Collaboration (NAM26). Communication, Creativity (NAM41). Entrepreneurial Marketing (SAM40).
6	Self-management	26	
7	Adaptability	25	Creativity (NAM43). Entrepreneurial Marketing (NAM37, NAM48).
7	Marshalling resources	25	
8	Information alertness	23	Collaboration (AZM34).
9	New product development (NPD)	23	Financial management (OCM33).
10	Financial management	17	Planning to start-up (NAM48).
11	Mobilising people	9	

An individual's external entrepreneurial awareness (EEA) (Section 7.5) originated from reflexivity on outcomes from learning actions, accessibility to resources and relationships. Distinct from EEA is an individual's internal entrepreneurial awareness (IEA) from reflexivity or self-assessment on one's

emotions, self-concept, personal meaningful interests and perceived mastery (Section 8.2). EEA and IEA, types of self-awareness, assisted in evaluating the feasibility of one's new venture or entrepreneurial project and initiated entrepreneurial activities and reflexivity.

EEA and IEA were types of metacognitive knowledge. The main study EPG explored whether metacognitive knowledge was generated in EEDs. Only 27 out of 77 EEDs mentioned activities that cultivated self-awareness.

5.6 Recursive Nature of Entrepreneurship Education Designs

The EPG artificially delineated cognitive actions (lower Practicality) from executional actions (higher Practicality). NAM43 and OCM49 perceived business planning and pitches (pedagogies) as requiring both cognitive and executional actions (lower and higher Practicality respectively). Pragmatically in real-life, executional actions also involved cognitive actions; for example, deciding based on the analysis and assessments on prior outcomes (EUM23).

AZM11 was the first participant to indicate that pedagogy combinations involved decision-making. He advocated that students had to decide what theories to apply in their projects/plans and decide what field data and outcomes were relevant to reflect on.

Many CDs described their pedagogical designs as recursive relationships between less lifelike (theoretical) and more lifelike (authentic) contexts. EUM23 used the EPG to describe a modified experiential learning with a learning 'cycle'. EUM12 positioned 'coaching' in the EPG among lifelike and practical pedagogies. **"They self-study, propose, justify and perform actions, and obtain outcomes. They shared these with the class and the coach who 'inquired' on what they thought went well, what did not go well and subsequently ask what they would do next or improve based on their reflections"** (EUM12). Some CDs presented their pedagogical designs graphically on the EPG. EUM12, OCM17 and SAM40 used lines or arrows drawn physically on the EPG to describe their EEDs.

During the interview with OCM17, his 'free hand' sketches on the EPG showed pedagogical 'movements' over Zoom (video conference) software. His students moved between activities such as FLG and field research, conducting real-world analysis and assessment

NAM43 described the pedagogical movements of a reflective discussion as:

“I see my ‘answer’ as a moving picture. For lectures, it will ‘stroll’ X1, 2 and then a 5. ... there are many ‘train tracks’ running in their heads, concurrently. One of those train tracks is around ‘X9’, applying it to their own life, creating a future out of it and then coming back to analysis and going back to listening. ... go, back, up and down, a series of dots that are lighting up ... all over the place as opposed to one dot” (NAM43).

The pedagogical movements within the EPG demonstrated role-transitioning. **“From domain knowledge expert, lecturer, ... you quickly move to facilitation”** (NAM30). **“After 1.5 hours of teaching, (you) get them to a stage where they can ... analyse ...”** (OCM33). NAM41, NAM43 and EUM44 also utilised arrows and ‘estimated’ positions of executional and cognitive actions as shown in Table 5.13, pertaining to their EEDs.

Some CDs found it challenging to separate the pedagogical components in their entrepreneurship courses. **“It would be very hard to actually dissect or take apart that complex way that I obviously teach”** (NAM32). **“It is a fluid, dynamic environment. Sometimes my roles changes, three times in a minute as I deal with a number of things with students concurrently”** (EUM23).

Similar to OCM1, EUM23, NAM32, NAM43 and NAM51, AZM14 observed, **“things are very fluid. Specifically, I very much apply a garden variety of techniques within a 1.5- or three-hour session depending what is given. You do not just stick to one style”**. These comments were followed by descriptions of how they designed their entrepreneurship courses.

The interviewer faithfully recorded how participants perceived and classified their pedagogies. EUM4 and AZM5 mentioned ‘Y%’ that were not within the range mentioned by the majority of CDs. These guided interpretations that EEDs were implemented in theoretical, moderated and authentic learning contexts.

Table 5.13: Participants' Pedagogical 'Movements' in Entrepreneurship Courses

<p>NAM43's EED pedagogical 'movement' on the EPG for business planning.</p>	
<p>NAM41's description of transitioning between roles. Section 6.3 for thematic analysis related to role-transitioning.</p>	<p>EUM44's EED 'processes' mapped on the EPG. These diagrams were part of the researcher's field notes.</p>

5.7 Contextual Pedagogical Variations

This section describes pedagogical variations in entrepreneurship among CDs, students, EEDs and their countries. This exploratory research did not endeavour to find all known data variations. Instead, the thematic details of EED were examined.

Courses with more lifelike and practical pedagogies were relatively rare. However, these were more likely to require participation in authentic entrepreneurship and develop entrepreneurial awareness.

More female CDs (47%) designed courses with more lifelike and executional pedagogies as compared with male CDs (31%). Female CDs included OCP2 who required intensive EED reflection on authentic start-up weekend experiences. OCP4 encouraged her students to self-initiate creative activities. OCP7 required highly critical theory application in the product development domain. The feasibility studies required by OCM49 concluded with reflections on decisions to make business models viable in real-life. She encouraged her students to enrol in other electives and their university incubator to further develop their ideas. In OCM52's EED, Academic Mentoring enabled the integration of knowledge to formulate innovative business (revenue) models.

EUM38 and EUM44 coached students to be aware of the “ingredients” for their start-ups, developing a “**yes, I am,**” and “**yes I can**” mindset (ESE). AZM1 designed entrepreneurship courses and capstones that required real-life Go-to-Market plans and pitches, supplemented by hands-on site visits (similar to OCM47).

AZM10 and EUM58 (professional coaches) required reflexivity, especially for the identification of resources, relationships and hinderances towards knowledge and real-life project progress. AZM14 emphasised on interpreting what field data meant for students' commercialisation projects. SAM40 used a personality assessment tool, Myers-Briggs Type Indicator (MBTI), to form new venture teams that enabled ESE development. NAM51 emphasised on peers as ESE sources. NAM36 designed fun creativity exercises that fostered collaboration, imaginative thinking and changes in perception.

The next variation was the differences in reflexivity when students were studying in different cultures. NAM32 reflected on the difference in the ‘openness’ in student reflexivity when they were learning entrepreneurship in an overseas intensive course that was not in their home country.

“Every day, there is a reflection session. We have ‘open access’ after the regular session. Individual students or groups ask us about anything. ... Sometimes, it’s about I decided that I am not fit to be an entrepreneur. Sometimes, it’s their struggle with their business plan. ... [Anonymized country] has some really interesting things about questioning everything, questioning assumptions, challenging status-quo. I actually find that I am more comfortable discussing difficult topics while I am there than when I'm in [my home country]” (NAM32).

The preceding analysis underscored the significance of reflexivity in the development of EEA and IEA. This case highlighted that honesty, vulnerability and critical thinking could facilitate optimal levels of reflexivity.

EUM55, EUM56 AZM6, AZM14 and NAM32 designed courses that exposed engineering students to industry-based ‘live’ projects and success stories. The engineering students learnt vicariously from commercialisation successes and from collaborations that encouraged technological start-ups. These themes underscored the critical need for curating relatable VL to supplement authentic learning.

The ecosystem (context) where students learnt in provided the social (relationships), financial and technological capital that could assist in starting up. Educators could assist in developing an awareness of these resources required for opportunity actualisation (Section 7.5).

“The **engineering students** ... are slightly **more competent in opportunity-identification and problem solving** and hence already **more suited** to that kind of role where they **more readily**, ... **generate prototypes and test them** in the market. ... Additionally, engineering has **more commercialisation ‘success’ stories from accelerators and incubators to inspire their students**. They are **more excited about trying things**. When you say 'prototype development', it is very natural for an **engineer**. For an **MBA student**, it is **difficult to grasp what is a prototype**. ... Thirdly, there is **much government influence in developing the entrepreneurship ecosystems around engineering colleges**. ...

“A lot more students are **tinkering around with technology than ever before**. Therefore, **they can find quick uses for this technology that can result in commercialisation possibilities**. They have some **relationship to faculty or to laboratories**. They have access to some **technology** or development that either faculty or a **group wants to commercialise**” (EUM56).

Technical and managerial knowledge and skills significantly contributed to successful entrepreneurs and new ventures (Wu and Wu 2017). AFM50 encouraged his students to enrol in technical courses. AZM6 and OCM1 guided students to technical sources of assistance.

Another pedagogical variation related to the learning resource deficiencies in developing countries. This deficit motivated the utilisation of available and/or free learning resources in the design of EEDs. SAM40 required customer validated start-up ideas.

“We do not have money so students have to make their businesses without money. They have to do with little resources. One of the skills students develop more of is planning, self-management, how they ‘do’. They have to find a problem. They have to make a creative solution. This solution must be validated by the market. ... (If people do not buy, you do not have money. You do not have a business” (SAM40).

“One of the challenges we have is, unlike the western world, the availability of grants given to the students to actually setup mini businesses Some of the methods (mentioned by the interviewer) are not ‘relevant’ to us now. Definitely, I know they are very important ... (such as) reinforcing vicarious learning” (AFM50).

AFM50 concurred with SAM40 who focused on helping students acquire funding for authentic start-ups as part of her inquiry-focused coaching.

“We work a lot on their pitch. No role-playing. For the seed funding, they have to make a pitch (a video) as part of the application. ... prepare a prototype, for the final pitch” (SAM40).

These two cases demonstrated that the scarcity of learning resources motivated CDs to design and implement authentic learning using bootstrapping (using only existing resources, such as personal savings, to start-up) (Grichnik et al. 2014) and bricolage (using whatever was available and recombining them into something new) (Baker and Nelson 2005; Desa and Basu 2013; Fisher 2012).

AFM50 shared about implementing simulations if the opportunity arose. He emphasized that the pedagogies in the EPG would be utilised whenever possible to develop ESE.

“It is mastery of skill what we want to achieve that the students are sure and persuaded that ‘yes, they can actually do it’. They have the ability, self-efficacy and the internal locus of control, to actually work in a business enterprise, self-employment environment” (AFM50).

From these horizons, the commonalities of EEDs in both developing and developed countries were summarised as **“(students) developed ESE, after they go through these pedagogies with roles of coach, mentor and tutor” (SAM40).**

The difference in the rate of GRE in countries could be attributed to the overall number of problems that entrepreneurs could potentially solve.

“In [country B] the **opportunities to find problems to solve is more than** [country A]. The **opportunity for employment is relatively less. That pushed them into entrepreneurship**” (EUM56).

Students from developed and developing countries chose to develop their start-ups based on current problems in their context. NAM36 shared about an undergraduate who started-up a communal artist centre. EUM20 shared about a cancer diagnostics commercialisation by executive students who participated in an accelerator program that supplemented his EE program. NAM37 shared about a start-up that exported and refurbished used prostheses from a developed country to a developing country where this critical need existed. Another student started an attire concept for disabled individuals.

AFM50, from a developing country, shared about an on-campus bicycle production and rental concept. SAM40, also from a developing country, required her students to apply for start-up financing grants as part of their undergraduate entrepreneurship course.

Two postgraduates under AZM10’s coaching utilised the internet to create types of internet applications to attempt to disrupt their respective mature industries. Another of AZM10’s postgraduates, GRE9, utilised the internet to distribute organic produce. Similarly, GRE5, under the coaching of AZM3, attempted to implement information technologies for clients in a mature market niche.

Finally, paid employment in some countries was more attractive than entrepreneurial careers. EUM56 observed:

“[Anonymised country] has **business schools that have less entrepreneurs because jobs are so attractive. Personally, that is the reason why it is so difficult to motivate students ... The amount of money you make on your first salary is way way higher than what you will make in entrepreneurship. ... they need that money initially for the first few years. I think that is why people start-up after five or seven years.**” (EUM56).

5.8 Profiles of Graduate Entrepreneurs of the Validation Study

GRE1, GRE2, GRE4, GRE5 and GRE9 had entrepreneurial intentions that motivated them to enrol in their EE courses or programs. GRE4, GRE5 and GRE9 came from entrepreneurial families. GRE1 and GRE4 had suffered pre-enrolment failures that prompted them to learn more about entrepreneurship.

EUM58 required GRE3 and GRE4 to start-up as part of their program. This was similar for GRE7 (AZM10), GRE5 (AZM3) and GRE1 and GRE6 (AFM46). GRE3 and GRE8 experienced drastic modifications in their start-up concepts during their program. Table 5.14 highlights concise details of all nine GREs.

Table 5.15 on the following page displays a pairing of EEDs to the experiences by GREs.

The researcher remained cognizant of possible confirmation and acquiescence bias from these referrals. Methods on minimising these biases were elaborated in Section 4.7 and 4.8.

Table 5.14: Profiles of Graduate Entrepreneurs Interviewed

GREs and CDs	Business Family (Y/N)/ Background	Academic Achievement	Profile of New Venture	Perceived Most Effective Pedagogies
GRE1, AFM46	No; Prior business failure prompted part-time EE study while working.	Postgraduate	Car tyre fitting business changed to technical and business training and certification company.	Industry feedback on his pitch, VL from entrepreneurs, and a guest speaker who challenged his 'false security' in employment.
GRE2; OCM52	No; Worked in Harvard incubator with other entrepreneurs.	Bachelor	Healthy children's food concept that halted.	Industry feedback and the BMC 'structure' to analyze any business.
GRE3, EUM58	No; Initial interest in maths.	Bachelor*	Local and regional tours.	VL from seniors or peers.
GRE4, EUM58	Yes; Always wanted to run own business. Prior failure.	Bachelor*	Converted his shoe trading hobby into a business.	Inquiry-focused coaching enabled reflexivity and self-efficacy ("how I do better").
GRE5, AZM3	Yes; Always wanted to run own business. Selling items since youth.	Mentoring during IT Diploma	Data mining IT solutions for niche and mass markets.	Inquiry-focused mentoring, ECA during course that paid him motivated the practice of theory application.
GRE6, AFM46	Yes; Lacked ESE; studied engineering.	Postgraduate	Leather goods and property development.	Reflexivity on her first venture and on guest speakers sharing.
GRE7, AZM10	No; Studied engineering. No prior work experience.	Postgraduate **	Delivery of organic produce changed to sustainably made product imports.	Structured instruction to perform and manage entrepreneurship.
GRE8, NAM26	No; Studied engineering	Postgraduate ***	Gas-to-electric car conversion, changed to related software development.	VL from seniors who started-up, reflexivity through inquiry, advisor feedback.
GRE9, NAM15	Yes; Always wanted to run own business.	Single semester EE course	Healthy beverage concept that halted.	Apply theory. VL from successful entrepreneur alumni.
<p>Legend: * Three-year entrepreneurship program. **GRE7 enrolled in a marketing MBA with a one-year entrepreneurship 'project' with mentoring. ***GRE8's learning 'journey' began with his final-year design project over two semesters, followed by a two-semester master program.</p>				

Table 5.15: Educators and Pedagogical Experiences of Graduate Entrepreneurs

CD	Identified ESE-Enhancing Pedagogies	Graduate	Perceived ESE-Enhancing/Eroding Pedagogies
AFM39	Applied lecture. Reflective discussions and journal. Dialogue. Focus Learning Groups (FLG- share, critique, peer learning). Field project. Presentation.	GRE1	Site visit (day-long interaction with entrepreneurs). Guest entrepreneur assessed ‘pitch’ and validated his start-up concept. Inquiry-focused coaching.
		GRE6	Industry mentor’s inquiry-focused mentoring expanded and enriched her reflexivity. Starting up within the EE program and peer evaluation were not authentic and provided a false sense of ESE. Too much and conflicting feedback led to ESE erosion.
OCM52	Applied lecture. Reflective Discussions. FLG. Business Planning (feasibility study). Presentation.	GRE2	Self-study, participation in incubator and business plan competition (ECA before enrolment) and two EE electives enhanced ESE. Inquiry-focused coaching.
EUM58	Inquiry-based coaching. Self-determined learning. Reflective discussions. FLG. Simulations. Field project.	GRE3	His start-up was ‘ignited’ by his experience of helping his classmate start his venture. Inquiry-focused coaching. Peer learning.
		GRE4	Obtained the methods (structure) from his degree to turn his hobby into an actual business. Inquiry-focused coaching. Self-curated ESE sources. CD curated guest speakers (VL) did not enhance ESE but self-curated sources of ESE (ECA) did.
AZM3	Applied lecture. Analysis paper. Reflective discussions. FLG. Dialogue. Business Planning. Field research.	GRE5	Industry mentor provided inquiry-based guidance to test and ‘iterate’ his ideas. ESE enhanced through practice of entrepreneurship and self-curated authentic guest speakers.
AZM11	One-on-one counselling. Applied lecture. Reflective discussions and journal. FLG. Presentation. Internship.	GRE7	Guest entrepreneur assessed her ‘pitch’ and validated her start-up concept (ECA). Peer learning. Failures during the prototyping phase eroded ESE (self-doubt) but Inquiry from certified coach / entrepreneur restored ESE.
NAM26	One-on-one counselling. Theory lecture. Self-analysis paper. Reflective discussions. Dialogue. FLG (conceptual). Business Planning. Self-reflection. Field project.	GRE8	Final undergraduate project with EE focus, followed by postgraduate EE, augmented by long-term advisors, additional coaching and training at incubators and accelerators. Inquiry-focused and advisory-focused coaching. Too much and conflicting feedback led to ESE erosion.
NAM15	Applied lecture. Reflective discussions. FLG. Business Planning. Presentation.	GRE9	Started-up after obtaining feedback and validation from her educator-cum-entrepreneur on her business plan and ‘pitch’. EE increased pre-existing ESE.

5.9 Validation of Educator Role-Transitioning

The researcher requested GREs to estimate the proportions of each educator role (instruction, inquiry and advisory) to assist in their recall of their learning experiences and to obtain rich descriptions of their ESE development. All GREs except GRE3 and GRE4 perceived CDs as mentors who implemented entrepreneurial learning through instruction, inquiry and advisory. Only GRE3 and GRE4 perceived CDs as coaches who performed instruction, inquiry and advisory roles. The terms “mentor” and “coach” are both used in this thesis as participants sometimes mentioned both terms interchangeably.

The resulting data patterns in Figure 5.2, in Figure 5.3 and Figure 5.4 demonstrate transitioning between educator roles in different contexts and EEDs. The pedagogical emphasis of educator roles varied according to course content (GRE2, GRE5, GRE6 and GRE9), academic level (GRE4 and GRE8), and group versus one-on-one mentoring (GRE1, GRE6 and GRE7).

CDs and/or their team of educators could assume a dominant educator role, for example inquiry in mentoring sessions, but they also transitioned to other educator roles (instructor and advisor) to enable their students to reflect on learning experiences and activities.

The introductory courses were more instruction focused. The higher-level courses were more inquiry focused. Mentoring by AZM10 (a certified coach) and AFM46 were primarily inquiry focused. GRE4 experienced increasingly more advisory-focused coaching in each year of the course. Contrastingly, GRE8 experienced more inquiry-focused coaching in year two as compared with year one. GRE8 also benefited from the advisory-focused coaching curated by NAM26 during his undergraduate and postgraduate studies.

The following figures show the GREs’ perceptions on educator roles in different course settings. Figure 5.2 shows the perceptions of GREs from single semester entrepreneurship courses. Figure 5.3 shows the perceptions of GREs from multiple semester entrepreneurship courses. Figure 5.4 shows the perceptions of GREs regarding educator roles in group mentoring and one-on-one mentoring.

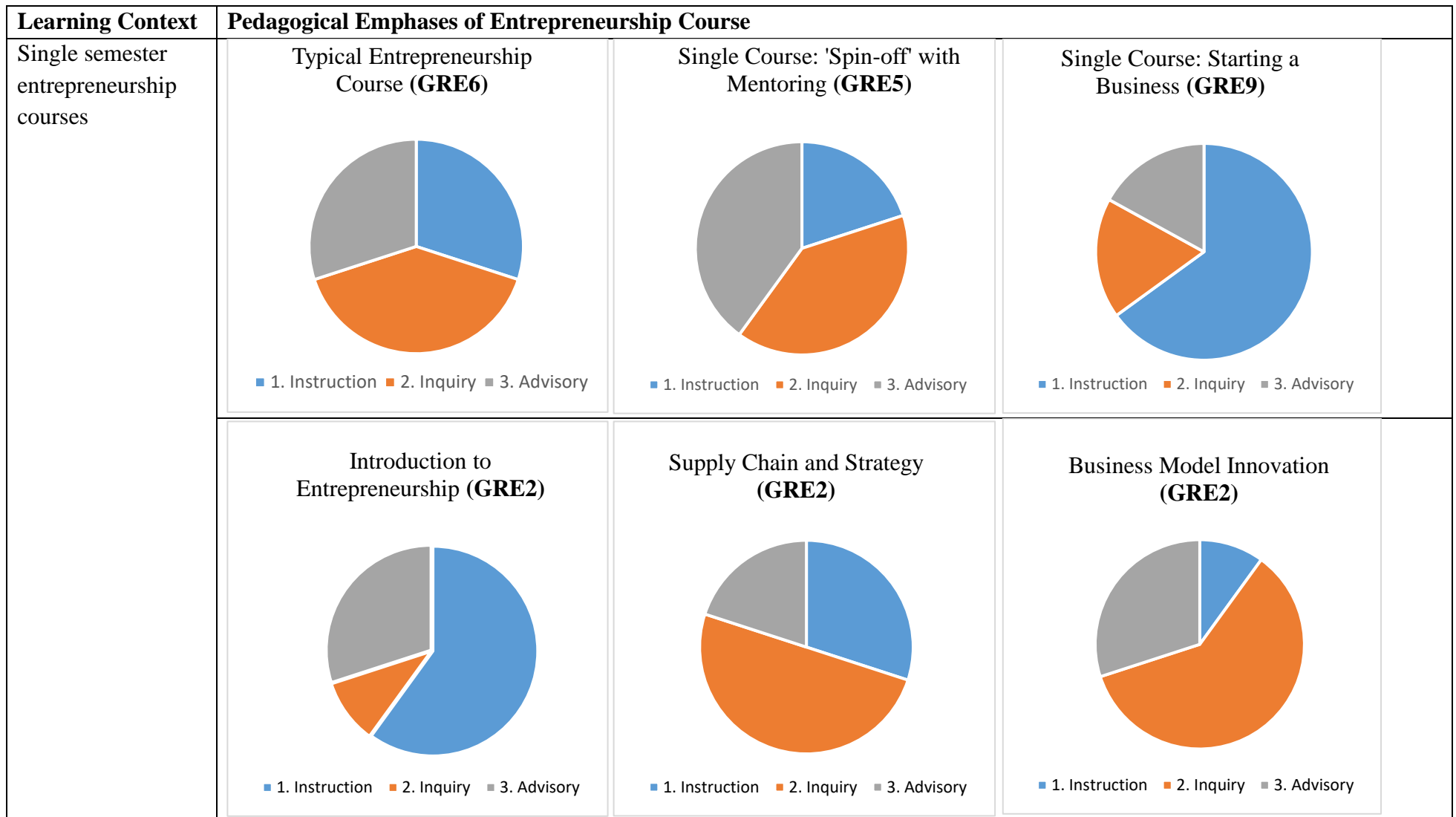


Figure 5.2: Single Semester Graduate Entrepreneurs' Perceptions of Pedagogical Emphases

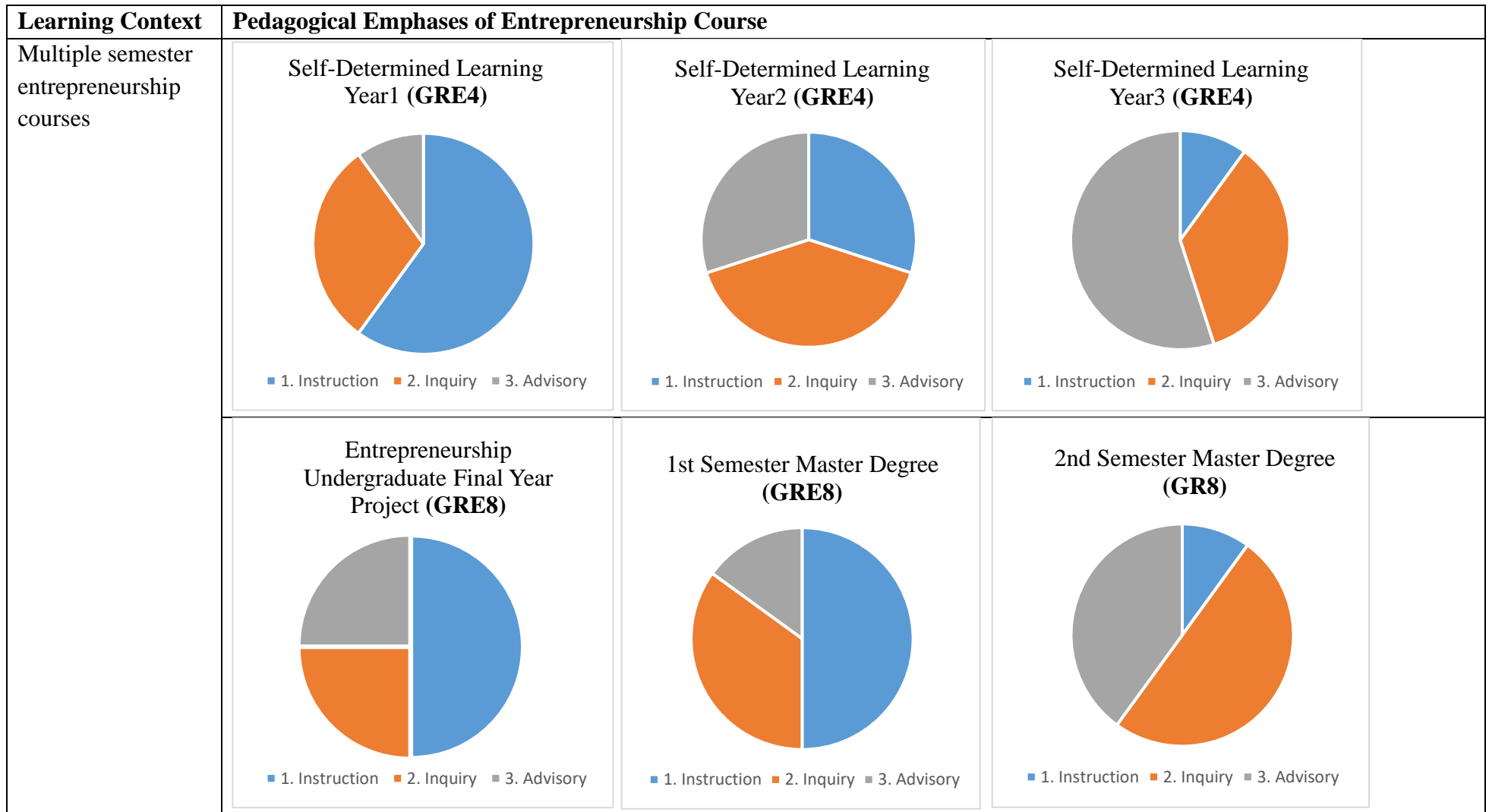


Figure 5.3: Multiple Semester Graduate Entrepreneurs' Perceptions of Pedagogical Emphases

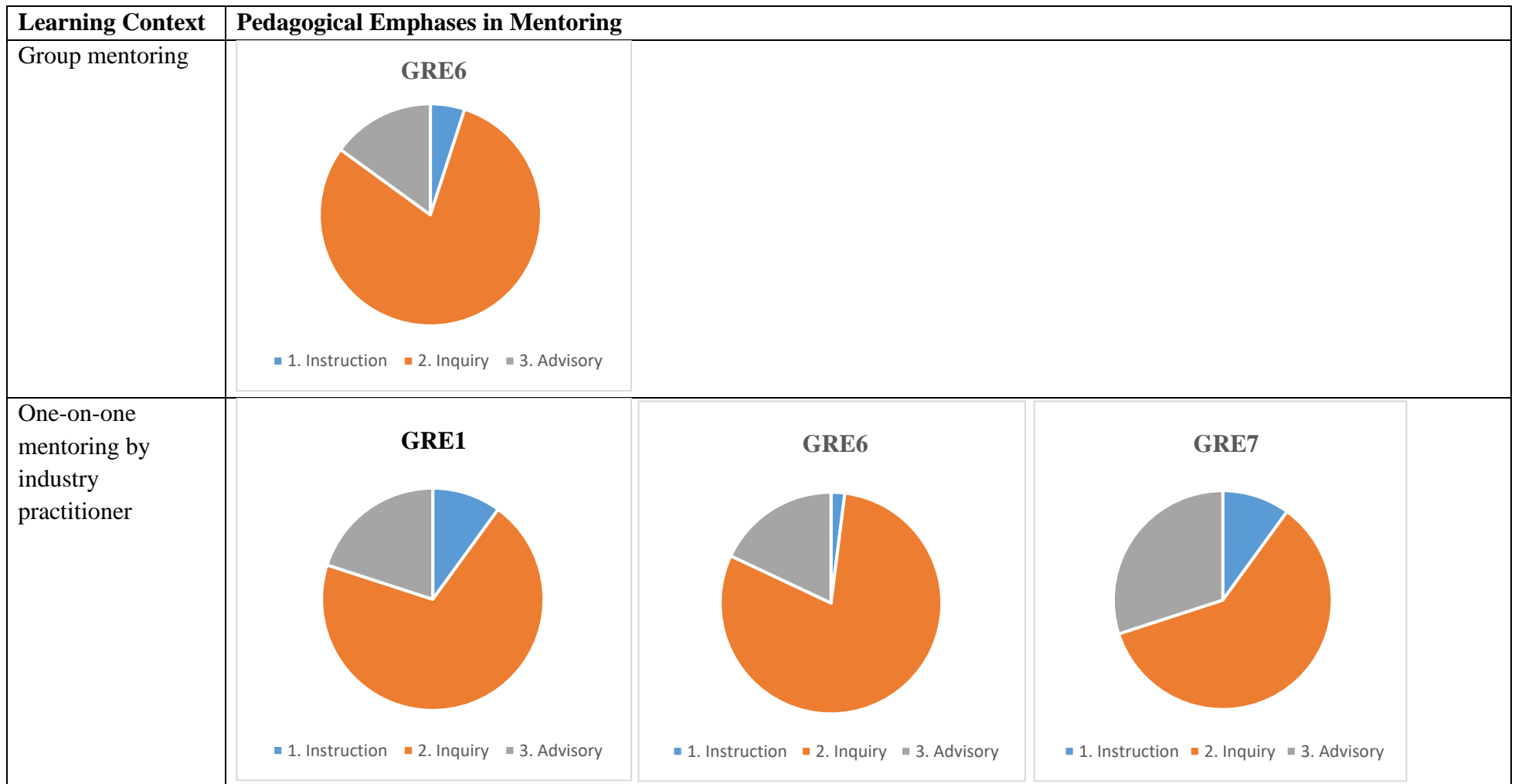


Figure 5.4: Graduate Entrepreneurs’ Perceptions of Pedagogical Emphases in Mentoring

Regardless of academic level or course content, GREs executed entrepreneurship by following structured methods such as BMC that they learnt during their courses. They practiced reflexivity through inquiry consistently, either CD-assisted or self-initiated. All GREs experienced activity-reflexivity recursive learning. GRE1 experienced inquiry-focused coaching that developed ESE:

“Inquiry. Inquiry. Inquiry ... needs to be ‘larger’, and advisory and instruction, ‘less’. That is my ‘lived’ experience. I am very fortunate to have undergone that. It unlocks a lot of self-belief because you find a lot of the answers to yourself. You do not suffer from someone else’s confirmation bias. When the VC (venture capitalist) asked the difficult questions, you cannot lie to yourself. ... why did I react or respond in a certain way, how could one improve, how is what I have learnt affected, hindered or improved one’s entrepreneurship journey?” (GRE1).

The GREs validated that inquiry-focused coaching challenged false assumptions and guided them when they performed reflexivity to improve their entrepreneurial awareness.

“I would assume that he falls asleep, as I did something wrong. Am I in the ‘right’ sector? Is it because I lack certain skills? Is it because it cannot work? The way I approach it, the way I ‘pitched’, presentation style? During times like this, ... it is important to have someone like a coach or mentor to question your assumptions. ... He would challenge me: are you speaking to the right person? You should speak to three or four more people before deciding whether it’s a ‘correct’ solution? It was about challenging at the right times. Apart from having constructive feedback, he is not afraid to challenge your assumptions” (GRE5).

“Some of the assignments were reflections on what happened, what we would have done from start to finish on that marketing campaign. That might be another one, to reflect on how it went. There will definitely be some reflection on how that experience went, what went well, not so well, what to do the next time or repeat next time?” (GRE4).

“This person (mentor) forced me to go further, further and further than what I would normally do. She magnified what I would normally do, to a point where it was even more beneficial to myself and my business. But I don't think I was trained to do. I think it opened my eyes to it. The minute that happened, I started realizing all the other elements of my life that were leading up to becoming 'this way'. These

sessions always connected the dots for me. I do not think it forced, trained or changed me. I came ‘out of a box’” (GRE6).

Like GRE1, GRE8 validated that inquiry-focused coaching enabled reflexivity on activity outcomes and personal reactions that developed entrepreneurial awareness.

“First, ... what happened, what would you do next time, what went really well, what went really bad. These are more focused on the activities that occurred or parts where people were involved to do. Then there is individual reflection on how you reacted in certain situations; why do you think you felt that way? The whys” (GRE1).

“The advisory side of things, I receive mostly in the form of inquiry, is probably the most useful. ... You can figure out the answer when you know the question. If you don’t know the right question to ask, then you might never get to the ‘right’ place” (GRE8).

GRE8 performed critical start-up evaluations consistently through inquiry. Like GRE1 and GRE6, GRE8 developed a habit of reflexivity after graduation. Reflexivity enabled improvements and planning effectiveness (aspects of ESE).

“Every week, they were getting you to re-evaluate your company, at that point in time. Consistently, they asked, ‘Is this actually a good idea?’ ... One week it would be, How many customers have you spoken to? Do your financials make sense?’ Although we were building this engineering project, we were still asking all those questions. ‘Do people actually care about this piece of technology you are building, or is it technology for technology’s sake?’ That was probably super valuable” (GRE8).

5.10 Validation of Reflexivity in Developing Entrepreneurial Awareness

Entrepreneurial awareness was a crucial source of ESE. It comprised an individual’s external entrepreneurial awareness (EEA), from reflexivity on outcomes from his/her environment, and an individual’s internal entrepreneurial awareness (IEA), from reflexivity on his/her emotions, interests and perceived mastery.

Entrepreneurial awareness experienced by GREs combined reflexivity related to their self-perceptions and a cognizance of their external context. When GREs recalled their learning experiences, they validated that IEA was a self-assessment of perceived mastery and one's entrepreneurial self-identity in relation to real-life cases. GREs also self-assessed their emotions (reactions) towards activity outcomes and authentic feedback. GREs mentioned that EEA was derived from reflection on activity outcomes, feedback, resources and relationships.

Learning and applying structured creative problem solving combined with reflection of activity outcomes based on relationships and resources developed EEA. Through inquiry-focused coaching, GRE1, GRE3, GRE5, GRE6 and GRE8 identified new opportunities in adjacent industries. All GREs described the critical role of reflexivity to develop their start-ups during their studies and after graduation entrepreneurship.

Inquiry fostered a curiosity to discover "adjacent opportunities" (GRE1). GRE6 highlighted inquiry as "the tool ... to leverage off things around us, ... to create your script." All GREs experienced a habitual application of methods and structured inquiry, "asking the right questions" (AZM11), by their mentors and coaches.

GRE1 actualized an adjacent opportunity relative to his start-up. He practiced reflexivity that developed cognizance of personal and strategic flexibility (related to IEA). From another elective course, GRE1 learnt how to be curious and practice reflexivity that initiated his start-up changes.

"How can I improve the process? What can I do better in the next iteration? Or another business of mine? ... it might be the idea that you had was not viable. But out of that, something else shows itself to be viable. ... this opportunity arose from what we see in the market. Definitely being able to spot opportunities, to 'see' what are the adjacent 'stuff', rather than being so fixated on what you are doing. You become more 'inquiry', about individuals, see how you can leverage their network. That is how you start 'unpacking' more opportunities that exist" (GRE1).

GRE6 described metaphorically the creation of a personalized entrepreneurial journey. Assisted by advisory-focused mentoring, she was equipped with instructions to generate an awareness of the available resources and cues to guide her opportunity realisation (aspects of EEA) of personal importance (related to IEA).

"You are creating a movie. What academia is giving you is the set, the lights and some props. They are 'staging it up' for you. Your journey and your task is to take

what's given and to **create something** amazing. **Even though we have access to the same 'music', ... same props, ... same screen and set, everyone's movie will be different. ... with the help of the mentors who are editing it along the way. The mentors help you get it, allow you to have that foundation. But ultimately, the script and the actor are all you. ... we write the script from scratch....** However, we leverage off the things around us. ... It is **giving you those tools and 'sets' so that you can start pulling what is important to you**" (GRE6).

During the first two weeks of their program, students of NAM26 reflected on curated cases and guest speakers as part of a "go-no-go" entrepreneurship reflexivity. GRE3 and GRE4 had similar "bootcamp" experiences. This intensive reflexivity clarified their IEA including self-perceptions on entrepreneurship (EUM58). GRE8 had to reflect on cases in relation to his self-perceptions (IEA) to assess whether he was ready for an entrepreneurship career.

"The first week, we had a class every day with NAM26. He gets **different entrepreneurs to come in, to talk about their experience- what were the hardest parts they had to go through. You do a lot of self-reflection; on the things you actually care about and what do you want to get out of this.** What makes it more impactful is that the week before, we basically do **this 'boot camp' for three or four days.** You are literally **24-7 working** on a couple of different things. It was partially **team building with everybody** else in the program. It was also like a **Hackathon** essentially, over a few days. We literally slept overnight at a cottage-type place" (GRE8).

Through reflexivity, GREs discovered their "**passion**" (GRE2) that initiated start-ups aligned with their interests. They included helping society (GRE2), talking to and entertaining people (GRE3), selling (GRE5) and reflecting on all aspects of her life (GRE6).

GRE3 developed his start-up based on his interests, in the location where he studied and lived. He developed ESE when he perceived feasibility and accessibility to entrepreneurial and social capital (EEA) and commenced his start-up based on his interest (IEA). Assisted by instruction, inquiry and self-determined learning, GRE3 developed an awareness of his current and unique context.

"I was thinking about [anonymized] as it fit in with staying up here. Also, the fact that I love speaking to and meeting people. You can have five ideas in the shower. But **unless you do something, it was not going to develop. You are only likely to do something if you are passionate about it!** I think many people expect from these

courses that you're actually going to be shown how to create a successful business. ... **you really cannot be shown how to do that because every business is completely different.** Obviously yes, **the tools that you get and the resources to get along the way for sure, help. But it is up to you to go out and get them**" (GRE3).

"In my first year (March 2016), a local agency was asking if anyone would provide tours for the holiday cottages that summer. **I thought that sounds fun!** I phoned them up and said, 'I'll do it!' That gave me the deadline of summer, end of July, to set up the business, do all the marketing, all the legal 'stuff'. That's how my business came to be. I had **an interest in [anonymized] and becoming 'Brian Cox'.** The first successful trip I had was when **I approached the [anonymized] society in my university.** That was very successful. People heard about me. Societies approached me. I was in societies. ... **That helped me realize how much opportunities** there are in each department. In the third year, **I was creating my own communities,** 'escalating' into the corporate market in year three" (GRE3).

Through inquiry-focused mentoring, GRE5 explored his environment (EEA) and changed industry.

"He (AZM3) **never liked to feed you with the answer. It was only through market research that I discovered this niche sector.** The **curiosity** stems from there Then, I went to **'dig-in' further pain points, who are the players? How can I provide value to them?** It was all about getting that **initial exposure** for students, **to kick-start**" (GRE5).

The entrepreneurial potentials of GRE1, GRE3, GRE4, GRE5, GRE6 and GRE8 were modified when they cultivated new relationships that provided access to previously non-accessible resources. Regular reflexivity on evolving activity outcomes and relationships modified the range of feasible entrepreneurial aims in relation to one's evolving self-perceptions.

5.11 Validation of Perceptions of Entrepreneurial Self-Efficacy Erosion

Limited or no access to resources and/or relationships degraded one's perceptions of feasibility (ESE erosion). An unfeasible entrepreneurial outcome motivated reflexivity and re-strategizing (GRE6, GRE7, GRE8, GRE9). Perceptions of inaccessibility could occur when the context consisting of

social and entrepreneurial capital changed. For example, GRE2's main supplier failed him. GRE7 moved to another country after graduation.

GRE5 and GRE6 observed very little progress when they ventured into niche industries, causing self-doubt (ESE erosion).

"I found very challenging to set those networks. I did not know necessarily who to go to, where to find them, how to leverage these people. I did not know where to go. Every single turn felt like a mountain, instead of being easier. ... I didn't see progress. Everything I tried to do, something for my original idea, ended up feeling like this major hurdle to climb. This actually ended up creating more self-doubt in myself, although people around me said I should pursue it, 'It's a great idea, you can do it.' Because I did not know where to go to, or who to approach, to speak to, it seems like this massive thing that I could not undertake. It ended up decreasing self-belief. I started believing that I could not start something on my own" (GRE6).

After graduation, GRE6 did not further develop her start-up incubated during her MBA. However, she became aware of other opportunities within her personal network (relationships).

"It started very simply. I did a brand proposal for him [anonymized]. That turned into one where we designed bags together. From there, a meeting to actually start production. Before you know it, this business is happening" (GRE6).

GRE6 and GRE8 validated that they experienced some ESE erosion when there was too much and conflicting feedback. This suggested that an overreliance on authentic feedback could hamper entrepreneurial activity. These GREs had to maintain their ESE despite hearing conflicting views, persevering with their entrepreneurial plans.

"That was kind of a pro and a con, in the early stages of having many mentors. When we went through [anonymized,] we had tons of mentors. You tell one mentor your idea who says 'stupid'. Then you talk to the next one who says, 'That is the best idea ever. You should do that.' When you are expressing your ideas and receiving different feedback from different people, you come to realize that you got to make a decision on what's the best thing for your company at the time. You cannot allow someone else tell you although they may be extremely experienced. Someone with the same experience ..., might say something different. You got to take all that feedback and realize what is the best thing, in your perspective, to do" (GRE8).

Not all GREs faced ESE erosion when faced with challenges. Conspicuously, GRE1, GRE2, GRE3, GRE4, GRE5 and GRE8 reported ESE development and emotional stability when they encountered challenges in their start-ups.

Some commonalities among the GREs were observed. GRE1 and GRE4 had experienced pre-enrolment business failures but continued to desire learning more about entrepreneurship. GRE1, GRE2, GRE4 and GRE5 possessed prior nascent entrepreneurship experiences whereas GRE3, GRE6, GRE7, GRE8 and GRE9 had none. After graduation, all GREs continued and modified their start-ups through the continued practice of reflexivity despite setbacks.

5.12 Validation of Reflexivity Through Curated Vicarious Learning

Many of the CDs (51 out of 77) curated authentic role models to broaden the range of student reflexivity. Role models, guest entrepreneurs and financiers helped GRE1, GRE6, GRE7 and GRE8 to scope or visualise their entrepreneurial ventures.

The ESE of GRE1 was partially developed by a guest speaker and a day-long field visit with interactions with entrepreneurs. He described and validated ESE enhancements derived from the curation of these ESE sources.

“AFM46 created an amazing foundation for the cohort ... on which to operate from. It is more like a ‘garden’. AFM46 prepared the ‘soil’ exceptionally well. **The guest speakers he brought in** were the ‘water’. They watered different ‘plants’; for example, **'C' had a significant influence in my life**. It might have been a **different guest speaker that had a significant influence in someone else's life**. **'C', a very successful entrepreneur, from an assessor point of view, I saw him coming to ‘prune’ our garden. He would say: you need to take this out, take that out. I see the assessor helping you to really crystallize and clarify your thinking**. Not necessarily your idea but your thinking” (GRE1).

GRE1 validated that a dramatic change in his ESE occurred from inspirational guest sharing. A guest entrepreneur changed his perceptive on his life aims and reinforced his entrepreneurial intention.

“In your process of becoming a successful entrepreneur, you are going to have much more ... not only worldly possessions. **It will be a rewarding journey, rather than getting your paycheck**. Something like COVID will happen and it will take all that

security from you overnight. All of a sudden, your company was downsizing and now you lost your job. Now what? There was this **false sense of security. This was what this gentleman did extremely well for me. He chipped through all these false senses of security** for me” (GRE1).

“Here we have people, from **the poorest of the poor, making a decent living.** That was **the first time I realized that it was not about what I can get out of life. It is more what can I do for life! Adding to people's well-being and growth in the larger context.** I was very fortunate to spend the day with people like that, for a long time, especially with this lady, to 'understand'. **That had an immense impact on me! That really kick-started my self-belief!**” (GRE1).

The horizons of GRE6, GRE7 and GRE9 (females) indicated that gender relatable role models (VL) and advisory-focused coaching enhanced the quality of their reflexivity and hence their ESE (AZM10 and GRE7, AFM46 and GRE6).

Some CD-Curated role models inspired students (GRE4), while others were perceived as unrelatable (GRE3). GRE4 did not find some guest speakers or peer advisory helpful when developing her start-up. Some curated narratives of entrepreneurship conflicted with GRE6's self-perceptions of entrepreneurship. Sometimes, she disagreed with the views presented by AFM46, who encouraged critical thinking. GRE6 was also self-critical through the feedback she received. This reflexivity clarified her entrepreneurial self-identity that assisted her in pursuing her own brand of entrepreneurship.

“One lecturer would think your idea is great. **You speak to someone else, 'it was horrible'.** Suddenly, you have **this very polarizing effect** on what is happening. **If you are not self-assured, or you have not gone through your 'rationality' or your why's and those inquiries sufficiently, then you start to doubt based on the feedback.** Whereas **with inquiry, you have gone through that level of self-reflection, I find that you are more self-assured on what you (are) offering** to the world. ...

“**When we were told to, we spoke to a lot of people. I did not necessarily agree with them.** While I'm not a confrontational person, I will **reflect on that in my 'book'** (journal). I would **question why I felt so differently on this topic than someone else would. I would write about these things. Influences. People who influenced me greatly and how their impact would impact who I am and my business. I found it extremely therapeutic**” (GRE6).

NAM26 (who referred GRE8) curated speakers who shared their experiences, especially on the hardest aspects of entrepreneurship. GRE8 validated that these entrepreneurs, as authentic ESE sources, enhanced his entrepreneurial awareness.

“The biggest learning came from the people we connected with. Actually, talking to people. ... all kinds of repeat entrepreneurs, those who have done it before and funding organizations who can talk about entrepreneurs who have done this before. As soon as you start to hear more and more of those stories from people who actually 'did it', you realize that these people are guys/girls who had an idea (and) worked on it” (GRE8.)

5.13 Validation of Reflexivity From Curated Authentic Advisory

Authentic advisory is real-life or industry-based feedback or instruction. CDs curated guest advisors who provided authentic advisory-focused coaching. Start-ups developed and progressed with authentic instruction, advisory and inquiry from practitioners (GRE7 and AZM10, NAM15 and GRE9). All GREs validated that they reflected on authentic feedback (advisory) and activity outcomes derived from instruction-based actions, and that the reflexivity modified their ESE.

NAM26 required GRE8 and his peers to finalize his start-up prototype as part of his undergraduate final-year engineering project. Though business advisors modified his idea during his postgraduate program, GRE8 participated in ECA programs (accelerators) to obtain more authentic advice and resources to further develop his start-up. GRE3, GRE4 and GRE8 validated that they developed their start-ups in their respective programs primarily through advisory and inquiry.

GRE1 validated that feedback from a CD-Curated investor who assessed GRE1's startup idea initiated him to pursue further actions, and his start-up continued to operate after graduation.

“You can put on paper ... a business that works on paper. The practical questions that he (anonymized investor) asked on your business model, ‘How are you going to finance it, how you are doing to generate income?’ That surpasses what you can learn in a textbook” (GRE1).

AZM10 encouraged participation in a sponsored business plan competition. GRE7 validated that this CD-Curated ECA enhanced ESE through stimulated positivity, advisory and VL from role models.

“That obviously made me feel, believe in my idea a lot more, motivated me to work on it a bit harder. **People not from the academic circle were telling me that my idea was good. They gave me a lot of input.** There were **three or four entrepreneurs.** There were two **women,** [anonymized] employees but they were **having entrepreneurial ventures on the side.** There were **industry experts in this field.** Presenting to them was very instrumental; not only **giving me confidence but also helping me think in various different ways.** That presentation was being judged. **They would ask many questions: ‘What would you do if this happens? How have you verified that this is possible?’ That really helped guide my path a little bit more”** (GRE7).

GRE8 obtained self-confidence from curated advisors and mentors which enhanced ESE.

“You ... meet people who have 'done it before', with experience, and say, ‘This is kind of what I’m thinking.’ They go, ‘**That sounds like a good idea.**’ **That built a lot of self-confidence over time, especially doing this consistently ... multiple times when they say, ‘this is a good idea.’** Then (also if) you do not have a good idea or **they do not think it is. When you are challenged in conversations,** which is **really valuable in building self-confidence.** (We) **‘field’ present to people from both industry and our faculty.** ... They're asking what's going to happen next with it. **That's when we started thinking, ‘Okay, maybe we could do something here. Maybe, this isn't that crazy”** (GRE8).

GRE6, GRE7 and GRE9 raised concerns that the university environment did not provide sufficient authentic advisory-focused coaching. Authentic feedback from guest entrepreneurs endorsed GRE7’s start-up concept that motivated her to start-up.

However, after graduation, some GREs experienced negativity (ESE erosion) from industry-based testing, outcomes and setbacks. These experiences indicated that the ESE of some GREs altered after graduation outside the safe environment of their universities.

GRE6, GRE7 and GRE9 researched how other entrepreneurs fared in their start-ups when they encountered setbacks. Reflexivity on activity outcomes assisted GRE5 in his decision to change the

industry that his start-up operated in after he market-tested his concept. He resolutely maintained his ESE despite the setback.

“I think it is **important as an entrepreneur to be confident during the low times**. There were definitely times where it seemed more challenging; for example, fund raising, financing, 'on-boarding' companies, working with top clients in an industry. **It has been quite consistent, my level of confidence**” (GRE5).

GRE2, GRE6 and GRE9 initially started-up based on CD advisory and inquiry before they experienced authentic advisory and inquiry. GRE4 and GRE6 wanted critical, objective and authentic feedback to reflect and improve their start-ups. GRE4 sought authentic advice from business mentors and from his networks. A desire for authentic feedback occurred as his start-up progressed.

GRE6 desired authentic customer feedback, distinct from academic feedback, to develop a customer-oriented mindset. GRE2, GRE4, GRE6, GRE5 and GRE7 validated the self-determined learning through which they experienced authentic advice when they started up their businesses.

“**Honest authentic real-world feedback and a set of highly self-critical questions aided my progression**. In my first year, I probably would not be that bothered. But in my second and third year, when I was slightly more serious with my business, I would **relish that feedback. ... something that was negative about it so that I could improve. I didn't want everyone to say, 'oh, that's fantastic' or 'well done'. I needed something where I could go away and work with**” (GRE4).

The ESE developed from her EE program that assisted GRE6 to start-up was quickly eroded by negativity from setbacks after graduation. After graduation, GRE6 perceived an inaccessibility to entrepreneurial and social capital. Her ESE eroded when she perceived a stark difference between the classroom and authentic advice from industry. GRE6 gave up developing her initial MBA-incubated start-up but eventually found another opportunity, assisted by entrepreneurial awareness developed through the practice of entrepreneurship methods and reflexivity.

“The minute you are out of school, you are now **sitting with this idea, and I need to execute it**. I do not have the 'safety net' of my professor, telling me, 'Oh, great! Carrying on doing it.' It was **getting up every day, pushing yourself, motivating yourself to carry on with this**. ... You think, 'Okay I got all this knowledge. I am riding this. It was going to happen now.' And, **when it does not happen, it tends to cause doubts to creep in and override some of the confidence you felt coming out of an MBA. That for me was a hindrance**” (GRE6).

Contrastingly, GRE1 (GRE6's senior) executed an entrepreneurial project at his workplace during his program, reinforcing his ESE. Before the pandemic lockdowns, GRE1 also experienced a local field visit to experience the life and conditions of entrepreneurs and an overseas field visit to experience technology-based entrepreneurship. This example indicated that reflections on multiple ESE sources were necessary to develop sufficient ESE.

GRE6 could not field-test her concept due to the COVID pandemic. Feedback she received from peers were less useful than feedback from her lecturer and industry mentor in developing ESE to initiate start-up activities. However, after graduation she needed to change her mindset and seek out feedback from customers instead.

“Now, I got no rubric. You have to get it right by going out, speaking to customers and gain market approval of your products. It was very different. ... I needed to change my mindset, on how things work. Not a grade based on whether the people liked it or not. But graded on how I reacted, changed my models to fit what the customers wanted me to do for them. (When) my mentor is looking at it, she would challenge me based on a real-world perspective. AFM46 would challenge me based on both a real-world and (an) academic perspective. ... My peers, whilst they were critical, they were less than what AFM46 and my mentor would be because they would be your friends” (GRE6).

GRE7 validated that reflexivity on authentic feedback developed a more authentic sense of ESE.

“We were asked to build a prototype, a working model of our business and implement it in the market to see if it was actually working, before you went on to scale it up. With my model, I actually went around my community. By doing this prototype, we got a lot of understanding on how receptive the market was. Were they happy with it? What they would change, etc. ... That really helped with believing the idea that you have works. It's not people telling you that they may buy it but they're actually using it” (GRE7).

GRE8 augmented his curriculum-based experiences with more authentic experiences from two accelerator programs (ECA), where he obtained additional coaching and financing, while working on his start-up as part of NAM26's EED.

“From there, our final-year engineering design project, we realized that we wanted to take this further; to see whether we could turn this into a business. Up to that time, we

were working on it like a business. But none of us thought that we could turn this into a real thing. Then we got accepted into an accelerator program [anonymized]. We went through that for three months. We basically learnt the ‘other side’ skills. We learnt engineering but did not know anything about starting a company, funding, marketing, sales. Another **accelerator** program [anonymized] **kept funding coming in.** I and [other two anonymized founders] did our Masters. Through that Master, we were **able to get some funding and work** specifically on [anonymized start-up] throughout that year (GRE8).

5.14 Validation of Reflexivity in Self-Determined Learning and Self-Curation

The majority of interviewed CDs implemented self-determined learning into their courses to develop their students’ entrepreneurial self-reliance and awareness. This included field research, customer validation of their prototypes, and field projects. Self-determined learning (Section 6.3.3) included reflection on experiences from self-initiated activities and on Self-Curated ESE sources. This type of learning was assisted by inquiry-focused coaching.

GRE3 and GRE4 validated EUM58’s EED. GRE4 became aware of his potential blind spots and risks (“what could go wrong”) through developing contingency plans, reflecting and troubleshooting.

“In the first year, the coach will more or less run the coaching session. In the second year, they are ‘kind of be part’ of coaching session, but **you run it yourself, the team runs it themselves. In the third year, they more or less sit back and listen and input when needed.**

“(In) **a first-year session,** it will be well-organized. The **coach would have a lot to say.** They would literally be running the session. **In the second year, the teams plan their own sessions, decide on where they need to improve.** Perhaps someone would come up with a business idea and say, ‘I would like to have ten minutes of the team’s time’. Then, **we locate to the whiteboard and plan the session. The coach will be part of that discussion.** It would more or less be a ‘sit back’ session. Perhaps **they were asked a question ... ‘What’s your direction?’ ... give you something to think about.** It was interesting to see the **gradual process of stepping back. By the time you finish university, you are doing the course and sessions, more or less, on your own.** They are there, in case you want to ask them something. **The level of responsibility increases, year-on-year”** (GRE4).

CD-Curated business coaches supplemented GRE4's Self-Curated domain experts (ESE sources).

“If we wanted our coach to prepare us something specific, she would. A specific talk on how to do accounts or relationship marketing where she could provide **examples from her background.** She would do it, if she thought it was relevant, as per our request. **... Networks within the same industry that I could pick-up most of the 'stuff' from.** **... for 30 or 40 minutes, the information you pick up from that,** is amazing. I found they were even more motivational than the people that have come into university. **Seeing something from the same industry was a lot more beneficial.** I went for a chat with [anonymized.] She actually ended up investing in my business” (GRE4).

Self-determined learning required GREs to be autonomous learners. As an example, AZM10 trained GRE7 primarily through inquiry-focused coaching. GRE7 researched, explored solutions through marketing research, prototyping and ‘structured’ reflection.

“Every month, I would tell her what the feedback I was receiving was. She would encourage me, question and challenge what I was doing and expect me to navigate those things by myself. I think that is the best way of doing it because, right now when I’m working on my own business, **I don’t have someone who will sit with me, to tell me if this is correct or not.** But **having someone challenge my thinking, has encouraged me to do it myself.** Every time I do something, **‘Okay, can I do it differently? Is there another way to do it? Who are the people I can get to help me?’”** (GRE7).

AZM3 and AZM10 required GRE5 and GRE7 respectively to participate in a continuous process of trying, delivering solutions and reflecting on outcomes. This pedagogical design enhanced ESE.

“Stepping out of my comfort zone, networking or meeting prospect clients, when I started. It developed in a 'cycle', to be able to present, to pitch, to close though I was a young student, and **after 'closing' successfully, is what builds a level of confidence.** **The more clients and the bigger the clients that I closed, helped to reinforce my self-confidence in sales, pitching”** (GRE5).

5.15 Validation of Pedagogical Designs for Self-Authentic Entrepreneurship

Self-Authentic entrepreneurship found to be the pursuit of personally meaningful entrepreneurial activities, guided by one's Internal Entrepreneurial Awareness (IEA). Pedagogies such as field projects and ECAs facilitated Self-Authentic activities for students to experience entrepreneurship, reflect on outcomes and build ESE.

GRE5 validated that he reinforced his ESE through ECAs, learning-by-doing while he concurrently developed his technical skills.

“I developed e-commerce for them, websites, etc. From smaller projects, I slowly built up. That was when I realized that was the way for me to really learn programming. To get paid while I learnt. That was important for me. **The skills that I picked up, a lot of it came from efforts that are beyond classroom.** That allowed me to develop my skills definitely for my business even faster and ahead of my peers.

“**I knew that entrepreneurship or business had to take place outside of school. Whatever I was learning in school, it was very hard for me to actually visualise it and see how it tied in with the current market.** I would just skip the class. **I would attend business networking events.** I remember once when the CEO of IBM came to give a talk. **The skills which are directly correlated with the self-confidence has definitely empowered me forward**” (GRE5).

EEDs helping students to face real-world situations included self-study of the experiences of entrepreneurs, VL and applied lectures teaching business methods such as BMC that led to reflexivity and ESE (confidence) development. GRE2 applied the methods he learnt and feedback from academia and industry experts. He minimized the negativities of uncertainty by accepting failure as an aspect of entrepreneurship.

“I had a lot of **insecurity and uncertainty, that is still there.** But **once you accept that you can fail, once you know you want to ‘become’, you know that was part of journey.** ... In order to **minimize that uncertainty, having a tool** that helps you to ensure that you thought about everything. **You have a business degree. That gave me the confidence. The feedback you received from professors. Your scores are positive that shows you know something about business, plus what I have read, plus the support from my family, my wife, were the keys to feel confidence that I can go, I can do this**” (GRE2).

Pedagogies that taught students to cope with setbacks and failures included one-on-one discussions, reflective mentoring, applied theatre, applied lectures that taught failure and emotion management, and reflective journals. Real-life failure motivated reflections that led to strategic “rethinking” (GRE2, GRE6, GRE9), business model improvements (GRE3, GRE4) and/or drastic changes or “pivots” (GRE1, GRE5, GRE6, GRE7, GRE8). Each GRE had his/her own coping mechanism for setbacks. GRE1 shared:

“Always be cognizant of the fact that **you have to acknowledge failure and move on fairly quickly from that**” (GRE1).

External Entrepreneurial Awareness (EEA - a cognizance of accessible collaborations and resources) assisted student Self-Curation of start-up resources (funds and/or relationships). Self-Curated entrepreneurial collaborations assisted in achieving entrepreneurial aims of GRE4, GRE6, GRE7, GRE8 and GRE9. GRE2, GRE4, GRE5 and GRE6 desired more industry-based critical feedback on whether their concept was feasible or not. These GREs Self-Curated and experienced authentic advice and Self-Authentic entrepreneurship that developed a more accurate sense of ESE.

Pedagogies and CDs that developed the habit of reflexivity assisted their graduates to cope with real-world authentic situations after graduation, where they continued to develop their entrepreneurial awareness and ESE. While acknowledging that ESE developed from her EE program, GRE6 discovered her “**biggest driver**” was positive authentic outcomes. Experiences of progress in the real-world enhanced ESE.

“It is **getting traction and actually seeing it happen** as opposed to everyone around telling you that they believed in you. It was **great to surround yourself with people that believe in you**. But at the end of the day, **if you do not believe in yourself, it was a lot harder to get things done. We actually do it. Go through the learning. Pay the 'school fees' and get the lessons. That is the main thing that gives you the confidence to carry on**, in my experience” (GRE6).

During EE courses/programs, students experienced peer and coaching support and encouragement. However, after graduation, graduates ultimately had to rely on themselves and their own ESE to persevere through the setbacks. ESE became extremely significant when the graduates no longer had their peers and coaches for guidance and support.

“You know **you got help. You got a network, a safety net. Whereas when you go out and actually have to make this thing work**. It was very different. You do not have a lecturer that you can phone up saying: I need this. I don't know where I'm going. Yes,

you can but **it was not the same, not at that level of dexterity** or coddling when you are in the program. While I felt **they tried to do it**, and **you get that experience**, you will never fully engage with it until you do it yourself in the real-world ...

“You are always looking for that extra validation as well. ... Going ‘out’, I realized that I was seeking that. **Much of confidence came from the validation I would obtain from my supervisor, lecturer or my peers**” (GRE6).

Authentic pedagogies were effective in giving students a glimpse of real-life entrepreneurship, but Self-Authentic start-up experiences were necessary to facilitate more accurate and personalised entrepreneurial awareness, that led to the development of ESE.

“By making us interact with customers, bringing in people who shared their experience of this big bad world of entrepreneurship. I feel that whilst **you get a glimpse** of that **you can never experience this big bad world until you experience it yourself.** At the end, **you’re still in this cocoon that is the comfort of an entrepreneurship course.** ... **You can teach me how to open, own and run a business, but I will only fully understand this once I have experienced it myself**” (GRE6).

GRE6 validated that she applied a relatively wide range of entrepreneurship methods to fulfil academic requirements. She was taught to handle all aspects of entrepreneurship independently. After graduation she continued to “believe that I had to be involved in everything”. However, she only realised later that in real-life, some entrepreneurial tasks could be outsourced to others.

“Initially, when I got others in, I was very apprehensive, because I (was) continuously carrying this narrative with me that to be entrepreneur, you need to struggle, you must be able to bootstrap. That narrative continued to some extent in school. They say, **‘You need to do all of this, the branding, marketing, the proposal and put the finances together. It is your work. You can do it.’** Because entrepreneurs cannot afford to hire others to do their things. **That narrative gets pushed a lot. It took a very long time to relinquish control.**” (GRE6).

Courses often shielded students from the true extent of negative aspects of entrepreneurship by providing them with a safe environment where they did not feel the real loss of control and finances. Negativities from authentic outcomes clarified the true state of one’s ESE. GRE7 compared her setbacks during her prototyping phase during her year-long mentoring program with her ESE erosion

after graduation, when she encountered real-life setbacks. The negativities from the setbacks were not experienced during the EE.

“That environment was still a safe place. But in the real world, having worked on my business for a year now, ... many times there were questions. You were investing real money. ... There are factors that we cannot control that influence the success of the business. This can feel de-motivating at times. The emotions can play a big role, in real-time businesses.

“I am not confident anymore. ... ‘I am going to implement it and ... make a profit’. That often does not happen. There are lots of ups and downs. During the program, we were very shielded from real-life emotions. ... it was a very safe environment. You are just developing your business plan. You are not losing any money on it. It was more about testing the feasibility of your idea without losing much. You still a student. You have that safety net of, ‘If this doesn’t work, it was just a project’” (GRE7).

Knowledge from multiple pedagogies learnt from courses gave the GREs a start, and they subsequently had to learn to apply it in the real world. GRE1 highlighted the importance of building a support structure for encouragement (to maintain ESE) as GREs could end up feeling lonely.

“A combination from my first venture, the lessons that I learnt there, the university of hard knocks in life. Then, there is the tertiary formal qualifications. I know all these things. It was a matter of applying it. Then it's about just buckling down and getting it done.

“But before you do that, you need to build a support around you. Because, like you know, it becomes very lonely, very quickly. You make sure you have the necessary support. It's not simply your family members but the people you meet along your entrepreneurial journey, people you get to know through your own networks can help you on that journey, when (the days) you are down, when it's tough. They say, 'Hey, look how far you have come. You've not come this far, only to come this far. There's more to it than where you are at’” (GRE1).

ESE developed from GRE6’s course was insufficient when confronted with the realities of authentic entrepreneurship.

“There was nobody standing on the side, looking at every piece of work you submit and say ‘yes’, ‘no’, ‘change it’. There were only so many times you go to friends and family to 'bounce off' an idea. I cannot say it was false confidence because it was not. I had

the structures and resources, everything behind me. I wish they had let me fail more and not necessarily giving me the feedback that I wanted, or feedback at every turn. Let me struggle a bit more so at the end, I was not so dependent on that” (GRE6).

ECAs were self-initiated or encouraged by CDs (EUM20, EUM53, EUM59, OCM49). Before he enrolled in his degree, GRE2 volunteered in a start-up incubator.

“What Harvard incubator has given me (is) the confidence to see people driven to ‘go for it’. ‘I believe in my idea, and I can do this.’ I thought, ‘If that person can do that, I can do that!’ Their ideas were not as exciting as mine. Their views were not necessarily ground-breaking. It was **all about drive, passion. I learnt from a lot various people (experts, entrepreneurship professors), who worked with venture capitalists, advisors to start-up businesses. ... it was the entrepreneurial environment that has convinced me, ‘Hey, you can do this’” (GRE2).**

GRE2 validated that he developed ESE through a community providing entrepreneurship knowledge (instruction), and from his course, self-study, ECA and authentic advice. He initiated his start-up immediately after a BMC course with OCM52.

“This first project had low risk, low returns. But I wanted to fail. What I read in all those books, the recurring theme is, ‘Go for it, go fail and learn.’ That was the insight I learnt and gave me the confidence to first, get a degree. Make sure I understand accounting, statistics, strategic thinking, operations, supply chain management. **I understand those things before I do an educated guess with my business.** My papers (courses) all of them were very practical. **That paper (capstone course) gave me the confidence to talk in front of people and share my ideas.** It was a community that gave you social persuasion, ‘Here is how to do, you can do it, go and do it’” (GRE2).

5.16 Peers as Catalysts and Entrepreneurial Self-Efficacy Sources

Pedagogies that enabled vicarious learning (VL) enabled peer-enhanced ESE and catalysts, through friendships, the sharing of ideas, group discussions, planning and reflecting on the solutions of others, and peer pressure to start-up. VL from seniors also enhanced ESE. Peers and seniors were effective catalysts of entrepreneurial action as they were perceived as relatable role models who demonstrated that entrepreneurship was achievable.

GRE4 was inspired by a senior in the same program who shared how much he raised in a single event. He reflected that if his senior could do something impressive, he could also develop his start-up. GRE8 decided to implement his start-up idea when his roommate, a senior in the same program, started-up. GRE3 decided to start-up his own business after helping his classmate to raise funds for his business. GRE3 shared:

“In the short term, the **course was absolutely amazing for actually pushing me into business.** By the third year, many students including myself were debating leaving the degree, to focus entirely on our businesses. But one of the things that kept us back was **the support network that we built and was the reflection.**

“That incubator I mentioned, that's part of my 'new' support network. Although it is fantastic, **I cannot compare it to the support network we had on the program. We're friends for life!** The reason why I think that reflection and coaching that was solving problems was lesser for my program, was simply how much we cared about each other. We wanted to see each other succeed ...we were all extremely 'relevant', in the same space, the same 'periods' of our businesses. Hence, **it was the most relevant experience, learning and reflection we could get.**

“I was the first person to actually do something, do a business. **That started off a kind of catalyst.** I came to the coaching sessions and **said, ‘I've done this, this and this’; and told people specifically what skills I developed, my experiences.** I have now **‘switched’ everybody** from ‘I'm going to party’ (to) suddenly, 'Oh s***, he's done a business. Maybe I should do something now!' Instantly, **people started, attempted to develop their businesses”** (GRE3).

GRE9 perceived that if “**someone running a successful business was in this seat”**, she could also succeed as an entrepreneur. Similar to GRE3 and GRE9, GRE8 validated role modelling and catalysts of entrepreneurial activity:

“One thing really valuable in education, personally, **has been talking to people you can relate to. Seeing people who literally went through the program we were going through, and two years later actually have a company and have raised money** and more, is **so valuable.** You go, **‘This is possible!’”** (GRE8).

Students with entrepreneurial achievements inspired other students to initiate entrepreneurship. Relatable role models enhanced ESE and were catalysts.

“He [anonymized] knew **he wanted to start a company when he got into university.** It was **people that you perceive as close to your age, ‘doing’ things.** That was probably

a very big ‘driver’ or impact that **pushed me to want to do** that as well. He was **only one year ahead of me** in terms of raising funds and going through [anonymized program] and creating patents. ...

“We were always talking about different ideas, ideating. **I never even thought about starting a company at all, until I started talking with him, getting this into my mind, ‘It is possible.’ ... It was people that you perceive as close to your age, doing things.** I was talking to him the whole time, saying, ‘Wow! It would be so cool to do this next year’” (GRE8).

Peers assisted each other in developing ESE through VL, gaining inspiration, positivity and perseverance by observing peers, actual entrepreneurs and reading real-life cases. Students also assisted each other in activity-reflection based on entrepreneurship theory (methods). Authentic, theoretical and moderated ESE sources facilitated ESE development. GRE2 and GRE3 validated ESE development through motivating and inspiring peer interaction (catalysts).

“If (you) **saw yourself as those people, you don't feel alone.** There are **many people trying to do something. I admired their will or ‘route’ to try, rather than accept any job they get.** When you see **them around you,** it was **motivating.** It was entrepreneurship. **You read or see other businesses trying. You see them fail. They go learn and then try again.** Sometimes, I talk to them. I say, ‘Okay, **it's worth the journey**’” (GRE2).

“**In the third year, ... all had a proper go at our businesses.** It got to the point where **we are now trading** quite a bit. **We are bumping into all these new problems of start-up. We were talking about them and reflecting.** We did use all these **psychological (methods) ... the fishbowl model and entrepreneurial role models, different coaching dynamics, different ways of reflecting.** It would always end up with some sort of deep emotional conversation which isn't necessarily related to business, but really helped us as business owners, as entrepreneurs ...

“Rather than bringing someone ‘old’ to talk about the ‘new’, **get some people who are relevant who are making friends with that cohort, to talk about what they have done or what they have experienced and how they found their passion**” (GRE3).

Team discussions facilitated the sharing and reflections of the experiences of peers and VL.

“For **every coaching session,** we have a 15-minute **check-in.** We say, essentially, **‘What we have done? What went well? What went bad?’** And the 15-minute **check-**

out is **‘What we have learnt? What would we do for next time?’** And in-between it was **someone** having their own presentation, **talking about what they have achieved**, **‘What we have learnt from it? What went wrong or bad?’** It would be the whole group. Essentially, each one having their turn, **reflecting at a deeper level on their business**” (GRE3).

GRE6 validated that collaborative achievements and group assignments fostered ESE: “I do not think it erodes self-belief. It **definitely fosters because you have seen something grow. You see the fruits of your work. You start realizing that a lot more can be achieved** than just doing it on my own.” However, GRE6 also observed that peer feedback was not as significant as CD feedback or Self-Authentic experiences derived from the progress of one’s start-up. AFM46 observed that GRE6 and her peers wanted his validation and **“permission to be entrepreneurs”**.

GRE1 validated that he benefitted from a monthly support group organised by AFM46 where he and his peers learnt vicariously from nascent entrepreneurs.

“We get opportunities to **engage with people from our class and new entrepreneurial students**, with ‘new’ entrepreneurs explaining their business- how they landed in the new entrepreneurial world. For me in my current context, that’s a very nice support structure. Whenever you battle with something or maybe you doubt your ability, just to **see that there are other people going through exactly what you were going through**. So, just buckle down **and get it done and look at opportunities**” (GRE1).

5.17 Summary of Data Analysis

Thematic analyses of the data, using the transcripts of interviews with the pilot CDs, main CDs and GRE participants, developed themes that validated known ESE sources as well as new sources of ESE.

The known ESE sources included VL and social persuasion (advisory) that were reflected on by students. The new sources of ESE were identified as Internal and External Entrepreneurial Awareness (IEA and EEA).

Role-transitioning between educator roles was important in enabling action and reflection that developed ESE. Reflexivity on ESE sources was observed in many of the learning experiences, and

validated by GREs. Pedagogies that enabled reflexivity developed ESE and assisted GREs to cope with real-world situations after graduation. Reflexivity on authentic industry feedback developed a more authentic sense of ESE.

ESE sources were curated by CDs and GREs and these facilitated VL and catalysed entrepreneurial activity. Relatable role models were more effective as sources of VL and catalysts. The following four chapters detail the thematic analyses guided by the four research foci.

6 RESEARCH FOCUS ONE ANALYSIS: PRACTICALITY

Research focus one stated that EEDs with more Practicality develop more ESE than those with lesser Practicality. The classification of courses according to their levels of Practicality (more active “hands-on” learning experiences or more passive theoretical learning) required the examination of the types of learning actions and CD roles. Themes (data interpretations) related to ESE development and Practicality were derived from horizons and codes related to learning actions and CD roles.

This chapter explains the theme developments guided by research focus one. It explains how themes were developed from horizons (significant words or phrases) related to Practicality. The horizons (in **bold text**) from the participants’ interview data (quotes) were used in thematic analysis to present their perspectives faithfully.

6.1 Cognitive and Executional Learning Actions

The horizons related to the learning actions and pedagogies by CDs were firstly identified. Pedagogies usually involved a combination of cognitive (lower Practicality) and executional (higher Practicality) learning actions. Learning actions included “**synthesis**” (EUM23), construction of the “**structure of knowledge**” (AZM9), reflection, and proposals with justification (OCP20). The analysis, evaluation and synthesis of concepts, data, knowledge with one’s ‘lived’ experiences led to reflexivity that enhanced or eroded ESE. The synthesis of prior reflections with current conditions helped to identify opportunities (EUM23).

Students of OCP2 “reflected on key but unexpected learning moments a la Jason Cope’s critical incidents learning. They then **integrate current experiences with prior reflection**”. AZM9 shared:

“Higher order thinking is demonstrated in the **student’s narrative, analysis, synthesis and evaluation**. Content should **demonstrate ability to apply the knowledge [to] address relatively complex questions with some elaboration** Students **present the facts, process knowledge, ensure integration and that explanations are justifiable**” (AZM9).

Like AZM9, AFM18 required synthesis of the BMC components into a report and presentation. “**Synthesis involved analyses; evaluate and synthesis of different perspectives**” (NAM15). In students’ business plan and presentation, AZM7 required that:

“They **identify the problem**. They **identify the solution**, **do** value proposition, competition, ‘needs’ gap, opportunity identification plan. Now, you have to **develop** the marketing, operational, and financial **plans**. These topics I do in the **case studies**. Now, they have to **synthesise everything**. Now, it is **not about the pieces, but it has to flow as one unit**” (AZM7).

“Their report is more than the presentation, role-playing or storytelling ..., **the strategy on how all the elements of their BMC related or interact with one another coherently**. ... Students have to think more about **linking up channels with operations, which links to the pro-forma financial Excel spreadsheet, and all these have to link back to the characteristics of the customer segment**” (NAM19).

A critical cognitive action was interpretation, the generation of perceptions or awareness. Knowledge was created from integrating interpretation of contextual data with personal reflections. Students derived experiences from “**questions (that) helped them reflect**” (NAM2), interpreted and presented “**what it means**” (AZM14) “**for their own practice**” (EUM12).

“Pitching is not to go out to check the facts but is how to **present the facts**. In presenting, one has to further **process knowledge**, ensure **integration** (and) explanations are **justifiable**. Presenting is a way to **structure their knowledge**. ... Lectures only provide **external stimulus** for students. ... Educators do not **bank in the knowledge** to our students but help **create their own knowledge**; how to **interpret data**. What are the recent ways things have been? In pitching, they process data (that) helps them **absorb or digest what it means to perform** market research or **decision analysis**” (AZM9).

Cognitive pedagogies involved reflective discussions, and evaluation and interpretations of market data.

“I do not want them to just gather information. I also want them to **interpret what it means**. The person they interviewed gave them so much information that you have to be the one **structuring** it. It is important for them to **decipher** and **discern what does it mean**. How does this ‘**fall**’ **into** the feasibility project?” (AZM14).

Interpretation required practicing reflections using questions and different perspectives.

“The final assessment of this course is a reflective journal to record their ‘**earned**’ **experiences**. You learn from experience. But unless you **work at learning** from

experience ... it is not like taking a vitamin, you got to **work at it**. I provide them with eight **questions to help them reflect** on their assignment” (NAM2).

Cognitive pedagogies enabled reflexivity, which generated perceptions of entrepreneurship either enhanced or eroded ESE.

“The way they reflect is: **what entrepreneurial opportunity did you learn from, or find insightful. They have reflected on the theoretical aspects. ... They are more valuable because they either increase confidence or shatter it.** They are both okay in my opinion. **What is the point of completing any course and not having any change in one’s opinions?** It is ‘now, **I know that I can do it!**’ or **feel that the challenge is so challenging that it is not worth doing** entrepreneurship” (EUM56).

Consistent reflections on outcomes and feedback from CDs and peers (advisors), guided improvements and ESE. Students developed resilience to persevere, with or without instructions, which enhanced the creativity types of ESE.

NAM32 explained the benefits of structured reflection based on activity outcomes and peer feedback:

“They **learnt more about themselves** and entrepreneurship in those three weeks than they do in four years in university. Partly because **every day, they have to do a reflection journal.** Partly because **every other day**, they have to do ‘circle time’ where **they have to share their insights and reflections with other people and give feedback to each other.** Partly because, they **have to pitch and get feedback** from the class every day. So, they have to learn that **resilience** and **pivoting** components.

“Here is the formula. You **go and do it**, and then **we come back and talk about how we going to criticise, dissect the model.** The ones that do the Hackathons, will have achieved many of those **learning thresholds**, especially because the way we grade them participating in that Hackathon, by telling them they have to **complete a reflection: what surprised them**, what did they learn, what ... to **do differently next time?**” (NAM32).

Experiential EEDs involved both cognitive and executional pedagogies and facilitated reflection on activity outcomes.

“The journal is on activities throughout the course. They (students) are action-based. **A bunch of tools, which they have to use in action. It is reflection on action taken,**

Donald Schon type of reflection. About 33 to 40% of reflection are group actions. They actually interview and observe within the cohort ... **watch or hear back interesting findings to reflect or reconceptualise**” (OCM47).

Executorial and cognitive pedagogies that involved creating, solving, practicing and reflecting developed creative self-efficacy (CSE). Activities that countered students’ barriers to creativity were organised by CDs such as AZM10, AFM46 and EUM42. They included “What is Stopping You?” (NAM30) and “Get Out of Your Own Way” activities (NAM32).

“I use an **exercise to show them, to stop thinking like a specific person** (a vet, a captain ...) because it makes you myopic. That is pretty much what I teach them. It works because at the end of semester, I see them be more creative” (NAM36).

CSE, a form of ESE, was developed through reflection on creative outcomes. NAM43 believed his students became more creative in two ways:

“Firstly, they **think and are convinced that they are more creative** via the experiences from the activities. Secondly, (they) **learnt ways to use the ‘toolbox’ better and hence create more creative outputs**. With each iteration, the creativity doubles from the preceding one. At the end, they produce things where they have no idea where it came from” (NAM43).

6.2 Role-Transitioning Between Educator Types and Roles

The EE literature showed that ESE sources were CDs, guest speakers, assessors, mentors and peers (classmates). Construct splitting (Fisher and Aguinis 2017) categorised the educators into seven educator types that utilised three educator roles: instructor, advisor and inquirer.

Table 6.1 highlights the theme development of educator roles and types using CDs’ horizon data. Regardless of course content and learning context, transitioning between educator types and roles enabled cognitive-executorial, activity-reflexivity recursive learning.

Table 6.1: Theme Development of Educator Roles and Types

Horizons	Educator Roles (Themes)	Educator Types (Themes of Themes).
Expert, lecturer, “sports coach” (NAM30), screenplay (‘script writer’), ‘gardener’ (GRE1).	Instructor providing how-to-perform instructions, how to apply entrepreneurship methods (executorial) and reflexivity (cognitive actions)	<i>Educator types were generated from the role-transitioning between educator roles.</i> Academic Mentor (AZM3). Counsellor (AZM10). Tutor (OCP10). Process Mentor (NAM37).
Director (NAM41), supervisor, expedition guide (SAM29), discussion facilitator	Inquirer performing inquiry, asking reflexive questions.	
Editor, assessor, ‘pruner’ (GRE1).	Advisor providing advice, feedback or critiques delivered sensitively (OCM1, EUM42).	
Inspirer, ‘empowering’ team-builder (EUM31), ‘influencer’ (GRE1). Catalyst (GRE3 and GRE5)		
Industry liaison, museum guide, movie producer (AZM54)	Curator of additional learning resources and ESE sources (roles) (NAM45) to supplement educator types and roles.	

Instructors required students to perform executorial actions (higher Practicality). Inquirers questioned students, facilitating reflexivity (lower Practicality). Advisors provided feedback for students to reflect on (either lower or higher Practicality, depending on context). Students learnt how to perform entrepreneurship through instruction, received guidance through inquiry (questioning), and obtained assessment and feedback through advisors.

Transitioning between educator types and roles enabled the iterative process of action and reflection. During the researcher’s data analysis, more pedagogical emphasis on a specific educator role was indicated when a role identifier appeared more times than other roles within the transcript.

From the thematic analysis of the main and pilot study data, CDs and/or their teams of educators imparted instructions, questioned (inquired) and provided feedback (advisory) with varying degrees of emphasis.

Table 6.2 highlights the interviewed CDs’ (and/or their team of educators’) seven educator types involved in the transition between instruction, inquiry and advisory roles.

Table 6.2: Participants' Educator Types and Roles

<i>Educator (CD) Types</i>	Concise Thematic Descriptions of Educator Roles	From Participants
<i>Coaching Ternary</i>	“Coach” in this research refers to all educator types and roles that coach students using instruction, inquiry and advisory. Coaching ternary is an educator type with approximately equal emphasis or association among instruction, inquiry and advisory Figure 6.1	OCP4, OCP10, OCP16, AZM1, NAM19, NAM28, NAM32, NAM48, EUM4, EUM20, EUM55.
<i>Instructor (Lecturer) “Sports Coach” (NAM28, NAM30), “Director” (NAM41)</i> Figure 6.2	Predominantly lectures on application of theory and methods (instruction), also facilitates discussions, questions (inquiry) and provides feedback.	OCP3, OCP18, OCM33, AZM14, NAM15, NAM30, NAM41, EUM24, EUM42, AFM18, SAM29.
<i>Counsellor (AZM10), “Teacher” (EUM57)</i> Figure 6.3	Predominantly asking questions (inquiry-based coaching), supported by some initial instruction and advisory, facilitating reflexivity on self and emotions, reflective discussions on outcomes to gain insight.	OCP7, OCP13, OCP20, OCM1, OCM17, OCM52, AZM10, AZM11, NAM2, NAM16, NAM26, NAM36, AFM46, EUM12, EUM23, EUM31, EUM38, EUM53, EUM57, EUM58.
<i>Advisor</i> Figure 6.4	Assessing mastery and providing feedback (advisory based on outcomes from executional actions), supported by instruction and inquiry.	OCP2, OCP5, OCP6, OCP8, OCP15, OCM47, AZM7, AZM9, AZM21, AZM54, NAM43, NAM45, EUM27, EUM59, SAM40.
<i>“Academic Mentor” (AZM3)</i> Figure 7.1	Similar to counselling. Mainly mentoring, advisory by practitioners. Relatively equal emphasis on instruction and inquiry.	OCM8, OCM52, AZM3, AZM5, AZM34.
<i>“Process Mentor” (NAM37)</i> Figure 7.2	Relatively equal emphasis on instruction and advisory, with little or no inquiry. Like instructors and those conducting masterclasses for the more experienced.	OCP4, OCP12, OCP14, OCP17, OCP19, OCM25, OCM49, AZM6, AZM13, AZM22, AZM35, NAM37, NAM51, EUM44, EUM56, AFM39, AFM50.
<i>“Tutor” (OCP10, AZM21)</i> Figure 7.3	Guiding students to self-study and perform entrepreneurial tasks autonomously. Primarily asking questions and providing feedback.	OCP10, AZM21, OCM1, EUM58.

Transitioning between instructor and inquirer enabled recursive relationships between executional and cognitive actions, the practice of theory application, execution of instructions, and subsequent reflection on outcomes, performance and emotions. Reflexivity was subsequent to action that generated further actions and reflexivity.

NAM37 coined “**Process Mentors**” to describe the recursive between instructor and advisor. “**Academic Mentors**” coached and shared their industry experiences (AZM3). “**Counsellors**” (OCM1, EUM58) and “**tutors**” (OCP10 and AZM21) provided relatively lesser instruction than other educator types.

Coaches and mentors utilised instruction, inquiry, advisory and their industry experience, but not necessarily their entrepreneurship experience (AZM3, AZM10, NAM37 and NAM48).

A coaching ‘ternary’ (Figure 6.1) had an approximately equal focus on instruction, inquiry and advisory. A ternary is an approximately equal association among the three components. All pedagogical combinations were indicated with plus (+) signs.

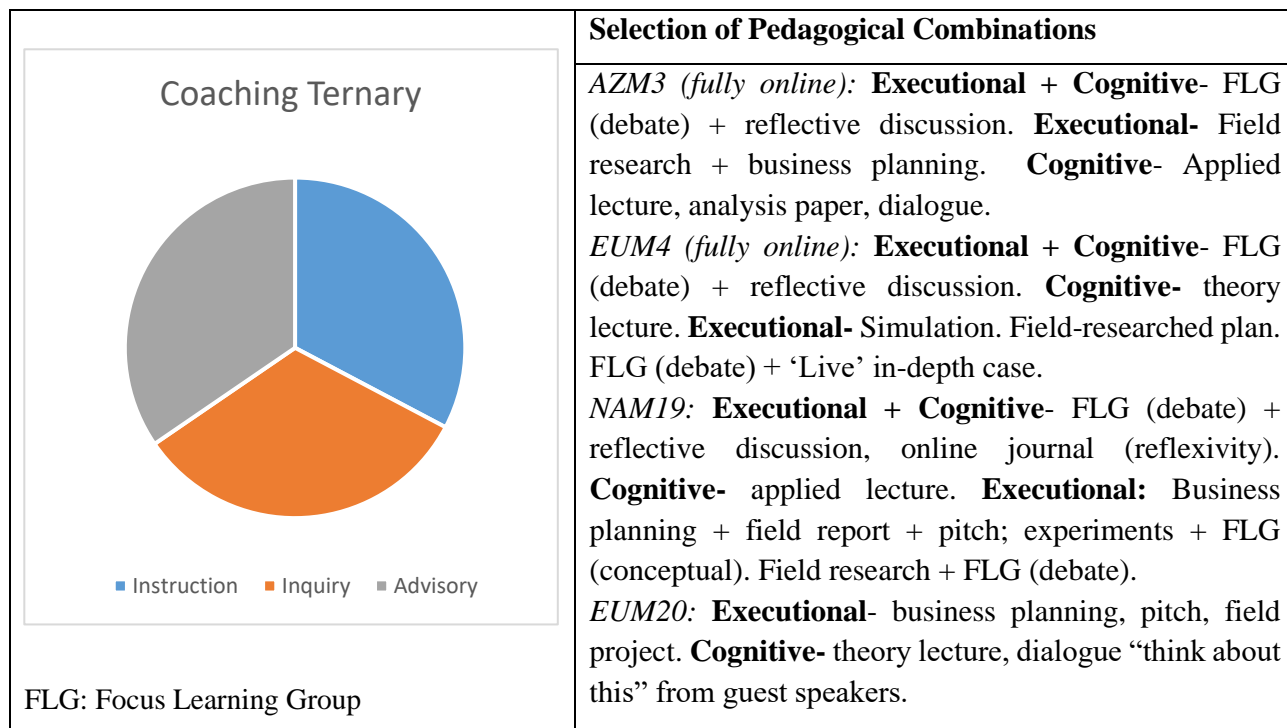


Figure 6.1: Pedagogical Combinations- Coaching Ternary

6.3 Role-Transitioning in Entrepreneurship Education Designs

This section highlights the theme of role-transitioning, previously unidentified in EE literature. Although distinct roles were identified in previous studies (Section 2.4.5), the mechanism of role-transitioning was not highlighted or investigated. In this research, role-transitioning enabled recursive activity between lower and higher Practicality pedagogies. Reflexivity on actions taken produced further action that effected further reflexivity. Educator types and roles (Table 6.2 in Section 6.2) determined the learning actions by students.

Role-transitioning enabled the iterative process of “forwards and backwards” between action and reflection. OCP4 required journals, the students’ written comments on their own learning, entrepreneurial attributes and experiences. During reflection, students cognitively integrated theories from previous and current courses, combining concepts (“**tools**”) to create meritorious arguments.

Activity outcomes from executional actions (experiences) were derived from “**experiments**” (NAM32), market testing and business concept iterations. Instructors transitioned to inquirers to facilitate reflexivity (cognitive actions). Students had to “**decide what actions to take, and what data to reflect on**” (AZM11). AFM46 required a reflection portfolio after 12 months of mentoring.

EUM42 utilised an activity-reflexivity recursive learning:

“**Collect all your experiences** from that period, place them in your journal, in whatever form you want, images, drawing, photos, narratives, and that becomes the raw ‘basis’. **At the end of that week, you make a sort of reflective comments around all of that.** ... Then in red, like in a scrapbook, write ‘**I missed this ... I did not realize that it was important**’. It is an **iterative process. Move forwards, then back, forward, back, forward, back, all the way through.** That becomes a rich valuable learning tool which you could use again, again and again. ... **you had an idea but you changed that idea to something else, and it was not working out** by week three. **You can go back to the idea** and ‘take this in’. That would be the perfect journal” (EUM42).

CDs and/or their team of educators changed roles within a teaching session or course. Instructor transitioned to tutor and subsequently to counsellor (AZM54). Transitioning between roles, recursive ‘backwards and forwards’ activities, depended on the progress, “evolution” or “maturing” of students (AZM21), the technical difficulty of the projects (SAM29) or student needs. Lecturing (instruction) proceeded to workshops where feedback (advisory) was provided, then back to lecturing (OCP12).

Discussions facilitated peer VL and stimulated emotions. Coaching provided feedback and instruction.

Role-transitioning between instructor and mentor facilitated learning experiences, which coached and developed ESE.

“I see myself as **facilitator, advisor, coach**. I try to **build up their confidence to succeed**” (NAM15).

“It is about **giving them confidence**. I find that ‘that’ is a big issue with my students. **They need confidence to be able to go out and execute. I give them frameworks and tools**. They **understand how to do** ‘that’. As they learn those and **experience** ‘that’, they **grow in confidence**. **Facilitator comes together with coach** because I’m **facilitating the experience**, then **coaching them through those experience**” (NAM28).

CDs transitioned from various roles ranging from instructing to tutoring to facilitator:

“(I am a) facilitator of students’ learning but also **facilitating the development of the entrepreneurs**” (EUM53).

“This is provided through one-to-one sessions during office hours, which requires extra effort from **instructors** providing a good **learning experience**. Act more of a facilitator rather than an instructor. The role of the **instructor** is mainly not in class, but **out of the class**” (AFM39).

“We have a **transition**: the first five to six weeks **lecturing** and **tutoring** inside the curriculum, developing the pace then progress to more **counselling** activities. Then we have **mentoring to facilitate start-up activities** and finally we have ‘**jury members from industry**’” (AZM54).

“There are stages that are more **lecturing**, and then they **learn vicariously** from those discussions and **stimulate emotional states**. When it comes to coaching: I am giving you **feedback, very specific, structured, even a sequence of decisions and actions that one can take; that would be imparting social persuasion**” (NAM32).

EUM23 and NAM43 observed themselves changing between the educator types and roles many times during a single session. SAM29 transitioned naturally between mentoring, coaching and evaluating students' strengths and weaknesses. He observed, "one role seems to **go seamlessly into another**. I'm a **coach, evaluator ... expert**". EUM55 stated, "In the morning, I'm a **lecturer**. In the afternoon, I'm a coach or **motivator** or a **mentor**."

OCM1 described role-transitioning as recursive, depending on the students' progress. However, role-transitioning was a mentally exhausting experience (Section 6.4) for both CDs and students.

"(Students) ... **move between things**. **You do not recognise the different roles you have taken on**. They are things that **needed to get done** or **appropriate behaviours within specific contexts**. Personally, it is **natural to see the educator roles as one**. There are times when **I am giving you 'this'**. There are times **when I'm going to stand behind you**. **There are times when I'm waiting for you to ask for help**.

"Students need to understand the different roles that we play. But it is so **invisible the movement between them** that is **almost impossible to see the shift**. It is **not like I'm changing hats**. No. You are **in and out of those roles, backwards and forwards**" (OCM1).

As students progressed towards the end of standalone courses, some educators transitioned from instructor to coach and mentor.

"In the beginning, they are **listening to your ideas** when you 'open the door' to topics. When the **evolution** of the students is going well, when you think that they are '**maturing**' in the topics, towards the end, you coach and **mentor**, when there is more **mutual confidence** in order to develop ideas. The extent of **mentoring** is based on students' eagerness to **pick your brain** or **ask for advice** (AZM21).

6.3.1 Instruction-Focused Coaching

Instructions were identified as best practices, evidence-based theories how to use tools. Instruction-focused coaching combined "highly applied" instruction-based, theory-based learning and process-based learning with lesser emphasis on advisory (Section 6.3.4) and inquiry (Section 6.3.3). Instruction-focused coaching (higher Practicality) enabled reflexivity and developed perceived mastery, a source of ESE.

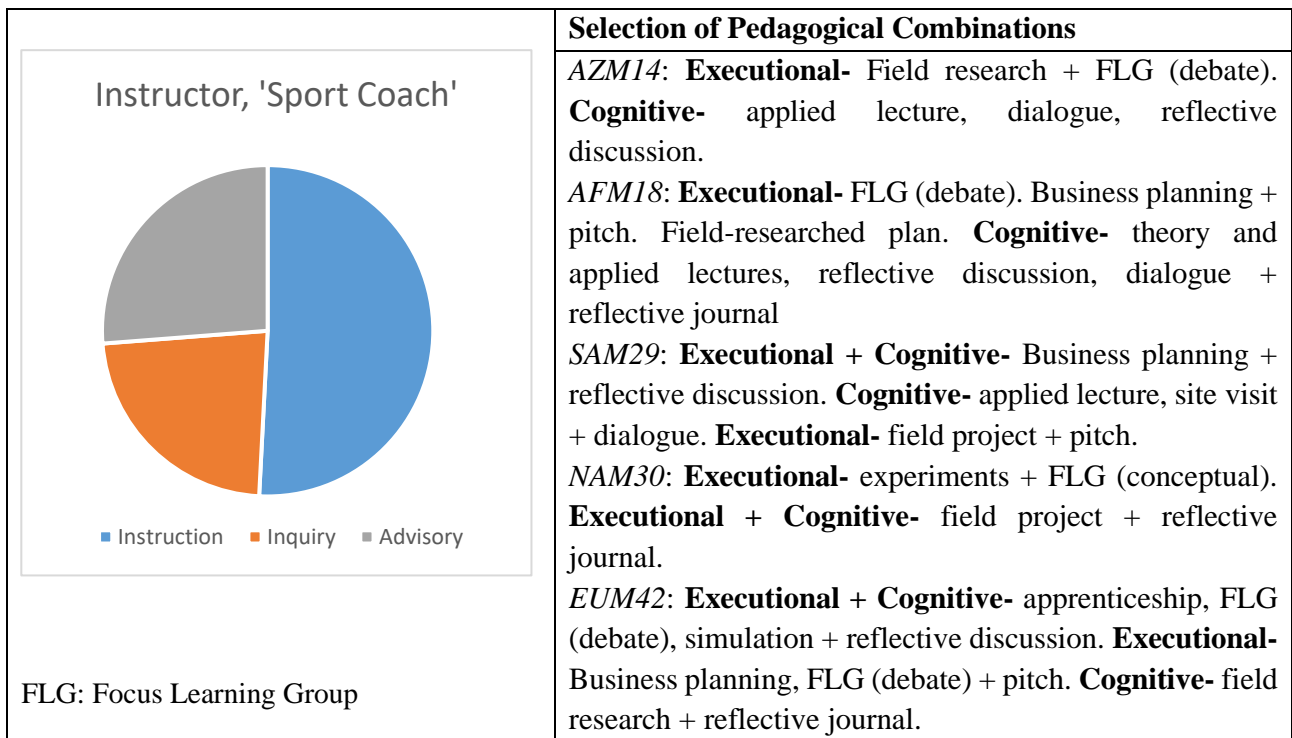


Figure 6.2: Pedagogical Combinations- Instruction-Focused Coaching

NAM30 described instruction-focused coaching as:

“This is how you do it. Do it this way. Our website and videos we produced show you how we execute the process. It is taught prescriptively but in reality, we know you are going to jump in and jump out, at different points in time and at different stages. Once you learn the technique that is it. ... In the context of a football or baseball coach, they have very specific content knowledge. My job as coach is to develop your skills as you are doing this and in an environment that is supportive” (NAM30).

Theory (instruction) was compared with learning and utilising a language to express and reflect on experiences.

“I tell them this is what we found in the literature. This is how this works ... provided examples from a research point of view. This part is still about the language. The first part is not super experiential. The second part, they really have to do something” (EUM20).

EUM57 utilised inquiry with instruction and provided a “language” for self-evaluation.

“I do not try to teach. I do not give any codes, any codified patterns of behaviours to emulate and relegate. I do not provide any set of rules or principles to follow. I succeed to index myself into the way they think and perceive themselves, and their place in the world. Suddenly, I **bring language into their feelings**. For the first time in their lives, they have a better **tool to articulate what they think, what they sense**” (EUM57).

AZM54 transitioned from theoretical to practical instruction. Students had to apply practical instructions to perform entrepreneurial activities.

“We **lecture** but at very different pace **within the first five weeks**. But **the next five to seven weeks, I am talking more to them about practical applications**. They will have **guest speakers**. It is **more learning through application, discovering what ideas they have, how they intend to ‘jumpstart’ the ideas**. What to do with the Lean Canvas. **It is not simply about theoretical understanding**. The role is now shifted toward the **practical applications**” (AZM54).

“The activities are most important. **When you are not ‘doing’ then the coaching aspect will not resolve this (your) problem**, that is, **when you are not active then coaching will not help you**” (EUM31).

NAM45 emphasized on applying problem-solving “tools”.

“... **work with them (students) in partnership in applying entrepreneurial thinking and innovation tools to understand the problems and figuring out new ways of thinking** with the hope that you can develop innovations or solutions. **What we do is, work on the mindset, the tools, the skills they need and the application of them**. You **do some kind of exercise, on the application side**” (NAM45).

EUM38 focused her coaching on entrepreneurial skills and mindset development:

“We are in a **context that is different from their environment**, ... Hence, I **solely focus on teaching them these skills**. I tell them: maybe **the business ideas that we develop now, would not work**. But I want you to **be able to apply those tools**. ... **That is given by coaching**. They need to develop their business ideas, to **know where they stand, know how to think entrepreneurially, internalising the entrepreneurial mindset including the skills: managing uncertainty, being adaptable, flexible, changing one’s plans if needed**” (EUM38).

Weekly journal reflections on experiences were based on evidence-based theory (AZM6). Students reflected on the experiences obtained from activities. The application of theory assisted reflexivity that enabled future entrepreneurial activities.

“At each stage in the process, we give them a different theoretical lens [to] look at that technology for jobs to be done, to value proposition, to barriers, to adoption, to alternative business models. We give them lenses to help them understand what they're seeing and make sense of the real world. And then maybe come up with some conclusions” (NAM32).

6.3.2 Instruction-Focused Pedagogies: Curation of Entrepreneurship Methods

Educators curated or appropriately selected evidence-based theories for students to perform entrepreneurial activities. Educators were **“curators”** (NAM45) of questions for inquiry, best practices, solutions for potential questions and entrepreneurial projects.

Students applied entrepreneurship methods: evidence-based theories (AZM6), principles, tools, processes and methodologies in instruction-focused coaching (Section 6.3.1). CDs and/or students both curated entrepreneurship methods (instructions). Curation of other ESE sources (VL and advisory) are elaborated in Chapter seven.

Theory application was the foundation of one’s perception.

“Recognising different ways of valuation: a company may have high financials but low strategic valuation or a stock can be traded low but it has actually high economic value. Students get a ‘feel’ of the various ways of valuation. When they use their intuition to make judgments, ... it is necessary to know a theoretical base” (AZM11).

Entrepreneurship activities were based on well-known methods such as those mentioned in Table 6.3. In this research, participants’ proprietary methods have been anonymized.

Table 6.3: Selection of Curated Entrepreneurship Methods

Renowned Entrepreneurship Method	Pedagogical Designers (CDs)
The Business Model Canvas (BMC) (Osterwalder and Pigneur 2010).	OCP16, NAM2, AZM3, AZM7, AZM10, AZM13, AZM14, EUM20, NAM19, NAM32, NAM41, NAM42, NAM44, NAM59, AFM18, AFM39, AFM50, OCM52.
Design Thinking.	AZM5, AZM13, EUM23, NAM32, NAM48, OCM47.
Structured creativity.	AZM35, NAM28, NAM30, NAM36, NAM37.
Effectuation theory of entrepreneurship (Sarasvathy 2001).	EUM31, EUM55, EUM59.
Resources-based entrepreneurship (Alvarez and Barney 2007).	OCP13, OCP18.

EUM27 designed an online entrepreneurship course based on public knowledge, a best-selling book by Eric Ries, “Lean Start-up”.

“It became like a book club. From within those chapters, I would then **bring in more content on start-up, videos and other articles**. It was not someone standing in front of them, telling them from open slides; or you should read this. This is what entrepreneurship is” (EUM27).

“With the **BMC**, students **come up with possible solutions and proposals**. They use the BMC **as a model or template to frame their business proposal**. They **apply concepts** like break-even, weak and strong ties in their entrepreneurial ecosystem or networks” (EUM20).

EUM31 and EUM59 combined major entrepreneurship methods (Table 6.3) into their EEDs. Assessments in entrepreneurship courses were based on these theoretical foundations and their related ESE types (for example, utilising creativity, critical thinking) and learning action (for example, creating, proposing, synthesising). Effectuation is a methodology used by entrepreneurs to develop their business ideas based on available resources that they have, to create a market, resource base and stakeholder network (Sarasvathy 2001).

“**Entrepreneurship as a method, combined Design Thinking and effectuation**. There are **three core elements**: creating and realising ideas, empowerment and work towards community benefit. When **realising ideas for the community, you need to bring good**

arguments. Why ‘this’ idea should be realized. For that, we use the debate class or club” (EUM31).

“We do teach **effectuation**, the **resources-based view**, and other theories to **understand their own process**. When **evaluating students' assignments**, I review, are they able to **explain the theoretical and practical aspects**. Finally, are they able to **put it all together, formulate sensible arguments, applying reasons for utilising** for effectuation **principles** in their start-up” (EUM59)

Students of EUM23 tested their assumptions including what their customer did not express. He combined a planning template with Design Thinking.

“It starts off with investigation. It does not start with planning. Feasibility is the testing, the **convergent thinking**, not the divergent thinking. The **Lean Canvas is a way of doing divergent thinking**. That goes as far as **understanding how your customers**, how they might be thinking, how their thinking changes and customer’s sub-conscious thinking- the thinking that they are unable to articulate to you” (EUM23).

NAM37 curated industry practitioners to teach his students and also requested his course alumni (GREs) to share their start-up experiences.

OCP13 advocated his form of causal-logic resources-based entrepreneurship “using a lean version of BMC, to survive and thrive beyond five years”. NAM37 also required his students to develop enduring start-ups. These advocated processes of entrepreneurship:

“I do not think you should start a new venture unless you are thinking ‘resources-based view’ otherwise you got copy-cats all over. ... You can say the whole experience was worth it. ‘I failed. I’m broke but I learnt a lot’. But **you rather start a new business that had sustainable competitive advantages. ... the only way is to** renew it through unrelentless innovation, media technology or even in your physical point of sales” (OCP13).

Some CDs designed discussions and FLGs to facilitate the discovery of better solutions. Collaborative pedagogies reinforced value creation for others. AZM35’s strong advocacy for the continuous quest for the best solution was echoed by AZM11, OCP13 and OCM47.

“It is not like if you are not following [anonymized method] you are unable to solve the problem. **Anybody can and will solve your problem.** But the **amount of time required is drastically cut down**” (AZM35).

“**As an entrepreneur, you should be problem-centric,** not money-centric, not solution-centric. **It is about the problem. Identify the problem. Everyone including me helps solve the problem.** Entrepreneurship is about **sticking to a problem.** Entrepreneurs are **fascinated by the problem and not by the solutions.** They **look for solutions** (and) may change the solutions” (AZM11).

NAM43 focused on a “creative problem-solving process involving Design Thinking and a little bit of ‘Agile’”. Other CDs that mentioned problem-solving:

“Direct your creativity to a specific (client) problem that you need to understand. You got to find what the client wants, so listen to your client. **Structure the problem** and manage expectations” (NAM28).

“The main objective is to find, to **identify a problem or opportunity** in the market. Why they can (cannot) **take advantage of this opportunity; to develop a business idea** or a social project. We use creativity and innovation, as main tools to **bolster their entrepreneurial spirit**; also trying to develop their creativity” (SAM29).

OCM8 and AZM7 required paper or digital prototypes.

“Basically, they use simple **Design Thinking principles.** They do them on cardboard, draw on it. Some make cardboard boxes. Some actually play around with ‘Visio’” (AZM7).

6.3.3 Inquiry-Focused Coaching

Inquiry is an intellectual series of questions, directing students to reflect on outcomes, performance, assessing themselves individually and their team performance ‘reflexively’. Inquiry-focused coaching (lower Practicality) was identified as a recursive between inquiry and advisory or a recursive between inquiry and instruction. Inquiry assisted in changing one’s understanding and in considering the effects of contextual conditions. Inquiry also assisted in critiquing and testing their experiences using a range of theories or perspectives.

Coaches transitioned from instructor to inquirer, motivating students to explore (“movement”) and experiment (EUM42). Counsellors guided students using the inquiry-advisory recursive. Some did not spoon-feed students (AZM10) and provided minimal or no instructions (NAM43, EUM23, EUM58). Counselling (Figure 6.3), asking questions could discover one’s passions (aspirations) and one’s relationships that determine the feasibility of entrepreneurial projects.

“Go, move and see what happens, by movement. We teach this to students in creative thinking. Simply move. It does not matter where you are going, it in itself. The problem people relate is, I do not know what I want to do in five years’ time. Well, just think about or aim for something and move to it. Because movement creates purpose” (EUM42).

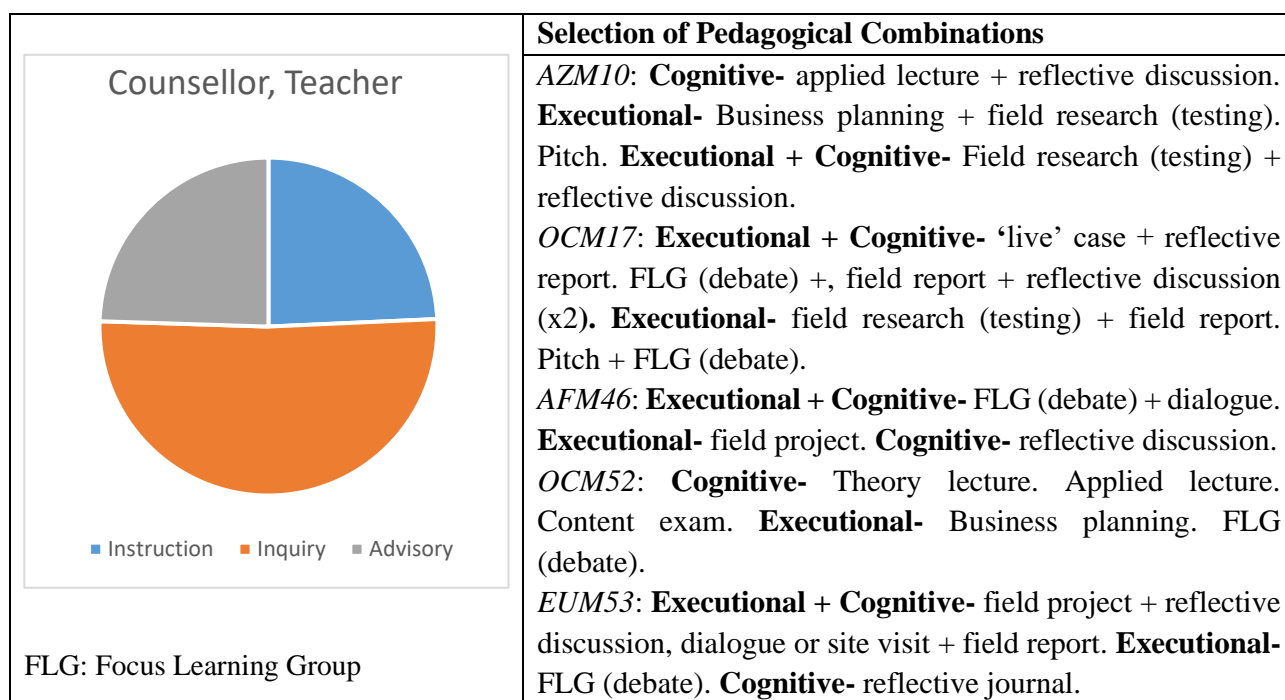


Figure 6.3: Pedagogical Combinations- Counsellor

In ‘direct’ inquiry, academics enabled reflection, asking, “what would you do?” (NAM2, NAM28, NAM43), or asked questions that motivated retrospection and planned future-oriented improvements. The researcher classified ‘indirect’ inquiry as assignments and projects.

“I use journaling in a longer whole year course, a journal, a ‘wiki’. An [anonymised] extra-curricular study tour, where students submit a mini-thesis or research report- an entrepreneurship portfolio including the reflective journal (AFM46).

“If you can **pinpoint the weakness**, pinpoint **what went wrong**, or **whose opinions mattered**, we will still give you a reasonable grade, even though you may have lost money or time” (EUM53).

The inquiry educator role enabled reflexivity by not providing a framework to answer theory-based critical questions, which prompted students to find their own answers. “Reflection enables us to correct distortions in our beliefs and errors in problem-solving. Critical reflection (reflexivity) involves a critique of the presuppositions on which our beliefs have been built. Learning may be defined as the process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation and action” (Mezirow 1990, p.1). Challenging questions encouraged students to explore or utilise different perspectives.

Role-playing assisted them to discard dysfunctional perspectives (NAM2, EUM57). The practice of reflexivity through “Socratic” coaching and role-play facilitated self-determined learning (AZM11, EUM58). Students practiced inquiry to perform reflection on action outcomes, case scenarios and reflection on emotions. Inquiry enabled curiosity-based learning, self-determined learning, experimentation and failure analysis, that consequently improved students’ IEA (Section 8.2).

Self-determined learning commenced with assisted problem-based learning and involved determining one’s own learning with minimal instructions. Inquiry tested the understanding of theory application. Inquiry assisted in planning and executing entrepreneurial activities and acknowledging achievements. Educators prompted students to self-discover, in the form of field research, projects or reports. Some CDs trained students to develop creativity through a series of questions (requirements) to be answered.

AZM7, AZM9, AZM3, and also NAM26 and EUM58 and their teams, required students to actively survey actual customers. Inquiry enabled critical self-assessments, recorded in reflection documents together with the experiences that prompted reflection. In the absence of an instructor, students performed inquiry on each other:

“(In) argumentative discussions, conceptual frameworks, reflections, back-and-forth, **asking questions with each other**, sometimes looking and correcting conceptual misunderstanding. There are multiple (case) questions, depending on where I am **putting them in the process**” (AZM7).

Coaches were more likely instructors in prescriptive learning but inquirers in self-determined learning contexts.

“The role of a **coach is not to instruct but it is to support and move. Except in the very first year, a coach is far more directive than you would.** In your second or third years, you are still **not saying, ‘do this, do that, do this’.** You are **asking very pointed questions.** You are noticing a lack of engagement, lack of **movement,** you are challenging much more strongly” (EUM58).

NAM2, AFM46 and OCP7, being practitioners, resisted providing answers to students. They encouraged students to self-discover solutions.

“I am **role-playing their boss/client. I seldom role-play their instructor.** The ‘hard’ for me is to not tell them what to do. If I know the answer, it would be easier for me and for them. If I were the boss, I would tell them the answer because my objective is to get it out of the shop as fast as you can and send them the biggest bill you can. My instinct is to tell them how to do it. (What) I try to do as an instructor is **not tell them how to do but try to help them create a framework to think about the right answer**” (NAM2).

Inquiry enabled self-discovery. OCP7 asked students:

“**Do you know this? Do you know how to use it? Can you explain it so that someone else can use it?** It is a **self-assessment activity** on how much they **understand different things.**

“If you, the seller, do not (ask) any questions to the buyer on how they are using the product, you will not be able to **price it properly,** cost plus. You might make a profit but you may leave a lot of money on the table because **you haven’t found out** (for example) your widget lasts twice as long as the others” (OCP7).

Similar to their practitioner counterparts, academics like EUM12, EUM23 EUM31, EUM58, OCM1 and OCM47 also performed inquiry.

“In a self-determined approach, it is saying, ‘**Here is the framework, skeleton, and what do you want, or think you need to do, when and how will you do it, and how will you know you have accomplished it? How do you think you need to do it?** You are going to have to do. So **what would work for you?’ Guided by their responses to this question,** they will **set themselves tasks and check back with me** next week on whether they did these tasks or not” (EUM12).

The students of EUM12, EUM23 and EUM58 experienced self-determined learning with a focus on inquiry and self-discovery.

“(They) **experience something. We will say to them, ‘Okay, what is the theory? Why don’t we look for theory?’ We place a lot of emphasis on when you have your best ideas. Are there diaries and reports where they have to monitor, when they have their ideas? You have not told them. They have (to) work these out for themselves. You ask them how (they) were feeling at that time”** (EUM23).

“They have friends, but they are talking in a different way and not on solutions. They have to **find their own way**. They are not doing this with their own parents. For many students, this was a new journey, where **they have to find ways of doing this**. It sounds funny but you are **leaving your comfort zone where you have to find the solution and not someone telling this is way, this, this, this”** (EUM31).

During self-determined learning, AZM11, NAM43, EUM12, EUM23, EUM53 and EUM58 provided their students with very little instructions. Guided by inquiry, they had to be resourceful and collaborative to generate experiences to reflected on.

“Mostly **it is about the students and what they want to do**. It's about asking them questions, **‘what do you want to do and what’s your plan?’”** (EUM53).

EUM58 described how students were introduced to self-determined learning, beginning with a bootcamp.

“We do their first client challenge with them. **They have to suddenly work in teams, to address a real client’s problems and they have to pitch their solution back to the client, later on in the day**. They already get introduced to the idea of ‘Wow! This is absolutely full-on! **No one has taught us anything. How can we possibly deliver within a few hours?’** We tell them, ‘Just **think about it. Use whatever resources you can. What does this (activity) now teach you?’** We are doing this to **help them appreciate this is the real-world, to introduce them to the model**, which has bits in them like a client challenge” (EUM58).

“With beginner level business strategy, we say a company operates within an environment that has influence on it; **consider how you will define environment trends, competitors and customer behaviours**. You also **have to understand**

theoretical foundation of organisation and business management. They read that and go, ‘Do I know what a trend or the theoretical financial structure of ...? No! **I have to go find that out!** Because I cannot tick that box until I understand these.’ As students **learn and progress, it became highly improvised towards an end stage or scene, progressing through and acknowledging intermediate milestones**” (EUM58).

Inquiry-focused coaching enabled reflections that directed future decisions and actions. Reflection using questions guided students to capture evidence-based lessons and to self-discover answers. OCP12 through inquiry required his students to mentally progress through all the technology commercialisation steps.

NAM32 required a consistent practice of reflexivity using a personal SWOT (strengths weaknesses opportunities and threats) framework.

“We have **structured questions in the reflection journal**. It was not just like a random walk. **They have to answer questions**. Two thirds of them are really bad at it when we start the program but **every day they get better. People learn by doing**. If you know that **every evening, you have to write something in your journal, and maybe share a bit of that with the rest of the group, your approach to the day is different because you’re actually looking for a learning moment that you can share later**. They try to build on each other. Here is the really important thing: they are **always looking for evidence** (of learning moments)” (NAM32).

NAM43 utilised inquiry to prompt independent activity and reflection that fostered ESE.

“**No assignment ever has instructions**. ‘I can make a video?’ **I say, ‘I don’t know, can you?’** ‘Would it be better if I did a power-point?’ I say, **‘I don’t know, would it be better for you?’** ‘Can I make a website?’ I say, ‘I do not know, can you?’ That is the whole point. **They do not know how to do it but they do it anyway, and they are really proud of their work**” (NAM43).

Some mentors used inquiry to guide students to perform and reflect on entrepreneurial activities. AZM10 and OCM8 “**answered a question with a question**”. Likewise, academics like EUM4 “**posed new questions to steer and direct the discussion, to get them to ask more questions**”.

“**Questions allow you to find the answer. The answers to the questions I give you, may be something you have never thought about. Often, we know the answers but we do not know the question that would give us those answers.**

‘I do not tend to go, ‘Read this and this. This is the ‘gospel’ of innovation. You must apply this. What I tell you is the absolute truth and in everything I tell you, you must do.’

“Most people will have their own answers. They just do not how to find them. ... It is just about helping them, teaching them how to use a compass so that they can find the direction they want to go on” (OCM8).

The role of inquiry in self-determined learning was to identify areas of ignorance.

“We tease them in how to respond to their questions to get them to ask more questions. For example, a copyright is the ‘right’ to copy. The discussion becomes more engaged. The person who drew the drawing goes, ‘They made all this money, and I made nothing.’ **‘Why did you give it to your friend? It was a gift, wasn’t it?’ ‘But I did not know that they would do that ...’** By the end of an hour, these **students are desperate to know everything they can about IP. Because it affects them on a day-to-day basis” (EUM23).**

AZM10, EUM12 and NAM26 required at least three individualised mentoring sessions per semester with each student to deeply reflect on the personal implications of an entrepreneurial career.

“We do a lot of ‘one-on-one’ that change understanding. Once they start writing that reflection paper, start focusing, applying what they’ve learnt to themselves, then I spend a lot of time coaching them along that, in terms of diving deeper into this. I know what you got on the business side but what does that mean to you? How is that going to do it?” (NAM26).

AZM10 (a certified coach) inquired to facilitate reflexivity that developed self-awareness of personal hinderances and conditions that eroded ESE. Inquiry-based reflections generated potential self-solutions to enhance ESE.

“When one says, ‘Should I publish my website right now?’, a coach may ask, ‘What is stopping you from doing that? What is the purpose of asking me this question? Are you doubting something right now? What is it that you know?’ A coach will answer a question with a question that evokes a thought process which the client has not thought about yet. A coach shows perspectives that an entrepreneur will not be able to see at the moment” (AZM10).

“Once they figured out what their business idea was, then they would do much of the work themselves. They would come back to have more workshops and one-on-one with me. It is not a typical course where the professor comes and teaches. ... In those mentoring sessions, **we look at how they were stopping themselves from (entrepreneurship). We were not only looking at the business model ... (but) on the things they were not doing and how they could use more innovative thinking into their business model.** One student wrote the struggles encountered in (a) finance course and was avoiding those classes. ... Similarly, they were also avoiding entrepreneurship as well. Hence, **reflection helps students realize or be self-aware** of what is happening” (AZM10).

Students also considered questions related to situated real-life problems in cases, during reflective discussions and reflective journaling.

“I will ask multiple students in a very Socratic method. **‘This person said ‘X’. Do you agree with that? Are they missing something?’** We end up building this spreadsheet together. Students giving input initially on what they think should go into each cell. I guide them towards the better or correct answer” (NAM16).

“We give them **cases about particular entrepreneurs, asking, ‘Do you think there’s someone in your vicinity similar to him/her? What is your opinion? Do you think from the last time we discussed the case about Elon Musk, was he more innovative? Our society has not moved from ‘that’ perspective. What is your reflection? Can someone like Elon Musk exist in our society? And if they are not existing, what are the reasons?’**” (AZM34).

6.3.4 Advisory-Focused Coaching

CDs became advisors (Figure 6.4) when they assessed mastery performance and provided advisory-focused coaching (lower Practicality) after students had executed instructions. Students reflected on the provided feedback (advisory) and on their outputs. The principles used in advisory were based on theory.

Advisory-focused coaching identified and devised ways to address weaknesses in students. Students articulated their new learning, their “connections” (EUM23), and obtained feedback from peers.

Students made decisions based on real-life customer feedback. Advisory-focused coaching validated students' plans and ideas that enhanced their ESE.

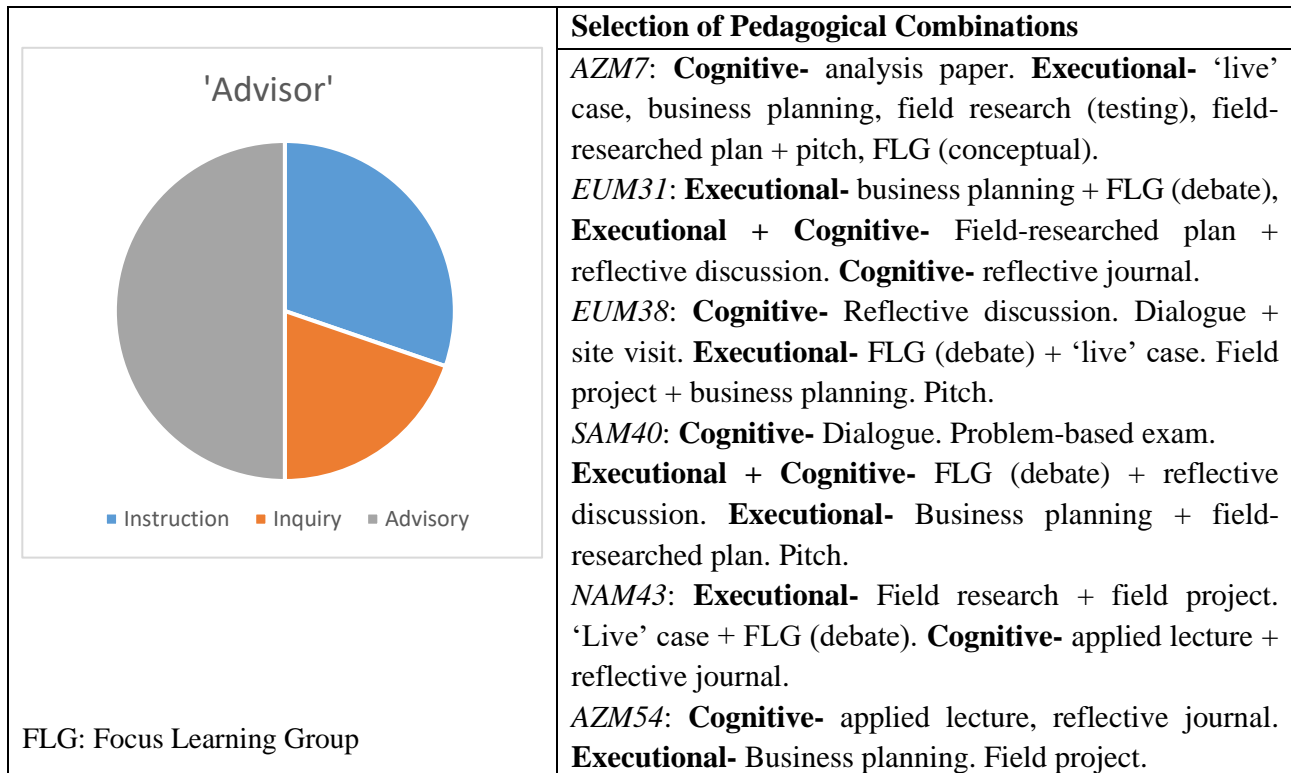


Figure 6.4: Pedagogical Combinations- Advisory-Focused Coaching

Advisory-focused coaching could consist of commentaries that stimulated different perceptions of customer demand and consequently generated potential customer solutions. In group coaching, feedback was provided to, and reflected on, by multiple students at the same time.

“(Students) **found their way in how they navigate the market ... They show the problem, their customer analysis and display their first solution feature. I give them feedback.** I couch my comments in a way where they do not come across as ‘you have to do this now’ but rather to **allow me to open up a different perspective**” (EUM4).

Advisory-focused coaching was provided during FLGs when students demonstrated their newly acquired learning. Advice transitioned from purely academic to authentic practical feedback from both CDs and industry experts.

“We get more and more complex in our requirements, and we get more demanding in two areas. Part one, students have to **argue to their peers** on six to twelve alternative solutions, **assessed** on how similar are these solutions. **If they are all variations on a**

theme, we do not rank them very highly. If they are distinctly different, then we rank them highly. Part two is the way they make their argumentation.

“Whenever they as learners make a **new connection in their mind**, we ask them to **articulate** that. This handle worked this way and I suddenly thought we have the handle working in this environment. That would be a **new connection**. We have many **prototypes**, but the students have to **articulate** those. Part two might be **how successful your solution** is in the eyes of the evaluators, at the end of this module. The evaluators are 50-50 external partners” (EUM23).

Advisory-focused coaching was mostly provided as feedback on submitted assignments.

“How you get there, the process is far more critical than the outcomes or grades. We (team of six) collected assignments and **give feedback, without grades** (repeated many times)” (NAM43).

Students reflected on challenges and feedback provided by coaches, mentors and/or peers that developed ESE.

“Some of the students that just only make it into the program, often because **they are shy or lacking in self-confidence. They do not understand that they are really an entrepreneur, but they have not had the chance to show it. ... a lot of peer learning, giving feedback to each other. It is not just me helping them. The mentors they meet, customers they meet, entrepreneurs they meet.** ... Each day, they have to present where they are with their plan.

“Both internally during the day while they are working the teams; sometimes **they will meet with another team and get feedback. They get the daily feedback.** There is a kind of **learning by challenging. You present something and inherently what you don’t realise is that there’s assumptions and biases in what you presented. If the other students don’t do it, I do it with challenging assumptions and biases**” (NAM32).

“(Students)... **discussed their findings, field research data. Then you give them feedback. You coach them, ‘This is what you should do; this is what you should not have done. Now go and do this.’ Then, they go out and do some more. They come back to you next week and for further discussions**” (AZM34).

“(Students) go have that experience in a safe manner and then come back and let us try to make sense of it” (OCM1).

Students responded to inquiry and received advice in return. Advisory-focused coaching enabled reflection on one’s competence (NAM2, NAM43) and validation of one’s entrepreneurial self-identity (NAM32, AFM46). NAM2 required students to role-play and test their surveys on him.

“The question that they ask is seldom what they are really asking me. Suppose what you really want to know is how confident you should be in your point of view” (NAM2).

“What students want most from me is permission to be an entrepreneur. They want validation that they can do it. They are in a corporate job. They are thinking, ‘Is it safe to leave? Do I take a chance? What would the consequences be on my life and my family?’ What they want from me is some encouragement” (AFM46).

EUM56 highlighted the challenges and time required for advisory-focused coaching to enhance ESE. The horizons of EUM56 implied a coaching stance of sensitivity and commitment. Only AZM3 and EUM56 advocated that coaches should be trained to impart ESE sources to students more effectively. Coaching could be similar to being a sports coach (NAM30).

“When it comes to coaching, I tell them an example of a batting coach. You really get into the technique of batting, observe the trainee batting, give feedback, change his/her technique. If you want to coach someone in business model design, then you have to actually design it, give feedback, modify their techniques on how to design. They are very cumbersome activities.

“Many faculties found it challenging to practice coaching. It is staying with the team or entrepreneurs for a slightly longer time. Watching them practising and providing feedback about their own practice. Hence, coaches should be very relatable. It can get very emotional. People can take critical feedback very badly. Hence, how do you help them overcome that and actually learn from their own practice? ... Show them how they could perform better, this increases confidence and trust” (EUM56).

6.4 Curation of Entrepreneurial Self-Efficacy Sources

Curation complemented EED by providing a variety of ESE sources that supported entrepreneurial learning and was a key factor in developing ESE. The variety of curated resources provided a greater range of higher and lower Practicality learning opportunities. Students reflected on outcomes and themselves (reflexivity) after executional actions. Reflexivity developed awareness or cognizance of one's entrepreneurial potential that consequently developed ESE.

Curated learning resources included entrepreneurial capital, entrepreneurship methods, cases, ESE sources (contract educators, guest entrepreneurs, role models and guest assessors) and "right sized" client problems (NAM2) as projects. NAM45 was the first participant to describe the curation of cases and examples when describing how he planned to improve his intensive course.

"I see our job **like working in museums, curators**, the ones that **gather** rather than (to) create new content. **Bringing the right content to the right group at the right time.** That's how I would do it" (NAM45).

As an example of curation, EUM24's EED consisted of theory application, tutorials led by an entrepreneur, guest speakers and assessors for student plans. He mentioned honestly that he did not know whether his EED developed ESE. EUM38 and EUM53 advocated the curation of a wide range of real-life cases and models to facilitate ESE development in as many students as possible. EUM53 reasoned, "**you don't know exactly which ones inspire you until you experience something**".

NAM41, EUM56 and EUM59 advocated the curation of other faculty members and/or ESE sources of authentic instruction and advice from industry, when those necessary roles were not assumed by the CD.

Role-rebalancing was necessary as there were limits to the coaching provided by a single CD (OCM1, EUM56). CDs activated specific educator types and roles according to how his/her students engaged with the learning experience. Intensive role-transitioning could be "mentally exhausting" (EUM59). A multi-role teaching team was advocated by AZM10, AZM22, EUM53, EUM58 and EUM59.

"Sometimes, **it is very conscious and other times, it is less conscious**; it just happens to be like this. We have many faculty members. We do have different roles and we do more than others. When I was new here, I would say I was **assuming more the friend role, rather than the assessor**. Later on, I took on the **lecturing and assessor roles**, while **some younger faculty are taking the friend and supportive roles**. ... As a year

one PhD to full professors, we all have very different roles. ... It can be mentally exhausting” (EUM59).

CDs sometimes faced situations where they were unable to help a student further, and they advised the student to approach other ESE sources such as entrepreneurs and industry experts (AZM6, OCM1, EUM56). Some CDs curated additional coaches and mentors as ESE sources to assist students in developing their start-up ideas. EUM38 described the challenges of curation as “**finding out what are their ways of learning**. You will end up with so much variety that it is shocking. I do that with people, enabling them but **we are time restricted.**”

NAM41’s teaching team practiced role specialization with role-rebalancing to help prevent role ‘overload’. NAM41 strongly recommended role specialization. OCP6 typically curated eight or nine guest lecturers from industry.

“If you are a mentor in the business accelerator, please be a mentor to A, B, C and D. Do not teach them. Be a mentor. Transfer your own experience. They can decide and return if they want more knowledge in other areas. It was important to say, ‘**I declare that I do not teach because you put all together.**’ It is such problem. Sometimes, **we request our professors to be good mentors, to give good advice, make fantastic classes. This is very difficult.** That is why **we combine co-teaching with many, eight to ten guest speakers to ‘make’ their roles. They have more strengths**” (NAM41).

NAM41 found that assuming multiple roles at the same time could become confusing for his students.

“Sometimes you are **acting in this multiple approach**. Sometimes, when you are assuming a **more mentor role, you try to give specific advice for ‘x’ process. At the same time, transmitting some knowledge.** ... even when you have the mentor hat on, ‘Ah! I just read about this report. **Don’t forget to read this report about that.**’ You are combining in many ways. But **if you combine roles ... students may find it difficult to catch you.** But both are relevant, I find it very interesting **this balance**. Sometimes, you **split every different role in different stages of the course**. Sometimes, you are a **facilitator of the process via teaching in the traditional way**, presentation, you need to read that. When lecturing, I transfer knowledge. **Outside office hours, I can be mentor or sort of coach. We talk about a specific project.** It is important to give this time for these activities. **Try not to combine in the same (session), because the cognitive process will be a mess**” (NAM41).

AZM22 was adamant on role specialization and teaching teams:

“Coach and judge at the same time made things worse. You kind of helped them and then criticise them. I cannot evaluate something that I believe is going to be a success but maybe the market say no. I do not believe that I can be an evaluator of their ideas. ... **A teaching team is necessary** in teaching [anonymized] entrepreneurship ... **with various and different professionals and experts. You ... bring in a start-up ecosystem into the class, so that the setting is more real”** (AZM22).

AZM7 highlighted the role of an entrepreneurial community to develop entrepreneurial habits, for example, customer discovery and validation.

“If you do the course as it was designed and with rigor, and if they continuously practice it, then they will get a habit out of it. The task of making it a habit is not on me. That is on the entire community that is teaching you, but I think I do my bit in my course” (AZM7).

CDs accumulated a pool of supplementary ESE sources over time. Some courses/programs that did not have insufficient cohorts of graduates had fewer GREs (alumni) or guest entrepreneurs (ESE sources) to invite. Furthermore, some CDs found it challenging to curate and contract entrepreneurs to provide regular authentic advice and VL.

“I have people who are good at different things. A resource pool, to point students where they should go, is something for an educator to develop over time. We have to find solutions to acquire resources, networks to benefit the program. Should a mentor not have the opportunity to be part of our program, then **we have to think differently on how to fill this vacancy**, because we cannot substitute that exact person with another very similar one. We invite in someone who is very different and have to reorganise the entire structure to fit in this new person” (EUM59).

This prompted some CDs to encourage students to Self-Curate (Section 8.1). Students self-initiated entrepreneurial activities, assembled teams, marshalled resources and curated their preferred sources of VL, advisory and even instructions (self-study of entrepreneurship methods). OCP4, AZM13 and EUM38 supported students to develop ESE from exploring their creative or entrepreneurial interests. These activities assisted the development of EEA (Section 7.5) and IEA (Section 8.2).

Student start-ups and entrepreneurial projects required time and effort beyond the confines of a single course or even an EE program, as validated by both CDs and GREs. Some CDs encouraged students to participate in ECAs (such as incubators and accelerators) to further develop their start-up ideas (AZM10, EUM20, EUM27, EUM53, NAM26, NAM43, OCM49). After graduation, GREs continued to improve on their start-ups or restarted their start-up failures. EUM56 and OCM1 experienced limits of effective coaching and emphasized having access to networks to enable entrepreneurial activities.

“Personally, it is **drawing clear boundaries on what roles I can play** and those **I am not equipped to assume and find others who can play those roles for the entrepreneur**. Secondly, as a human being, **I have limited capacity. At any one time, I can have a few entrepreneurs and not dozens**, choosing the ones you can help and handling those or pointing them to others. It involves **enabling access**. We are truly only **enabling them, making the connections. We do not know whether they will work or they will do anything** but at least **try to enable connections and review how it goes**. We are **enabling, connecting, facilitating**” (EUM56).

“**There are times where I’m going to say, ‘I’m not able to help you anymore with that today. But you should go and talk to that person because he/she could help you.’** Then there are times, where I can say, **‘Stop for a minute and think this through. Why not you read this or that? Come back next week after you’ve had that meeting ... with someone in chemistry and discuss wherever you are at’**” (OCM1).

Some CDs guided students to discover or create opportunities. EUM59 expected his students to eventually curate their own resources and ESE sources. The progression from more prescriptive to self-determined learning is elaborated in Section 8.1.

“**The guiding metaphor** (CDs as guides) **makes a lot of sense. It relates a lot to showing them what is out there, at least at the beginning**. To make them **acknowledge, to make them conscious of opportunities that are around them**. Many students when they first enrol, think about other students, faculty in the university. **They do not perceive the opportunities in the ecosystem**” (EUM59).

Some students Self-Curated their own preferred ESE sources.

“There was an entrepreneurship network. **Students pick mentors, outside class. They evolve to a point where they become entrepreneurs under these so-called mentors**” (EUM24).

AZM54 encouraged students to participate in additional coaching, incubators and competitions (ECA) that enhanced ESE.

“**Additional training for business plan competitors** encompassed the importance of entrepreneurship, how to perform an elevator (three-minute) pitch, use the Lean Canvas model and how to sell things online. We will train and teach you. **They are (will be) ready with some confidence on how to face the jury members**, at least 50 to 60% (of the time)” (AZM54).

“For co-curricular activities, there is ‘Be Your Own Boss’. There are **12 weeks of two-hour sessions to support people to start-up**; more than simply creating content. If they **develop their business ideas**, they will **obtain some funding and mentoring support** in that program, a **practising entrepreneur supporting them**” (EUM53).

NAM45 designed intensive EEDs and started a university incubator program. However, he observed that students only benefited from ECA when they were self-motivated.

“The students that came are **already driven. They already had ideas**. They needed some type of **business** teaching. This group, their **mindset was more business traffic**, more tangible mindset or business orientated. **They wanted to learn not only how to build but also run a business**” (NAM45).

AZM13 recommended students start less challenging small-scale businesses to learn and experience entrepreneurship. However, he also observed that a majority of his students did not do so.

“**Do a ‘mini’ first, try out and see whether that works, then you get confidence and start to do other things and get more confidence**. You can **learn so many things just by selling items**, (for example) smartphone covers” (AZM13).

Contrastingly, four out of ten students coached by OCM49 participated in an incubator. Half of EUM20’s students after completing his intensive course, participated in further ECAs.

“(The students take part in) Venturing Weekend that is even **more action orientated**. If they still like the idea, they go into the [anonymized] **accelerator** program. **We give them training, coaching and networking**” (EUM20).

Some students started-up as part of their program or as ECA. GRE8, referred by NAM26, benefited from start-up funding and ECA-based feedback.

“Besides a project-based master program where **their project is actually their company, either from pre-formed ideas, (or) carry-ons from undergraduate programs** We also run two **accelerators**, a ‘scale’ program, **networked into the global accelerator** program [anonymized.] Our students **participate in competitions**. They have **special funds they tap into**, competitively for **prototyping**, development and **customer discovery**, up to \$10k per start-up. We have the **summer incubator program**. They could apply to enter. They **get paid to work on their start-ups**” (NAM26).

Some students participated in “an **incubator** where students can **monetize their business model**. We have different programs, depending on the maturity of the project. We have **co-curricular programs with the MBA** from ideation ‘I have an idea, but I want to wait awhile’, team creation, a more formal accelerator program combination, ‘middle stage’, between an **incubator** and an **accelerator** for more virtual ... products. An incubator, more for **physical patents, for more formal ventures** with a history of two to three years. An accelerator program, very **formal with mentees companion process**. Six to eight **Entrepreneur-in-Residence** within an agreed contract, serve as a ‘Q n A’ support system for students Those **dialogues** are designed where they **pitch their ‘crazy’ ideas to real entrepreneurs who reply**, ‘Let me help you with that’. Those dialogues are set up **outside the course**, with few exceptions” (NAM43).

EUM27 created an on-campus start-up advisory accessible to all students of any discipline.

“**Irrespective of what degree you are doing, what level you are at, you can still come for advice**. But it becomes more relevant for students enrolled in the entrepreneurship major” (EUM27).

6.5 Interpretation: Educational Design Practicality and Entrepreneurial Self-Efficacy

The research data revealed a large range of practical EE pedagogies used by CDs. When their students reflected on outcomes and themselves (reflexivity), they developed and improved awareness or cognizance of their entrepreneurial potential that consequently developed ESE. However, pedagogies, experiences and curated ESE sources and subsequent reflexivity could either enhance or erode ESE.

Lower Practicality (cognitive) pedagogies facilitated reflexivity whereas higher Practicality (executional) pedagogies generated activity outcomes first, then students subsequently reflected on these outcomes. Reflexivity led to further entrepreneurial activities and further subsequent outcome reflections, in a recursive learning cycle.

Transitioning between educator types and roles for lower and higher Practicality pedagogies was the key to the students generating activity outcomes and performing reflexivity, that subsequently led to ESE development.

The research found that EEDs with both lower and higher Practicality developed ESE, and that CDs played an important role in their students' ESE development, through role-transitioning and curation.

EEDs with both types of Practicality were necessary for ESE development and these could not be isolated. Neither lower nor higher Practicality type EEDs developed more ESE than the other.

6.6 Summary of Research Focus One Analysis

This chapter highlighted the wide variety of EEDs and range of educator types and roles employed by entrepreneurship CDs and/or their teams, supplemented by curation, to educate their students and build ESE. These had varying levels of Practicality (more active “hands-on” learning experiences to more passive theoretical learning).

Analysis of the research data showed that pedagogies with both lower and higher Practicality developed ESE. More importantly, it was the educators' influence, through role-transitioning between the various educator types and roles, that helped their students to reflect on activity outcomes, leading to ESE development.

The next chapter details the analysis of research focus two, the development of ESE by lifelike pedagogies.

7 RESEARCH FOCUS TWO ANALYSIS: LIFELIKENESS

Research focus two (pedagogical designs with more lifelike pedagogies developed more ESE than pedagogical designs with fewer lifelike pedagogies), guided thematic analysis related to the contextual conditions of EEDs. The Lifelikeness of an EED referred to whether it was further from or closer to real-life business and entrepreneurial reality. Lifelike EEDs necessitated the curation of experiences outside the classroom, both by CDs and also Self-Curated by their students.

The development of ESE was a complex, multi-source endeavour, and included external entrepreneurial awareness (EEA) and internal entrepreneurial awareness (IEA), two groups of previously unidentified ESE sources that initiated further entrepreneurial activities and subsequent reflexivity.

Students reflected on components of their EEA (feedback, outcomes, resources and relationships) derived from executional actions based on instructions (theory and methods). They also reflected on components of their IEA (perceived mastery, stimulated emotions, interest, aims and aspirations).

Table 7.1 highlights the main pedagogies related to the four types of Lifelikeness contexts. Three of the four contexts (theoretical, moderated and authentic learning) relate to EEA.

This chapter, guided by research focus two, highlights the development of themes related to EEA, contextual pedagogical designs and curation of ESE sources with different types of Lifelikeness.

The horizons (in **bold text**) from the participants' interview data (quotes) were used in thematic analysis to present their perspectives faithfully. IEA and the Self-Authentic context are covered in the next chapter.

Table 7.1: Lifelikeness of Entrepreneurship Education Pedagogies in Learning Contexts

Learning Contexts	Cognitive Pedagogies In Learning Contexts	Executorial And Cognitive Pedagogical Combinations Situated In The Learning Context	Descriptors Of Lifelikeness
<p><i>‘Self-Authentic’ Entrepreneurship Learning</i> (20 out of 77 EEDs; ~25%)</p>	<ul style="list-style-type: none"> • Analysis paper. • Reflective discussion. • Journals. <p>(OCP4, OCP12, OCP19, OCP/M1, OCM17, OCM33, OCM49, AZM5, NAM2, NAM26, NAM32, EUM12, EUM38, EUM42, EUM55, EUM57, EUM59, AFM19, SAM40).</p>	<ul style="list-style-type: none"> • Apprenticeship (EUM24). • Personally relevant business planning (NAM26, SAM40). • Field projects (OCM1, OCM33, OCM49, OCP4, OCP12, NAM2, NAM30, NAM32, EUM12, EUM38, EUM55, EUM59). • EUM24, EUM31, OCM47, EUM53 required students to work on areas of interest and their own ventures. 	<ul style="list-style-type: none"> • Pedagogy combinations to enable personally meaningful entrepreneurial realities develop IEA and EEA. <p>(OCM1, OCM33, EUM12, EUM38, EUM58, EUM59, AZM3).</p>
<p><i>Authentic Entrepreneurship Learning</i> (74 out of 77 EEDs; 96%)</p>	<ul style="list-style-type: none"> • Theory. • Applied lectures. • Reflective discussion. • Journals. <p>(All CDs except OCP19, EUM57, SAM49).</p>	<ul style="list-style-type: none"> • Field-research based projects or business planning including testing start-up concepts and/or products with actual customers (OCP2, OCP3, OCP5, OCP8, OCP13, OCP14, OCP16, OCP20, NAM2, NAM19, NAM36, NAM37, NAM41, AZM3, AZM5, AZM7, AZM9, AZM10, AZM13, AZM54, AFM18, EUM23, EUM24, EUM31, EUM42, EUM55, EUM59, OCM17, OCM25, OCM47, OCM49, OCM52, SAM29, SAM40). • Critical market and customer analysis to generate feasible plans (AZM22). <hr/> <ul style="list-style-type: none"> • ‘Live’ cases or projects: working in-situ on entrepreneurial projects, real-life challenges, with entrepreneurs or clients (NAM2, NAM28, NAM43, EUM38, EUM44, OCM17, OCM49, AZM7). • Real-life start-ups (NAM30, EUM58, EUM59, AZM3, AZM10). • Field projects, consulting (OCM1, NAM2 and AFM39). <hr/> <ul style="list-style-type: none"> • All 77 EEDs required students to reflect, analyse, assess real-life cases. • Teams solved real-life cases using spreadsheet through video conferencing via ‘Socratic’ coaching (NAM16). <hr/> <ul style="list-style-type: none"> • Study tours (field visits). • ‘Question and Answer’ with entrepreneurs (OCP12, OCM33, OCM47, AZM1, AZM5, EUM38, EUM53, EUM59, NAM32, SAM29, AFM39). 	<ul style="list-style-type: none"> • EEDs in industry or societal-facing learning contexts develop IEA and EEA. • Industry-based sharing, assessment of project plans and business pitches by real entrepreneurs, sometimes together with academics. <p>(NAM26, EUM23, EUM42, EUM59).</p>

Learning Contexts	Cognitive Pedagogies In Learning Contexts	Executorial And Cognitive Pedagogical Combinations Situated In The Learning Context	Descriptors Of Lifelikeness
<p><i>Moderated Entrepreneurship Learning</i> (47 out of 77 EEDs; ~56%)</p>	<ul style="list-style-type: none"> • Theory. • Applied lectures. • Problem-based exams. • Reflective discussion. • Journals. <p>(OCP2, OCP3, OCP4, OCP5, OCP6, OCP7, OCP10, OCP12, OCP14, OCP16, OCP17, OCP18, OCM1, OCM8, OCM17, OCM47, OCM49, OCM52, AZM1, AZM7, AZM11, AZM13, AZM14, AZM34, NAM2, NAM15, NAM19, NAM26, NAM28, NAM32, NAM36, NAM41, NAM51, EUM4, EUM12, EUM20, EUM24, EUM27, EUM42, EUM44, EUM57, AFM18, AFM46, AFM50, SAM29, SAM40).</p>	<ul style="list-style-type: none"> • Fictitious commercialisations (OCP13). • Students reflected on key aspects of new product development (AFM46, AZM1, AZM5, AZM7, OCP7, OCP17, OCM8, OCM47). <hr/> <ul style="list-style-type: none"> • Students experiment first in class before real-life start-up. Customer (client) questionnaires and practice interviews (AZM7, NAM2, NAM19, NAM28). • Justify a valuation method for a real company (OCP10). <hr/> <ul style="list-style-type: none"> • Learning and applying entrepreneurship and business planning theory from textbooks (OCP17, NAM15, EUM20, SAM29, AFM50). • Simulations of product development and value-chain (EUM4, OCP2, OCP7, OCM49). • Games or role-play (OCP5, OCP6, OCP18, OCP20, NAM2, NAM19, NAM26, NAM28, NAM36, NAM51, EUM4, EUM27, EUM42, EUM58, OCM8, AZM11, AZM34, AZM35). <hr/> <ul style="list-style-type: none"> • Present or ‘pitch’ to a simulated ‘Dragon’s Den’ of academics or peers (OCP13, OCP20). 	<ul style="list-style-type: none"> • Learning with some elements of entrepreneurial reality, primarily through cases and simulations. • Peer or academic assessments with no entrepreneurs present in class but through videos. <p>(EUM4, EUM53, EUM55, EUM58, AZM7, AZM11, NAM2, NAM26, NAM28, NAM45, NAM52, OCM1, OCM49, OCP7, OCP16, OCP20).</p>
<p><i>Theoretical Learning of Entrepreneurship</i> (25 out of 77 EEDs; ~32%)</p>	<ul style="list-style-type: none"> • Theory. • Applied lectures. • Limited discussions. <p>(OCP2, OCP3, OCP4, OCP7, OCP12, OCP14, OCP15, OCP17, OCP18, OCM52, AZM5, AZM7, AZM10, AZM11, AZM22, NAM2, NAM16, NAM19, NAM26, NAM30, NAM32, EUM4, EUM12, EUM20, AFM18).</p>	<ul style="list-style-type: none"> • Learning, explaining how to apply theories or methods (OCP7, OCP13, AZM3, AZM6, NAM16, EUM4, AFM18). • Abstract principles rather than their own opinions (EUM12). <hr/> <ul style="list-style-type: none"> • Critique and FLG (conceptual) based on readings. • Experiment with ideas, business or product concepts (AZM11, NAM15). <hr/> <ul style="list-style-type: none"> • Review, modify existing or create new models to explain entrepreneurial mindset (AZM11, EUM12). 	<ul style="list-style-type: none"> • The least lifelike learning context with few real-life examples. • Minimal real-world interactions, self-reading, viewing videos. <p>(OCP16, AFM46).</p>

7.1 Curation of Moderated Entrepreneurial Self-Efficacy Sources

Thematic analysis revealed a group of EEDs operating in moderated entrepreneurship contexts, where students performed entrepreneurial activities but did not interact with any real-life entrepreneurs and/or customers. A delineation between moderated and authentic learning was based on the presence of real-life entrepreneurs. In moderated learning, coaches who were academics guided students to perform and reflect on entrepreneurial activities. There were no horizons indicating that moderated entrepreneurship enhanced ESE.

CDs curated the content and context to safeguard students from the real-life negativities of entrepreneurial failure experiences, to minimise ESE erosion. Some ‘safe’ learning contexts and entrepreneurial activities were extremely lifelike. Some students experienced failed online businesses (OCM1, EUM53). Some achieved small-scale successes from short duration projects. Some CDs organised challenging simulations where students experienced problem-solving in ambiguous contexts (EUM4, NAM28, OCP7, OCM49, NAM51).

Simulations with built-in ambiguity simulated the negativities of entrepreneurship without real-life financial loss and emotional pain. Some CDs required projects, completed by a team of four to six students. Teams under the guidance of OCP20 pitched to ask for fictitious start-up capital. One of them role-played as the founder and others as co-founders or key employees.

“Each student generates a single idea for a new business under specific criteria. **They share those ideas** within groups and **the top four ideas are put forward** to a ‘management committee’ **to decide which ideas would be further developed**. Then, **they build a framework of a start-up company around ‘that’** over the following eleven to thirteen weeks. From week two, the **teams become ‘companies’**. They meet together in **board meetings on a weekly basis to discuss progress**. They **decide** how much capital they need. They must be able to **justify** why they need that amount of capital” (OCP20).

“Half of class (three to five teams) is privy to the simulation and all the details therein. The other half of class has no access to simulation and have to meet with the first teams and **ask them questions about the business**. ... The teams of consultants ‘grope around in the dark’, **ask 20 questions to figure out what the business problem is**, creating this almost **immersed case study**, using the simulation. What they type in for sale next

quarter is irrelevant; it was **whether you can ask the questions to understand the problems**” (NAM28).

EUM4 **“created a very real scenario of information asymmetry. Nobody has enough questions to get all the details of all the different ventures. But most people will use their questions wisely to gain deep insights into one specific venture”** (EUM4).

“With three or four months, we could **do things iteratively, again and again** on rich, scalable and sustainable **business models. With only four weekends, intensive mode** propels, motivates students to work extra hard. It **simulates the environment that entrepreneurs and innovators sometimes face, time pressures, resources constraints and the uncertainty and the stress** that comes from all that” (NAM45).

“They have to **cross the chasm to realise that it’s not just the numbers, market behaviour** that effect their product or service feasibility. ... Although they have a great product, they cannot make the business viable; after two **rounds in the simulation, they get stuck in the chasm and realise that they have to take into account the numbers but also behaviours and have a clear marketing plan**, customer identification. They understand by playing this simulation that **they need a clear strategy, feasibility plan in order to make the product viable**” (OCM47).

EUM55 curated group projects from local industry to simulate lifelike entrepreneurial conditions.

“**We try to make it as real as possible. It is still a mock simulation, to provide a safe environment to fail or to learn within the university. If you go out, then the safety net is not there.** Students in [anonymized] courses **find real problems to solve or build their ventures around (and) within the community.** The municipality of the city would have various **problems needing to be solved**, relating to sustainability, integration, transportation. We (also) **find real problems for students to solve, from companies (in the local environment) to co-create solutions**” (EUM55).

AZM11, NAM26 and EUM58 utilised short duration Hackathon-type team projects to generate safe moderated entrepreneurial experiences for reflection.

“(I) send students **out of the campus.** They must decide where the best, not the easiest place to get information. In one of the **exercises**, the school gives them \$10 (each) in credit or the like. Over the weekend, **they should create and bring back this amount**

as many multiples as possible It's a kind of contest. It's graded not how much money they bring back but how original they were. We are encouraging on originality, creativity (and) interesting ways. I emphasise: make it practical not abstract" (AZM11).

7.2 Curation of Authentic Entrepreneurship Sources

In authentic learning, students were coached by or interacted with real-life entrepreneurs and practitioners in lifelike contexts. Authentic contexts involved interactions with real-life entrepreneurs, investors, domain experts, clients and/or customers. Students reflected on exciting relatable stories and on the negativities of entrepreneurship. These included a range of entrepreneurship entry decisions (EUM27) and the "pleasure of failing" (NAM45).

CDs also curated guest speakers to match their students' present cognitive and emotional capabilities. EUM23, EUM31, EUM42, EUM56, SAM29, SAM40 and OCM52 curated local relatively unknown entrepreneurship cases or relatable guests to facilitate effective VL. Students learnt vicariously from CD-Curated real-life cases and role models, their successes and failures. Some of these guests also imparted instruction and advisory (social persuasion). Social media, internet and video technology facilitated the curation of guest speakers when they could not lecture on campus, for example during pandemic lockdowns (NAM41, NAM48, EUM59).

7.2.1 Authentic Vicarious Learning Sources

Vicarious learning (VL), learning by observing others (Section 2.4.2), was an important aspect of EE and considered very lifelike (authentic). Some CDs curated role models whom students easily related to, for example, a 25-year-old entrepreneur sharing about his/her failure (OCM1). Other examples included "some **female entrepreneurs** perhaps **took a career break** because of children. They are in some ways, similar to the **young entrepreneurs**. They are **starting with very low capital**" (EUM42).

OCM1, EUM23, EUM42 and SAM40 curated guest entrepreneurs for their students and observed that relatable guests were more effective in building the students' ESE. Based on students' feedback, EUM23 only invited a few 'stars' as guest speakers.

“Perhaps being typical educators that want to show off, we **brought in our ‘superstars’**. We also **bring one that just started up the year before, who just left (graduated) ...** They were **the ones that had the impact**. They were **more approachable**. (His students commented) **‘The ‘stars’ scared the living daylights out of us. We can never be good as them’**” (EUM23).

Some GREs affirmed that the perceived relatability in “struggling” models and authentic advice from curated entrepreneurs provided a more accurate sense of ESE. GRE3, GRE4, GRE8 and GRE9 validated that relatable contemporaries, seniors and recent-alumni GREs inspired them and enhanced ESE (Section 5.15).

Some CDs conscientiously curated a variety of role models to relate to as many of their students as possible. Not all role models were helpful as students could react positively or negatively to curated cases.

“Some entrepreneurs say, ‘It is really difficult to be an entrepreneur. It is impossible. I would not have done it if I know now what I know.’ It is not true what they are saying. Because the likelihood is that they would still do it. They would say very negative things about (a) self-employment career choice. **This terrifies some students. But it excites and galvanises others who want to (experience) the uncertainty, the risk and return, linked to self-employment.**

“It could be a home business, cosmetics, initially and suddenly, they are running an organisation turning over 500k pounds, in a very short timeframe. This is also simulating too. That is another way of connecting with and developing the emotional state” (EUM42).

“They want excitement. They want stories of students around their age that they do not know about. Bring them something that they have not seen or heard. Show them the ‘pleasure’ of failing in an attempt but also show them the learning that they would go through” (NAM45).

AFM46 encouraged his students to reflect and critique the curated content to develop their own self-perceptions on entrepreneurship.

“When presenting what looks like lecturing with theory and content, I am asking students to think about this. Their thoughts and comments. Not simply I put it on a

slide, it must be useful. **Try to provide different views. The active curation is not censorship. It is (also) not showing a single channel**" (AFM46).

CDs curated a diversity of ESE sources with the aim of inspiring and initiating entrepreneurship in students. EUM53 observed, "I was never inspired hearing about Branson, Jobs and other famous entrepreneurs. ... But I **was inspired by** some social entrepreneurs. **It can be something a guest, a peer, a lecturer, said or did**" (EUM53). Cases of fictitious entrepreneurs or real-life entrepreneurs and guest speakers were also curated. EUM53 implied that a wide diversity of curated ESE sources could potentially inspire the students and lead to ESE enhancement.

FLGs or reflective discussion was used by 74 of 77 EEDs in this research to apply entrepreneurship methods to entrepreneurship cases. Some CDs curated real-life examples, media articles, case discussions, viewing videos and guest lecturers sharing on entrepreneurship. In the case of practitioners, VL and role modelling were offered by the sharing of their own industry experiences. **"Real-life case studies to illustrate what real entrepreneurs have done"** (AZM14).

Conspicuously, AZM11 only selected entrepreneurs who shared specifics on how they overcame failure. OCP9 and OCP13 excluded guest lecturers who did not advocate entrepreneurship methods.

EUM27 curated cases of failure.

"As a mentor, I make them familiar with the strengths and weaknesses of their idea before they start working on it. Making them aware of the failed examples along with the successful ones help them, be critical of business ideas of others" (EUM27).

OCM52 provided a variety of entrepreneurship cases, especially of local real-life businesses.

"Looking at business models that have succeeded and failed, I try to use local ones when I can. I do use the classic hugely successful ones too. ... I find more closer to life, less exotic and unattainable in a way, examples. Usually, business models that have innovated and/or pivoted (dramatically modified) to give them a taste of what is happening here" (OCM52).

OCM52 also commented on the challenge of curating guest speakers during lockdown situations. Intriguingly, SAM29, EUM23 and EUM59 observed that online technologies improved the variety of entrepreneurial models curated.

EUM56 compared the effectiveness between cases and real-life guests.

“A real person in class truly motivates, especially if he/she is a much less successful entrepreneur. Inviting them in makes a difference. Students also do projects with local entrepreneurs. They appear to **enjoy more local activities**. A more famous entrepreneur went IPO, **a local entrepreneur** (who) only raises series A once. **Students perceived they gained much more from the latter** or even an ‘angel round’ entrepreneur. They get very **excited** vis-a-vis the case that does not tell very much more, **the drama behind the success**, the IPO or whatever. These **big success stories** could provide guest lectures, but **I don't think they provide the impact in a class** than would a **local entrepreneur who is struggling and is 'making it every day'**. **The closer they are to the context, the cases and the guests makes a tremendous difference”** (EUM56).

Relatable role models enhanced ESE more effectively than those who were unrelatable (SAM40, EUM56). SAM40 shared the impression that young entrepreneurs made on her students.

“We invite into class a young entrepreneur so that the students see. ‘Oh, he is young like me and he is successful businessman. Ah! I can do it too!’” (SAM40).

EUM56 curated a wide range of entrepreneurial models to enable his students to have a balanced and more realistic view. He tried to prevent them from becoming over-confident, to enable them to develop more realistic ESE.

“It is learning from failure and hoping some of these people will start-up. It is important to balance it out otherwise they have this huge one-sided view. More than developing self-efficacy, they end up becoming over-confident, saying ‘I can also do it because it appears so easy.’ **Everyone who shares, ‘I did this, and I managed to go through this.’** Somewhere I think this gives a **very false understanding**. We all know that the percentage of success is very low. **If we only fill up the class with successful examples, the top 1 or 2%, and then some may get the wrong feeling**.

“I think it is good to intersperse. There are those who go low on self-efficacy and not start-up. Those who are tough will realize that one can still survive. Some of these people have gone on to start again, despite all the difficulties. When they say ‘No, I will still do entrepreneurship given another chance’, **there is much more strong feeling in the class**. **If you go through all these difficulties and still say, ‘I still want to be an entrepreneur again’, that means there must be some joy in it!** This also increases the belief that it is worth the career” (EUM56).

NAM28, EUM44 and AFM46 offered students a positive perspective that entrepreneurship was feasible. NAM28 curated four or five experts who operated in small, medium and large corporations, from younger to older, to guest lecture throughout the semester. **“They vicariously understand what the industry is about through their eyes”** (NAM28).

EUM44 invited guests (other professors and entrepreneurs) to share their firms’ history, experience and knowledge. Question and Answer sessions **“provided a taste of the industry, at times to test student ideas for feasibility”**. Other CDs utilised seniors and alumni to inspire students to become change agents or entrepreneurs with big visions (EUM24, EUM58, NAM37). Authentic cases and models inspired students to understand and manage the process of failure recovery.

AFM46 curated guest entrepreneurs to help his students to reflect and understand these entrepreneurs’ “mindsets”, providing them a view of others’ ESE.

“Mindset, opportunity and resilience ... very much building a view or outlook of entrepreneurship that is productive and healthy. They see what it means to be an entrepreneur. I tend to just jump in ahead pedagogically by exposing them carefully chosen speakers that give them the reflective ability, ... to see the entrepreneurial mindset” (AFM46).

SAM29 and AZM54 ensured that their students were taught the realities of entrepreneurship. SAM29, a practitioner-turned-academic, shared about the gravity of an entrepreneurial career, so that his students would build a more realistic view, and hence develop more accurate and enduring ESE.

“It is a decision that will affect their lives. They are in a safe place in a university. They are not investing their own resources. I tell them the good stories but also bad stories and the risks it takes to be an entrepreneur. Maybe you are telling them some things they do not want to hear. Some things that affect their emotions. Maybe I am generating some fears. It is important that they know that there is no paradise. They have to be alert and understand that they are taking a big decision” (SAM29).

“When some view entrepreneurs, they assume it is easy and straightforward. That it is something really good. We have to tell them about the dark side and the bright side. How exactly they can work” (AZM54).

Half of the 38 practitioners chose not to share their industry experience. NAM37, AFM46, EUM53 were cautious in sharing their industry experiences. Instead, they focused on developing their students' "uniqueness".

"Some students want your expertise and hear your experience. I say, 'This is what you can do'. They need to make the decision whether they want to 'do' or not. I'm very careful in doing that, very reluctant in saying this is what I have done in this situation and you can do the same. It is what do you want to do and how can I help you" (EUM53).

Contrastingly, AZM14, NAM16, NAM32, SAM29 and EUM56 shared their real-life industry experiences. Their students reflected on these authentic experiences as comparisons to their own or as reference point to their own future authentic experiences.

"When I tell them of my own experience, I can be an expert and a coach to inspire them. Tell them of my work, experiences, failures, achievements. ... they can learn from me in class but 'outside'" (SAM29).

"As a component of experiential learning, I used case studies because I had [anonymized number] start-ups in my incubator. I used real-life examples" (NAM32).

"I bring in my own challenges and experiences, finding new markets, creating new value" (EUM56).

"These are my projects, in different stages: some in maturity, some in the brainstorm, idea generation stage, some have gotten grant funding. I tell these things and make it relevant to what they (will be) facing, striving to become research scientists" (AZM14).

"I got blog posts on what practitioners were talking about. Everything is much 'applied' focused. I used to be the fund administrator for an angel fund. This is not theory for me. It is stuff that I have actually done. I am trying to tell them how it works" (NAM16, practitioner-turned-academic).

An important aspect of curation of multiple ESE sources was possessing industry relationships. Guest speakers and CDs assumed the role of guides to lead students to non-university authentic ESE

sources. OCM8 connected the students who conceived a personal budgeting app with start-up funders. OCM25, NAM15, AFM39, AFM46 and EUM56 connected their students to their networks of entrepreneurs. The learning experienced by students of AZM10, OCM33, OCM47, EUM38, EUM58 and EUM59 were embedded in their local entrepreneurial ecosystem.

“Whenever possible, we will **run the classes at external venues**. We run the class ‘**in-situ**’. We are **immersing students in the ecosystem**. From there, ... it’s so much easier for students ... start **talking to the entrepreneurs**. As a minimum, there is usually a welcome by someone who owns the space, to talk about their **incubator, accelerator or workshop series**. They will also **pitch ‘in-situ’ ... to people in industry as a baseline**” (OCM17).

AZM6 emphasized on connecting entrepreneurial students to resources.

“The handover (is) at the end of the semester, if they are interested in being more involved in the entrepreneurship community. **How do they transition? I guide those interested very specifically, on where and names of persons to obtain the necessary resources and angel funding, where the incubators are. A number of them come to my class. They get a face to the person that they are going to link up with**” (AZM6).

CDs also arranged site visits. “I always link them to the business community. We have **field trips**. ... I encourage and do **provide internships with the business owners whom I know, usually done after my course ends**” (AZM34). AZM1 organised two field trips whenever possible within a semester. Site visits were sources of VL: incubator (AZM1, AZM10), a research facility (EUM59) and an entrepreneurial organisation (OCM47). During the COVID pandemic, EUM59 organised a virtual visit (a video tour) to a research laboratory for students in different locations.

7.2.2 Lifelike Authentic Advisory Sources

Authentic industry-situated learning included interviewing real-life customers and participating in industry related projects. Some students tested their start-up concepts with actual customers and validate their products ideas outside class (OCP4, AZM3, AZM6, AZM7, AZM9, AZM10, AZM11, AZM13, AZM14, AZM22, AZM14, SAM40, AFM18, AFM50, OCM1, OCM17, OCM33, EUM23, NAM15, NAM19, NAM36). Authentic feedback (advisory) generated inspiration and guided Self-Authentic (personally important) entrepreneurial projects that enhanced ESE.

Performing customer validation enhanced ESE (AZM9, NAM19).

“Confidence in predicting the success of a business model is related to the level of validation students achieve through their interviews” (NAM19).

“They will have self-efficacy because they really try to interview customers, competitors, visit competitors’ store. That experience itself gives them very high confidence if they really want to do an entrepreneurial career. When they do their research projects, they really try to setup a business or shop. So, their self-efficacy is developed, going through this process, their experiences when making decisions, taking risks” (AZM9).

AZM22 emphatically declared, **“they need to test them in the market, develop ideas in the market. It would be the market that's the real evaluator. I do not assume that role in my teaching”**. SAM40 concurred with AZM22 and advocated that students behave like real-life entrepreneurs, as this developed their confidence and skills, and led to more realistic and authentic ESE.

“They have to go to the market and see if the people want to buy it. They come back and change the product and then again go to the market to see. It is more practical. They have to 'live' their business. They have to live like an entrepreneur. They have to 'do'. We do not read (about) what is entrepreneurship. What an entrepreneur thinks, what they do, we want them to act and do” (SAM40).

OCM33 required his students to test their e-commerce websites with domain experts.

“Never assume that you know your target market unless you have spoken to them. Even if you consider yourself a member of your target market, you do not know what makes them tick, what makes them buy your product. You have to talk to people. You have to probe with your questions” (NAM36).

AFM18, AFM46, OCP2, OCP3, OCP6, OCP18, AZM5, AZM10, AZM13, AZM22, AZM54, NAM32, NAM37, NAM41, EUM23, EUM27, EUM31, EUM42, EUM55 and EUM59 curated entrepreneurs and/or investors to assess students’ plans and pitches. AZM13, OCP6, OCM1, SAM29, SAM40, EUM59 and NAM51 emphasised that industry and customers provided the most suitable advice on how feasible student start-ups were. Market-based evidence was utilised to assess students’ business plans or start-up concepts. Students of EUM44 worked with a hospitality entrepreneur to refine their own hospitality plans.

“The real environment is the assessor. The assessment of the task is ultimately performed by the environment. That was why I did not have to put many marks on it” (OCM1).

Contrastingly, practitioners like AFM39 and NAM37 graded student business plans and/or feasibility studies based on the quality of critical thinking and process adherence. EUM53 and AZM54 graded students based on the quality of reflection on failure outcomes. Reflexivity on authentic failure outcomes developed entrepreneurial awareness for future improvements. Reflection on authentic advisory developed a more accurate sense of ESE.

“It may have not succeeded, if it’s not planned well. (However) it is about how you perceive the situation and how you manoeuvre your strategies. ‘What would I do better, based on what I've learnt when another opportunity presents itself’” (AZM54).

“By failing in their business, they can still pass the module. That is the way we designed and compensated it. You failed in business, but you can now write a rich reflection about how you failed and still pass the module. That changes their mindset. They have produced some very interesting new pieces of ‘what went wrong’, how they interact (in their groups), what led to failure” (EUM53).

AZM3, EUM23 and EUM42 curated feedback from academics and practitioners. A mixed jury of academics and investors assessed the academic rigor and investment potential of student pitches. EUM59 mentioned that he required students to “present their findings to a panel of four industry experts who ask questions, weigh in, assess business feasibility of student ideas and impart their knowledge”.

The only case of equating academic grades with one’s market-based evidence of start-up feasibility was AZM3, a practitioner. GRE5 (referred by AZM3), observed that only some students appreciated his inquiry-focused coaching and self-determined learning design.

“We explain that start-up and company valuations (are) like their marks go up or go down. Your start-up valuation works in (a similar) sense: if you have more customers, revenue being generated, if you have enough traction, your value goes up. If you do not have all that, your valuation goes down” (AZM3).

AZM13 explained how he would have designed the subsequent learning phase after the feasibility study. In some courses, one semester was insufficient for students to test market their start-up ideas. Short courses had more time constraints and students had less opportunities to build their ESE.

“BMC is a good stepping stone. But now, **I want you to test it on the market.** Ah! That is the **challenge.** Are you **able to face rejection or not, convince others to buy your products or services?** That is the next step. But due to time constraints, students cannot do so much” (AZM13).

NAM32 shared on how coaches balanced the negativities of entrepreneurial Lifelikeness with encouragements to persevere in learning about entrepreneurship.

“They will **tear your business plan to shreds.** But **when they have finished, they go, ‘You guys did a lot of great work. I can see great progress. I can see your thoughts. You can just fix this. If you need help, I’m happy to help you.’** It is separating the **business from the person**” (NAM32).

The above examples show that ESE-enhancing social persuasion had to have encouragement and salient instructions and/or feedback to develop competent performance (Bandura (1994)). They also suggest that authentic lifelike activities can boost students’ ESE more accurately than non-lifelike pedagogies.

7.2.3 ‘Real-Life’ Start-Ups and Authentic Advisory

The term ‘real-life’ denotes activities that are industry-based or authentic, such as start-ups, internships, working with entrepreneurs and commercialisation of technology. Real-life start-ups are not business simulations, student projects or consultancies within an EE course or program. Refer to section 2.3.2 for a detailed explanation on authentic learning.

Some students initiated real-life start-ups as part of their course activities that resulted in self-determined recursive learning (NAM30, EUM58, EUM59, AZM3, AZM10) and subsequent ESE development. Students of NAM37 and SAM40 enhanced their ESE through authentic feedback and authentic start-up activities. Authentic advice developed a more accurate perception of one’s ESE as this type of feedback was based on real-life entrepreneurship situations.

“One of the learning objectives is about **developing entrepreneurial confidence.** Once you present to the VCs, who do not hold back, I say, **‘Be as demanding as you would**

in a normal meeting.’ In the real world, next time you do it, you will feel that you're much more capable than you've been” (NAM37).

“When they do the business, they are developing their skills and their beliefs. Because if I cannot do this thing, I cannot believe that I can be an entrepreneur. The self-belief is created by doing. I can do this. I am capable. I can do it!” (SAM40).

“By ... performing field research, facing potential customers, their annoyance that they got it wrong and going back to the group saying, ‘We really stuffed it up. Let us go back and rethink this.’ Hence, they have to reflect what went wrong. This also stimulated emotional states. They need reality, coaching. So, that they are not overly ambitious, overly positive, leading to unrealistic expectations” (EUM27).

AZM11 and OCM1 compared entrepreneurship to medicine, emphasizing the significance of authenticity.

“We keep giving new doctors, medical students, dead and simulated body parts to work on? That is not the same as being in an emergency room when someone comes in. Where we have to think, ‘What is the issue here? How am I going to address this?’ Someone has to come down and actually do it, because knowing what to do, does not mean you can do it” (OCM1).

EUM59 described the challenges of student start-ups as a program requirement.

“They start-up and work in a real company The start-up does not count to any credit in this program. On paper, it is a voluntary student activity. However, all the courses are connected to this. If you do not have a start-up, you will struggle in the compulsory courses. Their start-up is voluntary but an important part of their study required field extra-curricular activity. In the third and fourth semester, they are writing their master theses related to some aspect of their start-ups. We have some of the start-ups fail. We do encourage them to start-up something else. But it does take time. Some students in the last semester right before the exam will not have any start-up” (EUM59).

Reflection on creative outputs based on personally meaningful projects enhanced ESE. Horizons and themes related to self-awareness (IEA) are in Section 8.2.

“They are **working on doing their business they started**, ... this is where **people become really good problem solvers because they work on stuff that is really important to them**. The assessments, they **write a reflection paper**. They **do some tool practice** on stuff that are important to them. ... You are getting to **work on something and giving them that self-efficacy, that self-belief that they can actually come up with quite creative, actionable, workable solutions**. Almost like **punching through their psychological barrier** [repeats], a **creative mindset modification** kind of approach, but skill building as well” (NAM30).

EUM27, NAM45 and EUM53 observed that students could learn about entrepreneurship through working in the start-ups of others. Students of OCP19 presented their solutions to strategic problems to actual executives “within an internship context”.

“During the pandemic, instead of requiring them in the past to create their own business ideas, I gave them a business idea which **they had to execute through their own plans**. **Do a feasibility study, contact the suppliers, obtain the pricing, delivery details and every decision**. Also, **requiring creativity as to what kind** of mask can it be. ... It was realistic in their capstone course, **more about execution rather than simply creativity**” (EUM27).

“Go to a company and convince them of the importance of what you might introduce to them, so that they can allow you to access their resources. In this case, the resources are the data. **Then work on creative approaches to the problem, engage with different stakeholders within those organisations**” (NAM45).

Some CDs “right sized” client consultancy projects for students to complete within one semester (NAM2, NAM28, NAM43). NAM2, AZM3, AZM10, EUM23, EUM58, NAM2, NAM28 and NAM43 required students to find solutions for actual clients. Authentic projects also included live cases where students worked with actual entrepreneurs or clients to solve their challenges (NAM2, NAM28, NAM53, NAM45, EUM44, NAM55). Students of EUM44 performed one in-depth case study throughout a semester, involving marketing, operations, finance, matching value proposition to target customers, to develop a feasible hospitality business.

The EEDs of OCM17 and SAM29 indicated a progression from moderated to authentic entrepreneurship. SAM29 “provided **templates, excel spreadsheets, tools on how to interview, how to prototype**, ... develop into **something robust enough to be pilot tested at the end of the course**;

(to) test, validate the prototype with their chosen target". NAM19 required his students test their customer surveys by interviewing each other before they experience real-life marketplace interaction.

Some CDs required their students to observe lifelike components of entrepreneurship before interacting with them. This helped them to practice in a safe environment, and to grow their ESE in a safe manner.

"That first little exercise, 'visualizing an ecosystem', is learning by thinking critically, evaluating, doing, searching and presenting. In the meantime, they **go out to their ecosystems** and actually **see some of these places**. Taking **trips to these start-up spaces, try to talk to some of these stakeholders**, putting their map in front of them, saying 'I am mapping out your ecosystem for you. What do you think? **Give me some feedback**: are the right people on the map, am I missing someone, should someone be taken off the map, does the layout make sense?' Hence, they are **getting feedback from people in the ecosystem, to visualize it**" (OCM17).

7.3 Role-Transitioning from Less to More Lifelikeness

Mentors were entrepreneurs and/or practitioners who coached students and shared their authentic (more lifelike) industry/entrepreneurial experiences. They enabled self-determined learning through inquiry and advisory with the necessary instructions (theories or processes) to perform entrepreneurial tasks. Mentors facilitated the interpretations of different perspectives and the understanding of the contexts wherein entrepreneurship methods were appropriately applied.

NAM48 explained how instruction-focused coaching (less lifelike) transited to inquiry-focused mentoring (more lifelike) around the time when students were completing their courses/programs.

"It's **more coaching in earlier venture formation stages**, saying this is what you need to do; this is how it works. **When students work on launching ventures, that is when I mentor**, once they left the program, once about every six monthly. **The mentor helps you discover the answer. The mentor helps you in the situation, in a game, adapt to what was happening. Mentoring is, 'You're in that situation. Here's what you should be thinking about it.'** In mentoring roles, students have the problem that they face with at that moment, and they need solutions. **This is when you (mentor) say, 'Have you thought about the value proposition development? Do you understand pains and gains for that particular customer?'**" (NAM48).

After instruction-focused coaching (after students mastered the application of some entrepreneurship methods), NAM30 transitioned to inquiry-focused coaching.

“You are further along, and you are working with folks who have developed skills. In a mentorship role, you are working with folks who are very intrinsically motivated. I am not going to mentor someone who asks me, ‘What is my grade?’ When you have **internalised the tools**, you can **teach other folks**” (NAM30).

CDs transitioned to mentoring towards the end of the course when their students had progressed in ESE types related to planning, creativity, venture formation and innovation. Inquiry-focused coaching trained students to apply entrepreneurship methods adaptively in dynamic contexts (EUM38, NAM48). All educator types and roles assisted students in developing ESE, but more ESE development was likely through more lifelike roles such as mentoring.

7.3.1 Academic Mentors, Process Mentors and Tutors

Academics who performed consultancy for industry (NAM16, EUM4, EUM31, OCM25 and OCM52) and practitioners (NAM2, AZM3) both performed Academic Mentoring (Figure 7.1). Academic Mentors were prepared to respond to any question posed by students (AZM3, EUM4). Academic Mentors focused more on instruction (less lifelike) and inquiry (more lifelike). Academic Mentors, like tutors, asked questions (inquiry) and provided feedback (advisory).

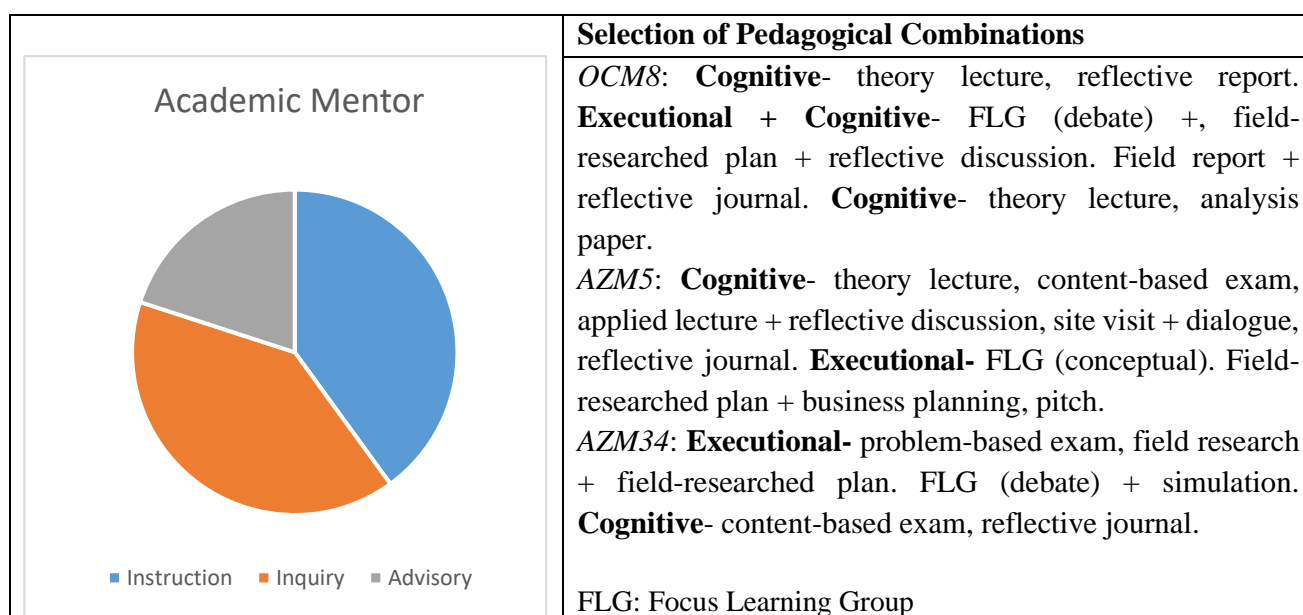


Figure 7.1: Pedagogical Combinations- Academic Mentoring

AZM3 (an education technology entrepreneur) and NAM2 (an industry consultant) utilised logic and facts presented by students to assist their students in creating authentic marketable proposals.

“Academic Mentors are student guides, advisors, ‘FAQs’, points of contacts for discussion, suggesters of alternative ways. Hence, they are both knowledge experts, learning facilitators and evaluators They may not have all the answers. The point is that students have an adult that guides them based on sheer logic” (AZM3).

Students of AZM3 self-studied and utilized his ‘click and build’ online platform to develop their ventures. AZM3 represented a rare case where curation and mentoring combined to assist online students with their start-ups (ESE).

“Once they have interviewed ... a minimum of five customers per week, they then have to analyse the results. They are taught how to interview and how to analyse data online. Once they finish their analysis, they then upload their analysis to the system. Then they call a meeting with their Academic Mentor. This is complemented by case discussions (AZM3).

Process Mentors (Figure 7.2) focused more on instruction (less lifelike) and advisory (either more or less lifelike) to ensure adherence to the practice of a particular process. Perceived mastery in performing entrepreneurship methods (processes) developed ESE. Some Process Mentors chose to share their industry experiences.

NAM37 assembled a team of Process Mentors to implement his EED.

“(They are) industry experts in general, not necessarily entrepreneurs. People with some value to provide student groups, help in the process, would weigh in, say something from industry experience. They may be more coaches because they do not know necessarily much about the industry. I say ‘process’. That is true for me. I am not at all an expert in the domain of focused venture. I’m more a process expert” (NAM37).

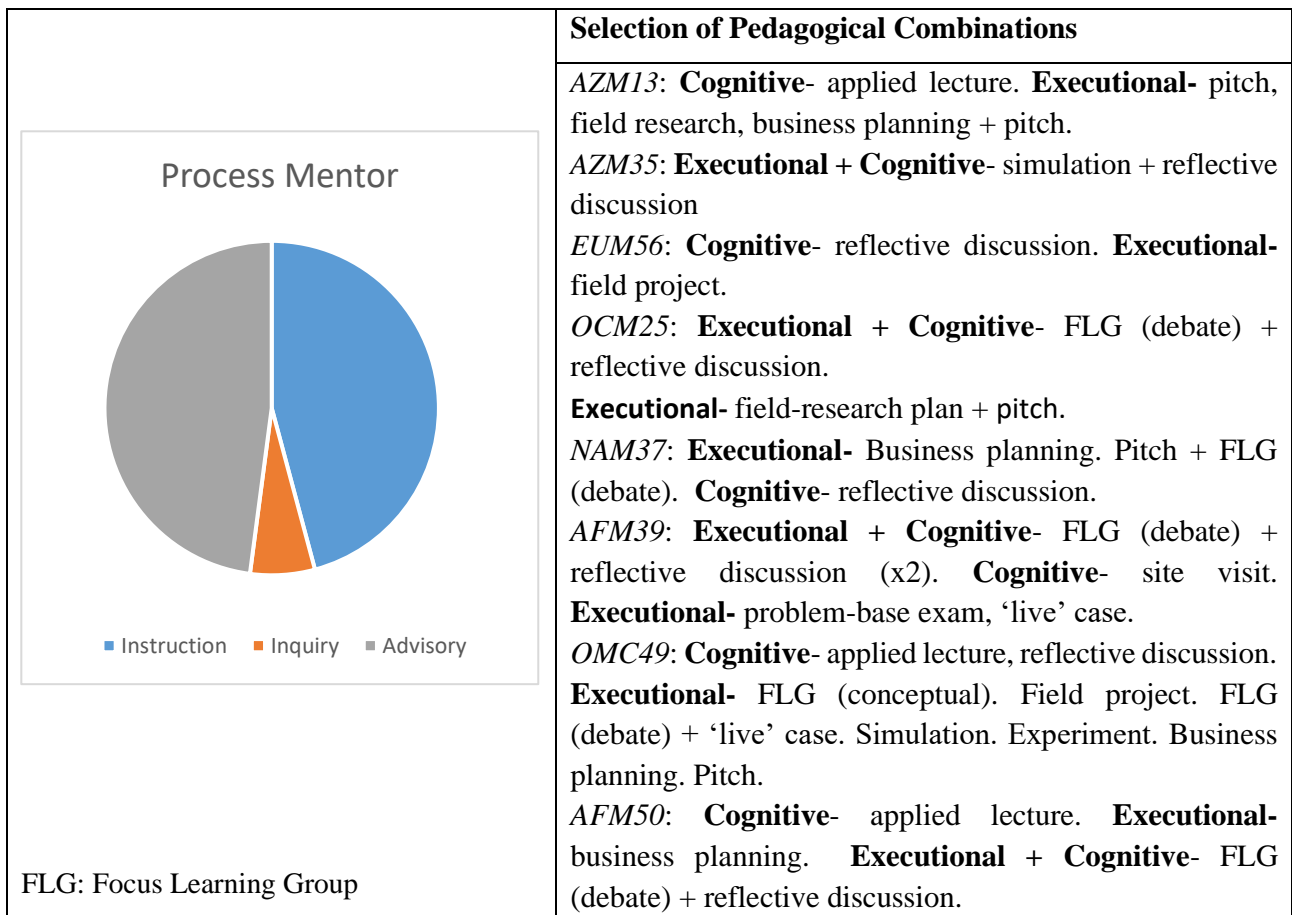


Figure 7.2: Pedagogical Combinations- Process Mentoring

Students mentored by NAM30 experienced ESE enhancements through “**mindset change but skill building**” as a process.

“**Real hands-on application of the tools of creative problem solving.** My students and alumni say **they feel very confident in doing and facilitating because they drill them so much in the fundamentals. 'Do it again, do it again'.** They also work on other people’s challenges. I say **do exactly what I tell you. Use these phrases. Use these words. Do not mix stuff up. Do this and once you got this down, then you can play around with it, modify it. Do not go inventing creativity tools. Here are the tools. Use them more and more times**” (NAM30).

Like NAM30, NAM37 shared, “**I do not really talk that much about my own experience. It may not relevant at all. It’s certainly not replicable. Just because it was what I did, does not mean that’s what they should do.** Instead, I always default back to ‘**Remember the process. Here are the steps of the process**’. I facilitate the spaces, moments, visits, the topics and **guide them to all of these destinations, but I**

don't get into the content. I only guide them as a methodology, but they fully develop their own content” (NAM37).

NAM32 described his EED as a recursive process of experiments and feedback.

“**Real-world experiential reflection; use a real-world experience to illustrate tools and frameworks** like BMC, from the real-world. ... My lab includes, ‘**Let us talk about this. Here are some concepts, do some experiments, challenge each other,** have a look at this and **then give some feedback at the end.**’ Other activities are more **structured**. It depends on what they need at the time” (NAM32).

Tutors primarily employed an inquiry-advisory recursive (transitioning between more and less lifelike) to confirm solutions and correct understanding (Figure 7.3).

NAM2 described tutoring as, “we literally run a project with each group. The only **difference is I am not their boss**. In other words, if I was working with them, I would not let them chase any blind alleys. But **we are studying together. If I think chasing that blind alley is a good learning exercise, I let them chase and find out for themselves**. I encourage ‘**get it wrong**’. I say this to them all the time: I promise you that **the penalty for getting things wrong in this class is zero**” (NAM2).

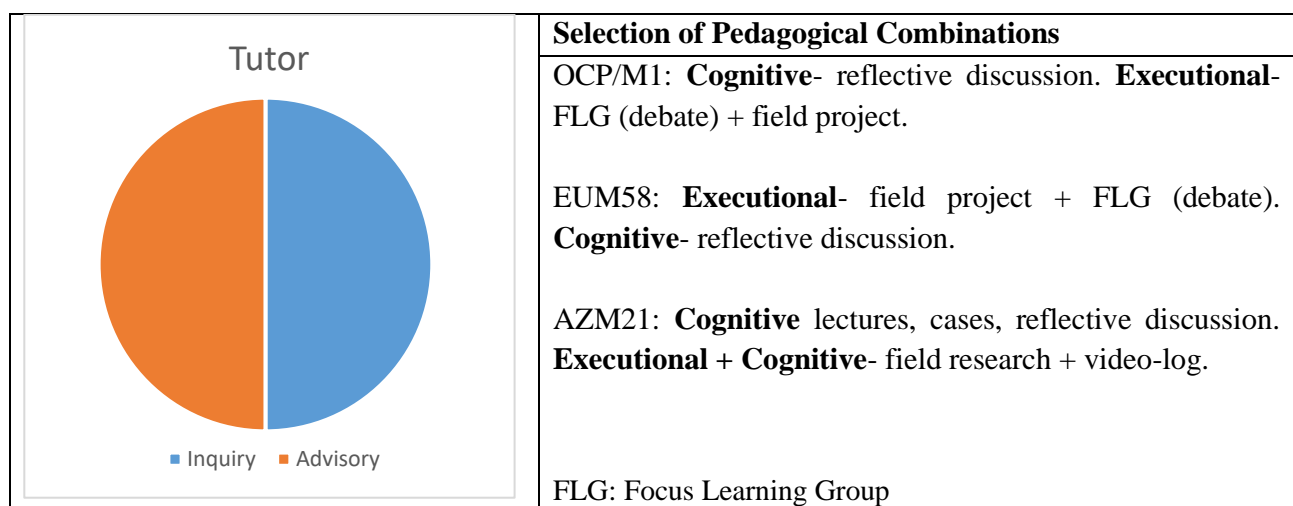


Figure 7.3: Pedagogical Combinations- Tutoring

Academic mentors, process mentors and tutors provided a mixture of Lifelikeness, with variations in each individual. They assisted students to build ESE through encouraging activity and reflection, but it was unclear whether any of these educator types improved ESE more than others.

7.4 Peer-Enhanced Entrepreneurial Self-Efficacy: Collaboration

An awareness of entrepreneurial resources in one’s context included peers (providing VL, instruction and feedback) and relationships. This awareness enhanced perceptions of feasibility that subsequently enhanced ESE. Entrepreneurial collaboration involved both peer learning and emotional support that enhanced ESE (AZM34, EUM59). The researcher’s conceptualisation of entrepreneurial collaboration was validated by the data collected (Table 7.2).

Table 7.2: Validation of Researcher’s Description of Entrepreneurial Collaboration

Researcher’s Dimension Descriptors	Validation By Main Study CDs
Coordination: Assigning and directing of tasks, integration of team members' roles and activities.	Student teams cooperated and coordinated among themselves to sell products at physical locations or on their websites (AZM11, AZM54, EUM53, EUM58, EUM59, OCM1).
Cooperation: Purposeful contribution of personal effort to the completion of interdependent jobs.	
Information exchange: peer learning and support, sharing, feedback, and critiques from FLGs.	Teams of OCM8 exchanged and reviewed case notes, incorporating diverse views on services and product companies.
Team adjustment behaviour: students of OCP2, OCP7 and OCP13 adapted when peers, CD (during simulation) or industry judges provided new information.	Teams of OCM1 and EUM53 tested website adjustments after noticing low traffic or no sales. Adaptability by teams guided by EUM58 and EUM59 when encountering the unforeseen.

Teams assembled by CDs had diverse yet complementary competencies and mindsets, facilitating academic and entrepreneurial achievements.

“The coach makes the directions for you to use your skills, in the correct way. ... It is the combination of direction, put together all the people in a team ... to permit you to use your skills, like the ‘director’ of an orchestra. ... they have this capacity to have a wide view and understand each sound and put them all together in a normal way” (NAM41).

“When I mix them in teams, marketing with engineering or different types of people, when they work together, they begin to understand ... together we are so much better in figuring things out, rather than as an engineer” (OCP12).

“Engineering students working in teams are very rare. Teaming up with a business or a music student puts a different spin on their relationships as a team. That is what it will be when some ... form their start-up teams” (NAM19).

Some teams were guided by CDs. Students under the guidance of OCP16 and OCP5 listened, reflected and provided comments to one another. Peers provided feedback on feasibility studies (OCP4).

Students also assembled (self-determined) their own teams. These students coalesced into autonomous groups with “their own branding” (NAM28) or solved problems. Some teams worked on complex real company valuation challenges (OCP10, AZM11, NAM16). Students formed consultancy teams and worked on entrepreneurial strategy, formulating how to improve the innovation capabilities of real businesses and corporations (AZM5, OCP18, NAM2, NAM28).

Collaborative activities and peers enhanced ESE (AZM34, EUM59), enabling students to persevere, stay positive and get out of the **“valley of negative ESE”** (EUM56).

“Students should hang around with the right networks to some extent. All entrepreneurs face struggles and get into that valley. The ones who keep their heads up and find new ways, are very well-networked with the entrepreneurial community. Senior mentoring helps but the real power comes from peers. ‘I am also going through this, but this is what I am doing to survive or move ahead.’ A much stronger input than having a very successful entrepreneur saying you must do this or that or other advice” (EUM56).

AZM14 shared about the criticalness of peer advisory.

“The face-to-face sessions are important in terms of learning from each other. The fact is that the learning does not come from me. If they do not prepare, for example, I told them to interview five potential early adopters that week, then they cannot give anything to the discussion. They missed out on the opportunity to get feedback from me and, more importantly, from their classmates” (AZM14).

Thematic analysis (Table 7.3) revealed that self-determined learners also collaborated to create, test, implement and adapt potential solutions and business models to achieve entrepreneurial aims.

Table 7.3: Theme development- Entrepreneurial Collaboration

Summary of First Order Concepts*	<i>Second Order Concepts (Themes)**</i>	Aggregate Dims***
A variety of skills (arts, accounting, business, engineering, science) in teams that generated ideas, planned, researched, decided, and pitched on best commercial ideas (EUM55).	<i>Complementary skills, multiple perspective team-based learning.</i>	<i>CD-guided entrepreneurial collaboration</i>
Team start-up, projects, field consultancy, solving real clients' or entrepreneur's problems.	<i>Guided cooperation, coordination, team adjustment behaviour,</i>	
Critical skills are collaboration and leadership (NAM32). With teamwork, odds of success are much better (NAM37). Joint decision-making (NAM15).	<i>information exchange, sharing financial and technical knowledge,</i>	
Group creative problem solving (OCM52), "responsibilities to that team, commit to each other" (OCP20).	<i>supported by coaching from CD.</i>	
Unstructured learning where groups design and develop plans, and decide and direct project activities. They adapt to and solve unexpected challenges.	<i>Self-guided, self-determined learning in teams. Unstructured and evolving relational</i>	<i>Self-determined peer-enhanced ESE development</i>
Considering peer critiques in FLGs, experiments, debates, and reflective discussions. Management committee decides best ideas and discusses progress.	<i>group dynamic, friendships, peer VL, peer instructions, peer feedback that enhanced</i>	
When experiencing negative ESE, aspirations and support from peers and mentors can improve perseverance (EUM56). Teams motivate, persuade and create a self-belief that they can do it (AZM34). Supporting one another improved self-efficacy (EUM59).	<i>the achieving of mutually feasible aims.</i>	
Entrepreneurs need a team, tools and an ecosystem (AFM39).		
* First order concepts are groups of similar horizons.		
** <i>Second order concepts (themes) are groups of similar first order concepts.</i>		
*** Aggregate dimensions are groups of similar themes.		

EUM59's entrepreneurship master program was entirely team-based with peer-facilitated ESE development.

"We observe **teamwork increasing the quality of their submissions significantly, resulting in applicability** of their findings in their later professional lives, **either in a big company or in a start-up**. There is **social pressure** within the class to work well and they try to do their best. In a sense, it is also **co-production of their self-efficacy**

since they are very much supporters to one another. They are the **closest friends** they have in the entrepreneurial environment than the others in their class” (EUM59).

“They **go into the field** and see **what the situation is. Along the way, (they) motivate, persuade, create a self-belief in themselves that they can do it**” (AZM34).

AFM46 and NAM43 advocated an entrepreneurial mindset encompassing collaboration, self-determined learning and adaptability to solve complex client challenges. As part of coaching, OCP12, NAM19, NAM36, SAM40, EUM12 and EUM55 formed multi-disciplinary stimulating entrepreneurial teams. Concurring with OCM8, AZM54 emphasised that part of the process of becoming an entrepreneur involved learning business administration, managing cash flow, developing revenue models and analysing cost structures from different individuals.

“We should give them more opportunities to **move away from the 'hero' sort of mythology.** The media focused on one person who is amazing when that person usually has some sort of a team” (OCM52).

While the majority ranked creativity/ opportunity identification as the most essential entrepreneurial competency, SAM40, NAM32, NAM37 and NAM41 chose collaboration.

“When it comes to entrepreneurship, it is definitely **collaboration, leadership and teamwork,** all critical skills. Especially **tech entrepreneurs ... you cannot do it with one person**” (NAM32).

“If I were pressed, I would say, **you do have to have a team.** You do not have to, but **your odds of success are much better**” (NAM37).

“**You need a team.** Secondly, **you need tools.** Thirdly, **you need an ecosystem.** It's impossible for you alone to be successful if you don't have these three elements” (AFM39).

Like SAM40 and OCM47, EUM55 required his students to understand and apply the theory behind multi-disciplinary teams. Using a version of EUM23's critique method, his students formed optimal teams by justifying their own strengths and critiquing each other's justifications.

“They must think how to motivate others to join in. They cannot say, ‘I go to the gym with this guy’. They **present their skills,** and the teams are (kind of) **bidding for these**

talents. This makes them feel that they were **acquiring the best possible and diverse team**” (EUM55).

“(They) take ownership and responsibility that cannot be rated in any (EPG) quadrant. If you are part of the team, then you will have responsibilities to that team. **You need some training on that in some respects.** I do **spend a bit of time on that type of training.** There is upon them an opportunity, **a responsibility to each other and for the delivery of the promise.** They **commit to each other**; and if someone does not do his/her job, then it was up to them to resolve this in the first instance, as the senior board, company management” (OCP20).

“**Forming teams with the same intelligence** as you are, all with the analytical skills **will fail.** Effective teamwork is more critical than communications. From our empirical experiences, we discovered that when you have a good team, with **colleagues that complement you,** probably 95% of time, one team member will have enough communications skill to sell the product or project. The rest of the team can campaign **in a multi-disciplinary way, compensating some skills from one another**” (NAM41).

AZM5, AZM10, NAM28, NAM43, OCP20, OCM47, EUM58 and EUM59 allowed teams to coalesce around the best voted ideas. This form of Self-Curation generated positivity and peer-enhanced ESE (AZM34). Students of EUM12 and OCM1 brainstormed all different kinds of assessments and voted on how they would be assessed.

“Then it is over to them. ... They have to work in (their assigned) groups to **do something that is totally defined by them**” (EUM12).

In uncertain contexts, peers shared, assessed and reflected on the feasibility of opportunities (EEA). Through sharing and inquiry, peers assisted each other in situational awareness, and in each other’s ESE development.

“After students work for the first five to six weeks, they form teams to ‘ideate’, **review the world around them,** adopt a problem or challenge to work on, identify customer problems” (AZM5).

“Students typically **receive significant conflicting information** and thus, are **confronted with uncertainty with respect to the direction and decisions they must**

make. The takeaway from this activity is that **students must decide if they will pivot, persevere, or abandon their idea**” (NAM15).

“In **questioning their presentation**, they are encouraged to **be quite direct about flaws they see or share other experiences that they had** that contradicted with what was presented. It's not debated but (it's) pointed questioning” (EUM23).

Some EEDs were designed to discourage unmotivated students and those who were deficient in crucial entrepreneurial skills. This activity resulted in the remaining students, who were more capable, to study with more motivated, entrepreneurially capable peers which facilitated collaboration and peer-enhanced ESE. Educators in these EEDs could also allocate more time to those who were eager to develop ESE.

EUM58 and NAM26 required participation in a bootcamp and reflexivity to assist students in deciding whether they would continue with the course/program and whether an entrepreneurial career was worth pursuing. Some students unenrolled, deciding that entrepreneurship was an unsuitable option. However, some students, though aware of their deficiencies, decided to persevere and remained enrolled.

“They should **start understanding that they need more mentorship, more coaching, that they need more team members. They cannot do it alone**” (NAM26).

“**After the first year, ‘the penny drops’.** Some realize that they do not want to start-up, after they have done the [anonymized] module” (EUM53).

The self-determined nature of some EEDs dissuaded uninterested students from enrolling.

“**I ‘weed out’ very early on. In fact, some students drop out. If you are really not interested, then do something else.** I do not want you sitting here for twelve weeks and wasting yours or your fellow students’ time. **A more successful outcome is someone who goes off and starts a business,** which I have seen over and over again. **But I would not be offended by that in any shape or form.** Because **the reality is, if you are not ready, do not do it. If this unit helped you to make that actualisation, then fine.** Whenever the **opportunity** arose, **creativity frameworks, tools (are) provided to students and the autonomy to be more creative ...**” (OCM25).

Some horizons by EUM58, NAM26, AZM5, AZM11 and SAM29 implied that their pedagogical focus in the first week of class was like OCM25's. NAM32 and his team interviewed prospective students to assess whether they had a prerequisite mastery of finance and communications.

7.5 External Entrepreneurial Awareness Through Reflexivity

To perform entrepreneurship, some CDs 'sensitised' students to lifelike opportunities in the external environment. External entrepreneurial awareness (EEA) was an awareness of the accessible resources and relationships that, once marshalled and mobilised, determined the scope of feasible entrepreneurial activities and opportunities. Establishing their entrepreneurial potential led to initiating executional actions and subsequent reflection on outcomes.

Reflexivity of outcomes through sensitisation to cues (AFM46, EUM58) and conditions in one's environment subsequently updated and clarified EEA, leading to ESE development.

EEA was associated with internal entrepreneurial awareness (IEA) (Section 8.2). Students needed both EEA and IEA in order to develop the confidence to start-up (ESE). They needed to be aware of accessible relationships and resources according to their interests, amidst the changeable environment of entrepreneurship.

"In entrepreneurship, ... you have no idea what's going to happen. You have to be able to make sense of things. You have to stop, think, 'Who am I relative to this opportunity? What do I know? Whom do I know? What resources?' ... Then, they can deconstruct the outcome, whether it was a good or not so good outcome. Asking themselves honestly: what is needed to be present for this to work?"

"The number one determinant of entrepreneurial behaviour is confidence. Now, one cannot be overconfident. ... But if you are not confident about something, we are not going to do it anyhow. So we have to develop the person in terms of their awareness of their surrounds (and) their proclivities" (OCM1).

EUM12 and EUM38 required students to practice reflexivity, and to develop their EEA (and ESE) based on their life experiences and context.

EUM38 helped students to update EEA through reflection on their relationships. She instructed students to present, verbalise, demonstrate and acknowledge their 'lived' experiences. Subsequently, as an advisor, she provided students with feedback, knowledge, insights and new perspectives.

"I pick (an ecosystem) and ask more questions. The others will agree or disagree. Between them, a facilitation occurs where I'm simply aware. It grows in me this new image. I see something different. I then reflect this on them. They cannot express it but they have it, the wealth inside of them that I'm discovering in them, in this process. By giving them this wealth, they could then use it. ..."

"This is what I teach my coachees: your success is the fact that you are capable of creating of your awareness that is beyond simply good business decisions. What feeds into your business awareness is the context that you're living in. The context means humans, environment, politics, everything. The context, if you take it with you for decision making, when the time comes in the future, that is your success"
(EUM38).

EUM38 utilised instruction, advisory and inquiry to develop EEA. The formation of EEA required changing one's assumptions, discovering customer needs (opportunities) and resources that assisted in the actualisation of those opportunities. She guided students on contextual awareness through inquiry that enabled entrepreneurial activities.

"I start them with this new awareness, to look at their new environment. They perceive (themselves) as someone from a story told to them. I ask them to walk about their environment with a different mindset that they have learnt now. Now, the whole would look completely different. I encourage them to discuss with businesspeople through this perspective, now with your creativity, the tools. Check your ingredients. You are the ones that will be able to create so many businesses because you have so many needs, so many ingredients, so many customers. Check your ingredients and come up with this business idea that serves your community or context" (EUM38).

EUM58 described the development of EEA through Applied Theatre. EEA provided a sense of control over one's context (ESE).

"Look at the setting as a stage. You are a director and an actor in this piece of theatre. In a stage, nothing that should not be there, should be present. You do not step into a stage without thought. You think about the script"

“When you are having a **difficult conversation, you (have) the opening lines as you can take charge of that.** ‘This is what I would like to talk to you about. Here is the situation.’ You **work out who you want them to be, their roles in terms of their interactions with you. Work out how the scene ends in your view. ... how do you want that experience to evolve for you and for them. You work out who you want them to be, their roles in terms of their interactions with you. Work out how the scene ends in your view**” (EUM58).

An awareness of one’s surrounds (OCM1) could be developed through visualization (EUM4, OCM17). “They **develop those problems into ‘problem maps’ or ecosystems around the problems. They understand customers and design solutions**” (EUM4). EUM20 and NAM45 highlighted the importance of stakeholder analysis. EUM31 advocated “creative solutions for the community”. OCM8 emphasized on “the value you create for others”.

The relationships one possessed determined one’s ability to access start-up resources (OCM1).

“They do not know anybody, about a particular industry that they want to do something in. **They have no means of accessing resources. But they want to do something there. Then, I am going to talk that student out of it as you are setting yourself up for a failure. ... Why not do something that's connected to your home country, where you do know people, where you do understand the context and you may be able to access resources?**” (OCM1).

OCM17 required his students to identify and interact with potential key stakeholders in their networks to become aware of potential opportunities.

“**You have a list of people you can pitch to your idea to get feedback on whether your idea would benefit the ecosystem. You got to create value for the ecosystem and be able to extract value (from it) in order to survive ...**

“Students use a **variety of ways to visualize, sketching their prototype ecosystem up, to show who's who, how they are connected and how resources flow from one person to another. Given what you have learnt about the ecosystem, now forecast your role within the ecosystem. Think through what you would do in the ecosystem for the next five years. Now put yourself in your own shoes five years from now and write a letter back to yourself. You are writing a proposal to yourself from the future; tell yourself today, how to start adding value for the next five years**” (OCM17).

EEA encompassed an awareness of the decision-making and activities of stakeholders in one's context (AZM9, EUM38), including the perceptions and aspirations of customers (NAM19, EUM23, EUM38), other entrepreneurs (EUM53) and investors (AZM9). Students also obtained data on the entrepreneurial potential of others (EUM38) in relation to their own (AFM46).

EEA was developed through informational awareness and empathy. The interpretation of the emotions of others was trainable and a critical start-up success condition.

"I spend a lot of time on **the methodology of thinking, being aware, feeling what others feel, and the context, then and only then are decisions made or considering what is the next set of required information.** If they are incapable of 'reading' the customer, in creating a value proposition, this means they have to repeat their behaviour. **Aware, all the time of what are other people are doing.** I make sure that they are **aware of this all the time**" (EUM38).

"In entrepreneurship, one has to think, **consider how customers, funders, think and make decisions.** Based on this knowledge, one can decide how to act accordingly" (AZM9).

"We constantly talk about the **importance of interpreting customers' emotions and how all their buying decisions are related to emotions, either real or imagined.** Some videos provided students with some insights on how to try and manage their emotions when interviewing customers" (NAM19).

Students learned to adapt and to cope with changes through reflection, becoming more adept (skilful). This perceived mastery enhanced ESE.

"The **reflection through the discussion, which is the critique, that you then bring this newness or unexpected changes in. It is breaking that resistance to not accepting something new.** Because if you are in a real entrepreneurial environment, and you are resisting something that has changed, then you may be missing something! Whereas if you could introduce it and **become more accepting that things are changing, when you are used to dealing with it on a regular basis, you simply become more adept, because it is your life-world**" (EUM23).

EEA could be developed through synthesis of prior and current reflections to generate solutions based on an understanding of contexts and to actualise opportunities.

“We often throw in something new when we have those ‘crits’ (critiques), something else unexpected where they have to deal with it on the spot; ... We give them the autonomy of thought, initially on a small scale. They get used to it, they become willing to make good guesses on the spot. You can always reflect on those to get better. That is exactly what an entrepreneur has to do, do something new. **It is thinking on your feet but also coming up with reasons why you think that might not work, 'on the fly' and synthesising your prior reflection with the current set of conditions**” (EUM23).

Some CDs indicated that entrepreneurial awareness was utilised in the effectual entrepreneurship method.

“New venture creation is more free, open-ended, **where resources are either acquired from elsewhere or students can improvise, bootstrap, perform effectual thinking, progressing from one small success to the next**” (EUM55).

“**The resource profile of each student is the determinant on how far they can move. Whom they know, what they know and what resources they can gain access to. That determines what feasibility exists around a project**” (OCM1).

7.6 Interpretation: Educational Design Lifelikeness and Entrepreneurial Self-Efficacy

Students learned how to apply entrepreneurship methods and theories in theoretical, moderated, authentic and Self-Authentic contexts. Activity outcomes that were reflected on led to ESE development. Learning contexts and pedagogies had varying levels of Lifelikeness (Table 7.1 at the start of Chapter 7).

All lifelike pedagogies developed more ESE overall, but the learning contextual conditions (the CDs, curated ESE sources and real-life learning opportunities) influenced the accuracy of students' ESE. ESE sources that the students could relate to were more effective in developing their ESE.

EEDs that were more lifelike necessitated the curation of experiences outside the classroom to enable students to experience entrepreneurship in more lifelike authentic conditions.

Reflexivity developed ESE more than the Lifelikeness of an EED, through entrepreneurial awareness. Reflection on appropriately selected ESE sources facilitated an iterative evolving process of activity and reflexivity. An awareness of one's real-life environment, external entrepreneurial awareness (EEA), was a source of ESE that initiated entrepreneurial activities and subsequent reflexivity, leading to further ESE refinement.

Reflexivity on curated ESE sources that developed EEA was assisted by role-transitioning between the educator types and roles.

7.6.1 Interpretation of Curation and Entrepreneurial Self-Efficacy

Educators curated a variety of ESE sources in their EEDs to provide ESE developmental opportunities for their students. However, it was sometimes uncertain whether curated material developed ESE. Themes related to curation are presented in Table 7.4.

Some CDs implemented self-determined learning and encouraged students to pursue entrepreneurship in their areas of interest. These students also Self-Curated their preferred ESE sources (Section 8.1) and found domain experts to assist in their entrepreneurial activities.

Curation assisted CDs in role rebalancing and alleviated their fatigue from role-transitioning (Section 6.4).

CDs curated a range of ESE sources such as guest instructors and assessors, student peers, seniors, alumni, entrepreneurs, investors, contract educators and other faculty members from different disciplines. Boyd and Vozikis (1994) suggested four ESE sources- mastery experiences, social persuasion, vicarious learning (VL) and stimulated emotions.

Themes indicated that students reflected on curated social persuasion (feedback and instructions) and their emotions to establish perceptions of mastery. VL involved reflections on the behaviour of role models and their sharing. Inquiry-focused coaching enabled reflections on curated ESE sources, assisting in the development of students' ESE.

Table 7.4: Theme Development- CD-Curation of Entrepreneurial Self-Efficacy Sources

Summary of First Order Concepts*	Second Order Concepts (Themes)**	Aggregate Dims***
<ul style="list-style-type: none"> Understand theories, methods, templates and tools from applied lectures and simulations to perform entrepreneurship (Section 7.1). Inquiry and reflection questions (what, how and whys) to modify perceptions, thinking and reflect on feedback and instruction (Section 6.3.3). Reflective discussions and assessments based on entrepreneurship and methods. 	<p><i>Create and/or select entrepreneurship instructions and questions to enable reflexivity on sources of ESE.</i></p>	<p>Curator of ESE sources</p>
<ul style="list-style-type: none"> Encourage participation in ‘Start-up’ weekends, business plan competitions, Hackathons. Secure start-up funding for prototyping, development, customer discovery. 	<p><i>EE curriculum and additional mentoring and industry-based coaching.</i></p>	
<ul style="list-style-type: none"> Internships, incubators, accelerators (ECA) to develop or progress on start-up ideas. Right size field projects. Use actual industry equipment. 	<p><i>Encourage participation in authentic entrepreneurship, entrepreneurial activities within and outside the university context (Section 7.2).</i></p>	
<ul style="list-style-type: none"> Creatively curate, marshal and secure appropriate resources, networks and mentors. 		
<ul style="list-style-type: none"> Additional skill training (ECA) on pitching, start-up risk management, and BMC by industry. 		
<ul style="list-style-type: none"> Enable VL from fictitious or real-life cases, model entrepreneurs, guest entrepreneurs, entrepreneurs-in-residence, mentors and practitioners (Section 7.2.1). 	<p><i>Selectively marshal relatable entrepreneurs, role models, to provide authentic feedback and instructions.</i></p>	
<ul style="list-style-type: none"> Guide and show students places and people they can access to obtain the necessary start-up resources, technical knowledge from faculty from other disciplines, websites or e-commerce designers. Help students to go into industry to present and test ideas with clients, customers, investors (Section 6.3.1). 	<p><i>Facilitate learning from an ecosystem context- a physical and online network of entrepreneurial capital and ESE sources, an ‘extended’ classroom (Section 6.4).</i></p>	<p>Resourceful industry ecosystem guide</p>
<p>* First order concepts are groups of similar horizons.</p>		
<p>** Second order concepts (themes) are groups of similar first order concepts.</p>		
<p>*** Aggregate dimensions are groups of similar themes.</p>		

Reflexivity on authentic instruction and feedback enhanced ESE. This type of reflexivity required level three and four reflections (Table 7.5). The researcher expanded the descriptions by Peltier, Hay, and Drago (2005) in order to highlight the distinct levels of reflexivity.

Table 7.5: Researcher’s Modified Peltier, Hay, and Drago (2005) Reflection Hierarchy

Level 1: Non-reflective habitual actions, ‘surface’ learning, memorising mechanically.
Level 2: Solely understanding textbooks, learning within the boundaries of pre-existing perspectives with no personal relevance.
Level 3: A deep learning approach to reflect on personal experience, internalise concepts and assimilated into one’s personal knowledge structure (Leung and Kember 2003) with the insights and awareness from reflections on the resources and relationships in their external contexts. Furthermore, learners challenge assumptions, assess alternatives and seek to improve on their existing solutions.
Level 4: Learners become aware of, or change, the way they think, perceive or act, involving ‘perspective transformation’ (Mezirow 1998b), “introspection of self, critical reflection of activities and the creation of learning practices that enable and facilitate the exploration of alternative actions” (Higgins, Smith and Mirza 2013, p.138).

Source: Adapted from Peltier, Hay, and Drago (2005).

No horizons or themes suggested that the very experiential (lifelike) EEDs, courses with nine or more types of ESE sources, developed higher levels of ESE. Most critical was that reflexivity developed ESE, through entrepreneurial awareness. Reflection facilitated an iterative process of activity and further reflexivity. As validated by all GREs (Section 9.3), a significant pedagogical feature that contributed to ESE development was the curation of cases and role models that were relatable to students.

The ESE literature (Section 2.2) indicated individuals might not initiate entrepreneurship unless they perceived sufficient self-efficacy (Bandura 1977b; Bandura 2012).

Themes indicated that students reacted either positively or negatively to the complexities of entrepreneurship that enhanced or eroded their ESE, respectively. Some were inspired by relatable models; others were intimidated by authentic feedback (guest advisors/assessors). Hence, CDs were compelled to moderate the intensity of emotional stimulation in their courses, and to induct their students into the complexities of entrepreneurship gradually through curation.

7.6.2 Interpretation of External Entrepreneurial Awareness and Entrepreneurial Self-Efficacy

Horizons and themes indicated that EEA was an awareness (perception) of accessible resources and relationships that assisted start-ups. Perceptions of accessible entrepreneurial and social capital (Shaw et al. 2009) assisted in actualising entrepreneurship. Favourable reflections of resource accessibility enhanced the perceptions of start-up feasibility and desirability (Fitzsimmons and Douglas 2011) that developed ESE. A summary of the thematic development of EEA is in Table 7.6.

The students often faced challenges in initiating connections to start-up resources in their context. Instruction-focused coaching facilitated activity outcomes. Role-transitioning to inquiry-focused coaching enabled students to reflect on outcomes to identify and develop relationships that enabled them to access to start-up resources.

Gecas (1989) and Bandura (1989) reviewed how societal and group structures and processes influenced the development of self-efficacy, activities, perceived mastery and sense of control. Self-efficacy is the self-belief in one's mastery in performing a nominated activity. Bandura (1977a) differentiated between self-efficacy expectations and outcome expectations (assessment of how one's context would respond to the outcomes from that action). Therefore, if one's perception of the entrepreneurship environment was negative, then one might not initiate starting up despite possessing ESE.

CDs were able to influence the development of EEA (and subsequently ESE) through their courses. EEA evolved through subsequent rounds of activity and reflexivity that identified more entrepreneurial capital as one's start-up progressed.

Creative problem-solving and entrepreneurship methods also assisted students in analysing the connections to resources. Field and class experiments combined with inquiry synthesised current experiences with prior reflections to predict likely future responses from customers or suppliers (EUM23). This form of reflexivity also forecasted one's future value-creating roles (OCM17). ESE developed from coaching in synthesising challenging situations (“**working out the setting,**”), to build the confidence to “**take charge**” (EUM58). Moreover, this ESE development initiated further activity and reflexivity (Section 6.3).

Table 7.6: Theme Development- Cultivating External Entrepreneurial Awareness

Summary of First Order Concepts*	Second Order Concepts (Themes)**	Aggregate Dims***
<ul style="list-style-type: none"> Deconstruct the entrepreneurial activity. Identify the resources needed to achieve goal. Evaluate evidence-based outcomes (EUM12). 	<i>Self-discovery of one’s entrepreneurial potential based on one’s networks and essential relationships to access resources that determine the feasible scope of entrepreneurial project.</i>	External Entrepreneurial Awareness (EEA)
<ul style="list-style-type: none"> Evaluate available resources and identify which they can gain access to (OCM1, EUM12). Create a value proposition for customers (EUM38). 		
<ul style="list-style-type: none"> Make sense of situations (AZM14). Confidence to try based on self-evaluation relative to opportunity or task (OCM1). Interpreting external environment based on prior experiences, past and current learning (AFM46). 		
<ul style="list-style-type: none"> Awareness of one’s connections to society and ecosystem. Understand issues and evaluate solutions in relation to one’s morals (EUM38). Discard what is not aligned with entrepreneurial mindset (EUM57). 	<i>Reflections on the relationships in one’s proximal context that enhance or limit one’s entrepreneurial potential.</i>	
<ul style="list-style-type: none"> Awareness and interpretation of emotions of customers (NAM19). Observe before decision-making. Be alert to required information (EUM38). 	<i>Reflexivity generates awareness of opportunities and be able to extract value from these opportunities. An awareness of the value-creation potential of others; their cues, emotions, aspirations, knowledge and masteries. Linked with Internal Entrepreneurial Awareness (section 8.2).</i>	
<ul style="list-style-type: none"> Sensitive to cues (AFM46, EUM58). Alert to conditions in one’s environment (EUM38). 		
<ul style="list-style-type: none"> Consider how customers and stakeholders think and make decisions (AZM9). Create value for the ecosystem, be able to extract value from it in order to survive (OCM17). 		
<p>* First order concepts are groups of similar horizons.</p>		
<p>** Second order concepts (themes) are groups of similar first order concepts.</p>		
<p>*** Aggregate dimensions are groups of similar themes.</p>		

7.7 Summary of Research Focus Two Analysis

This chapter highlighted the lifelike EEDs and contexts introduced by CDs to educate their students and build ESE. These EEDs provided students with opportunities to experience entrepreneurship

realities and real-life business conditions. Lifelike EEDs necessitated the curation of experiences outside the classroom, both by CDs and also Self-Curated by their students.

Lifelike pedagogies developed more ESE overall, but the accuracy of students' ESE depended on various factors such as the ESE sources that were curated (Section 7.6.1).

An awareness of one's environment, external entrepreneurial awareness (EEA), was a source of ESE that initiated entrepreneurial activities and subsequent reflexivity, leading to further ESE refinement (Section 7.6.2). Reflection by students facilitated a repeating and evolving process of activity and reflexivity.

Reflexivity assisted the awareness of one's entrepreneurial potential based on the quality of one's relationships and the identification of opportunities in one's environment. The quality of these relationships assisted or hindered one's access of start-up resources. EEA improved one's ability to recognise and extract value from opportunities that were not noticed by others. Reflexivity also developed an awareness of the entrepreneurial potential of others. These reflections could assist in determining the feasible scope of one's start-up that could enhance ESE.

Reflexivity through entrepreneurial awareness developed ESE more than the Lifelikeness of an EED, and it was assisted by role-transitioning between the educator types and roles.

The next chapter is the analysis of research focus three, the development of ESE by combinations of practical and lifelike pedagogies.

8 RESEARCH FOCUS THREE ANALYSIS: PRACTICALITY AND LIFELIKENESS

Research focus three (combinations of Practicality and Lifelikeness developed ESE) guided thematic analysis of EEDs implemented in four lifelike contexts (Table 7.1 in Chapter 7). Of the four contexts (theoretic, moderated, authentic and Self-Authentic), the Self-Authentic context (consisting of students' personally significant and meaningful learning experiences) was found to be the most lifelike and practical as they executed personally significant entrepreneurial activities in their areas of interest.

Many EEDs in this research contained a combination of practical and lifelike pedagogies, in varying proportions. Both CDs and students also curated multiple lifelike and practical learning experiences (such as ECAs) and relatable authentic ESE sources that developed and updated ESE.

This chapter explains the theme developments guided by research focus three. It explains how themes were developed from horizons (significant words or phrases) related to combinations of Practicality and Lifelikeness. The horizons (in **bold text**) from the participants' interview data (quotes) were used in thematic analysis to present their perspectives faithfully.

8.1 Curation Versus Self-Curation

EEDs varied from more prescribed to more self-determined learning. From the first to the third year durations of researched EEDs, reflexivity became progressively more complex. This increasing complexity was accompanied by a transition from curation to Self-Curation of ESE sources as part of self-determined learning. Of the 77 CDs, 13 implemented some form of self-determined learning (AZM3, AZM10, EUM12, EUM38, EUM23, EUM27, EUM42, EUM53, EUM58, EUM59, NAM2, NAM30, NAM43).

Self-Curation of ESE sources was guided by inquiry, a “**go and find out**” approach (OCM17) involving self-discovery. As an example, OCM47 expected his students to Self-Curate instructions on how to perform Design Thinking tasks and learn vicariously from experts as they performed their operations during an intensive study tour.

EE programs comprising several interconnected courses (both practical and lifelike pedagogies) were more likely to develop ESE than a standalone course in one semester.

AZM21 reflected, “It is difficult to observe the evolution of self-efficacy of students through only one semester, sincerely. **Self-efficacy is the ability that you feel that you can control things to achieve something.** A student did an internship in a family business and **discussed with the business successor all the things (taught).** The students **are creating a sense of knowledge** about family business. But, **until they arrive at real-life, they cannot perceive this self-control. When they are facing with the problems and ideas, I think they will be more aware about these things. They will remember what we discussed. This remembering will help them to navigate the problems, issues and challenges**” (AZM21).

A gradual increase in the complexity of the activity-reflexivity recursive enhanced ESE.

“**Students’ expectations regarding entrepreneurship can be unrealistic. I make them understand** in [anonymized course] ... **it involves sufficient theoretical grounding. I do not want to them to feel that they can launch a business straightway.** They need to **gain first-hand knowledge** and even **experience.**

“**When they reach the final courses, that is when they feel much more confident if they were to launch their own businesses. ... with extra knowledge of the practical world You are confident. You do not know the solution that you can solve whatever problems are thrown at you, as you go along. They begin to feel that they know the tools or the concepts but that was not good enough.** If they cannot **test and assess where one case works and in another, it does not,** then the confidence is one-sided” (EUM27).

Students of OCM1, AZM10, EUM12, EUM58 and EUM59 were expected to eventually Self-Curate their own learning resources. AZM3, AZM7, AZM9, AZM54, AFM39, OCM17, OCM49, EUM56, EUM58 and EUM59 guided and encouraged students to actively participate in ECA. These ECAs included elective courses related to the course designed by CDs, competitions and start-up support programs to complement their pedagogical designs.

ECAs were sometimes encouraged by CDs and/or self-initiated by students. Students Self-Curated their preferred ESE sources and entrepreneurial capital to assist their start-ups or entrepreneurial activities. ECAs were mostly performed in authentic and Self-Authentic contexts.

Level one undergraduates commenced with learning basic theory to perform reflexivity on prior life experiences (EUM12, NAM26, NAM43). More instructions, for example, how to interview, perform market/field research and the BMC process were progressively introduced or self-studied.

CD-Curation transitioned to Self-Curation as students become self-determined learners (AZM10, EUM53, EUM58, EUM59). These CDs expected their students after their first years, to self-curate knowledge, skill and resources towards achieving their academic and entrepreneurial goals. EUM58, who referred GRE3 and GRE4, expected them to Self-Curate resources in their start-up and resolve team related and unexpected real-life business challenges.

AZM10 required students to organise their own authentic self-learning, to identify potential resources and to practice their entrepreneurship in lifelike conditions.

“I would **send them off on an expedition** at the end of every class, to **find out the entrepreneurial ecosystem in the city. Go and find out who are the incubators, what are their specialities?** This is **not** going to be **internet research**. You have to **visit the incubator. We go and observe, what are investors saying they want to hear or looking for, that is what you need to have.** What is **your story in five slides** (for it to be effective?) Is it a three- or five-minute pitch?” (AZM10).

EUM53 described the type of questions (inquiry) that guided Self-Curation.

“**In level two and three courses, it was more, ‘You tell me your choice, what you want to do, exactly.’** ... At this stage, **we ask them, ‘What do you think? Will it work?’** They ask us, **‘How many do you think we can sell?’** We then ask back, **‘How many do you think...?’** They have to **set up their own goals. They go out of the building after three years.** We tell them, **‘Think about how businesspeople would think, how you would apply them in your future life, ... your start-up** or in working for another business ...” (EUM53).

In their first semester, EUM59 and his team curated ESE sources that guided students’ learning. However, second year students Self-Curated and peer-coached each other.

“**They decided by themselves what learning resources were required to progress** on their projects and business plans with minimal reminders from her. **In their free time, they are using the incubator space** to organise ‘successes, failures and struggles’ **peer sharing events.** We have a **student-driven accelerator initiative,** our sort of centre of

entrepreneurship, a kind of mentorship initiative. **Students with entrepreneurship experience are coaching students with less experience**” (EUM59).

Some students further developed their start-up concepts, originating from their feasibility course in an incubator (OCM49). Half of EUM20’s executive students learned how to pitch and start-up at their university’s accelerators. Self-determined learning included participation in competitions. Some students of AZM54 participated in voluntary coaching sessions to enhance their entrepreneurship.

“Whenever they talk about business, they say, ‘**We do not have the funds and do not take any risks.**’ So, we have to create or change their mindset. It is not about risk. Yes, risk is involved but how to mitigate that risk. How to calculate that risk which is important. They go for these training sessions and workshops, conducted by many trainers” (AZM54).

Both CD-Curation and Self-Curation, as well as a combination of both, constituted a multiple pedagogy learning experience. CDs designed a range of practical and lifelike pedagogies and curated a mixture of lifelike ESE sources.

Multiple learning experiences provided the students with a rich array of reflexive opportunities that enabled them to develop ESE. Since the students’ ESE improved when they related well with the sources of ESE, providing them with multiple sources increased their chances of developing ESE.

Table 8.1 summarises the thematic development of CD-Curation and Self-Curation that assisted the development of entrepreneurial awareness that could consequently develop ESE.

Table 8.1: Theme Development- Curation of Self-Efficacy Sources

Summary of First Order Concepts*	Second Order Concepts (Themes)**	Aggregate Dims***
<ul style="list-style-type: none"> Design enjoyable exercises (OCP12, NAM36, NAM43). Inspiring sharing by guests galvanised, stimulated or terrified students (OCM8). Sharing encouraged or deterred pursuit of starting up (AZM5, EUM42). 	<i>Selection of both positive and negative real-life cases, role models (VL) and advisory as ESE sources for students to reflect on and develop their self-perceptions.</i>	CD-Curation
<ul style="list-style-type: none"> Reflections on authentic feedback. Reflections on safe setbacks (OCM1, EUM53). Students not unduly deterred by negative feedback (OCP6, NAM19, NAM43, EUM12). 		
<ul style="list-style-type: none"> Students discovered, selected knowledge and resources required for starting up. Interviewed entrepreneurs, potential customers (OCM17, EUM38). Interacted with investors, designers, experts, mentors, coaches, seniors or alumni (EUM20, EUM53). 	<i>Self-determined learning and inquiry-focused coaching assisted sourcing and utilisation of entrepreneurial and social capital.</i>	Assisted Self-Curation
<ul style="list-style-type: none"> Resource and relationship difficulties motivated exploration for additional solutions (GRE2, GRE5, GRE6, GRE7 and GRE9). GRE1, GRE3, GRE4 and GRE8 identified additional resources (funding, peers, seniors, advisors, coaches and mentors). 	<i>Perceived accessibility (or inaccessibility) to resources, entrepreneurial collaboration and social capital guided sourcing for assistance.</i>	Self-Curation including extra-curricular activities (ECA)
<ul style="list-style-type: none"> Teams and peers brainstormed ideas, shared how they solved common start-up challenges, provided emotional support. Peers with entrepreneurship experience coached the inexperienced. 		
<ul style="list-style-type: none"> Self-initiated seeking of and reflection on authentic feedback and instruction, additional coaching and mentoring. 	<i>Sourcing for complementary support, such as emotional guidance, technical and entrepreneurial expertise.</i>	
<ul style="list-style-type: none"> Self-organized teams comprising students with complementary skillsets formed to achieve entrepreneurial aims, and/or present to alumni and guest judges. 		
* First order concepts are groups of similar horizons.		
** Second order concepts (themes) are groups of similar first order concepts.		
*** Aggregate dimensions are groups of similar themes.		

8.2 Internal Entrepreneurial Awareness Through Reflexivity

Reflexivity is the interpretation of personal meaningful experiences within the internal Self-Authentic context that leads to ESE development. Inquiry enabled reflections on one's self-concept, an awareness of one's perceived mastery or lack of it. Students' self-concept (Section 2.2.2) was modified by the awareness of outcomes and perceived relationships within one's context.

Entrepreneurial self-identity was developed through self-comparison to role models. Horizons indicated that purposeful reflexivity on one's self-identity developed IEA. Reflections that clarified one's self-identity included critical comparisons with curated models. The refinement of IEA involved synthesizing one's prior 'lived' experiences (AFM46), and the experiences of others in their contexts (EUM38).

The EEDs of AZM3, AZM10, AZM11, AFM46, NAM19, NAM30, NAM32, NAM43, EUM12, EUM23, EUM38, EUM57 and EUM58 focused intensely on inquiry that enabled reflexivity and self-discovery that developed, clarified and/or updated IEA and ESE.

IEA could develop during the first few weeks of an entrepreneurship course (AZM5, AZM11, OCM1, NAM26), or in the final year (EUM42, EUM53) or throughout the program (EUM12, EUM58). While the mentees of AFM46 had one year of "sensitising", undergraduates of EUM12, EUM31, EUM53 and EUM58 developed IEA over three years.

"We call that learning about, for, and through entrepreneurship, over three years. In the final year, you start your own ventures. Once you deal with those skills in the first and second year and develop the mindset, you get to the final year, have the opportunity to enrol in two modules where you can start something of your own, not necessarily a commercial business but use their passion to start something for their community" (EUM53).

ESE-eroding attitudes in undergraduates and postgraduates were observed by OCM1, NAM15, NAM43, and EUM57. Inquiry enabled reflexivity based on theory (EUM12) to discard non-entrepreneurial mindsets (NAM36, NAM43, EUM38, EUM57). Inquiry-based pedagogies (both practical and lifelike) changed mindsets that hindered entrepreneurial activities (AZM10, AZM35, NAM32, NAM41, EUM12 and EUM38). These CDs developed and modified IEA, enabling ESE development.

Students' self-awareness (IEA) from reflexivity was an important aspect of entrepreneurship as it revealed their convictions and how they viewed themselves and the world.

“When we try to **assess our 'model', our identity**, how we come to understand and identify ourselves as modern individuals, we have to comprehend (how) our **sense of agency, personhood, has evolved**. I fight in my classes to **enhance self-understanding of the student**. The **ideas, convictions, they have in mind**. **How they view themselves, and their connections to the world**. ... it is **unravelling one's background, a better understanding, the framework, the sources of imaginations, sources of one's social imaginary and personal visions**” (EUM57).

Students compared themselves to real-life cases and role models (AZM5, AFM46), interpreting and deciding whether they were prepared for entrepreneurship or not. “Through this **real-life case analysis**, they subsequently achieve their **personally relevant project goals**” (OCM47).

The development of IEA required CDs to utilise multiple pedagogies, and these were a mixture of Practicality and Lifelikeness. Reflexivity, the most important contributor towards ESE development, was itself a practical activity, and it worked in conjunction with both practical and lifelike pedagogies to develop ESE.

8.2.1 Reflexivity on Perceived Interests

All GREs initiated start-ups aligned to their interests. NAM30, NAM32, NAM37, NAM43, AZM10, EUM24, EUM31, EUM38, EUM44, EUM58 and OCM1 harnessed the aspirations of their students to initiate entrepreneurship. IEA assisted in initiating the first steps (activities) in entrepreneurship in one's domain of interest. Some students reflected on Self-Authentic outcomes (EUM12, NAM30, NAM32, NAM43, OCM1, OCM47, NAM37). Some students convinced themselves that they had “entrepreneurial potential” (AFM46) and to persevere in seeking better solutions (AZM11, AZM35, OCP13, OCM47).

Students discovered and persevered in solving personally meaningful problems that they were passionate about (OCM47). The effects of curiosity-driven, interest-driven learning (related to IEA) on students was high engagement learning. “That's **interesting to me**. Why didn't it work? They will **go much further, dig deeper, find out lots of interesting things and they really enjoy the journey**” (OCM47).

CDs assisted students to initiate entrepreneurial activities based on their interests.

“Coaching begins by saying, ‘Tell me why this is important to you?’ It forces you to take ownership of the experience, not me. I act as a guide, as a navigator. I keep coming back to you and saying, ‘Why is this important? What power do you have? What actions can you take?’ They do not feel that I am a fountain of knowledge. I am absolutely not. Even though **I made a success of my entrepreneurial career, that is not (what) drives this. What drives this is you. When a student says, ‘I do not know what to do next’, my response is not, ‘Let me show you’ but ‘What do you think is the next step that you can take, between now and when we meet again?’”** (AFM46).

Many CDs assisted students in initiating their first entrepreneurial activities. OCM1 initiated activity and reflexivity by asking:

“Is there a certain industry, something you are interested in? What is currently relevant in one's life? What would you like to do? Find out from the student: if they had the opportunity to make some change in the world, to pursue something that they are interested in, what would that be? If the student has all the theories, all the tools, learnt problem-solving or creativity techniques, that will not do them good if they do not understand who they are relative to the environment in which they are ultimately going to do something in” (OCM1).

Some CDs advocated that students work on their interests. EUM24 emphasized:

“It's extremely important that they do what they want to do. They need to be 100% committed. That doesn't mean that they have to work ‘24/7’. **It means that they believe in what they have to do”** (EUM24).

EUM44 recommended to **“listen to the students, try to understand them on what they like to do.”** **“The project they work on (is) basically a real start-up insofar that we encourage students to start-up on their own.** In that sense, it is **not a research project”** (AZM3). **“I am not forcing them to do something that they are not ready for. I am tapping into a latent interest, a latent passion, purpose that is designed to match their motivation with changing the world”** (NAM43).

OCM47, AZM5 and NAM45 formed teams around **“ideas or problems ... that they cared for”**.

“I get all of them to pitch problems and then they self-form groups, around problems they are passionate about. With self-motivated passions on things that

people are **really excited about, interested in**. ... They actually **love the learning journey** that goes along with it. It was getting people to get passionate and **fall in love with the problem** rather than fall in love with their ideas or solutions. There is normally quite a distinction” (OCM47).

NAM37 shared about how his GREs were “changing the world” when challenged with formulating “credible \$100 million concepts by year five”. One of his students whose mother had some disabilities was inspired to embark on her Self-Authentic (personally meaningful) challenge. This was a case where IEA synthesised with EEA.

“**She was very familiar with the challenges** that women have about wearing clothing that is not meant for their bodies. **What is driving her is, ‘I want to change the world’**. (They) **tap into the passion that they have, for something meaningful, to have an impact**” (NAM37).

Reflexivity developed an awareness of one’s self-concept in relation to the evolving aims, aspirations and emotional states of customers (AFM46, NAM19, EUM23), the “**ingredients**” of entrepreneurship (EUM38). This reflexivity also involved a synthesis of reflections on one’s prior experiences, education and self-perceptions, leading to enhanced ESE.

“**The mindset is an interaction between ways of seeing, ways of being, how you see the world and interpret the world around you and how you act in the world, largely defines your mindset. You learn to respond to the world around you. You harness everything that you know, everything that you have done that is enacted in some behaviour.**

“With student entrepreneurs I think in my experience, is **connecting them to what is unique inside of them ... to connect deeply with who they are. Then, they can begin to enact this journey of entrepreneurship, almost unhindered by rubrics and course outline. The big advantage of this [anonymized] course is that it comes almost at the end of the year. They had times of ‘filtering’**. For many of them, not all of them, I think **they are more sensitised to their own potential**” (AFM46).

Authentic learning and IEA development were combined in every session of NAM45’s intensive EED.

“I require them to **work on something they care or passionate about for 15 minutes**, in groups. ... After group work, **they come back together to present something they**

discovered, their research or decisions. For the reflection to make sense, to be a meaningful experience for them. ... you mix the ‘doing’ with the case studies, an actual live problem ... then take the whole learning experience after that, to base the reflection on. Why reflection is so important is because there is lots of creativity, creative and critical thinking, integrated into the reflection. They actually do it themselves, instead of telling them. Explore creative and critical thinking on their own to identify those areas or skills they have” (NAM45).

Self-Authentic (lifelike) personally significant entrepreneurial opportunities and/or problems were necessary for students to learn effectively, and to initiate activity and reflexivity that developed ESE.

“It has to be something that matters to them. It has to be real. Some may not view it as an overall entrepreneurial opportunity. Personally, it is a problem or an opportunity that they are trying to solve. In terms of being able to develop metacognition and learning from experience, personally [with emphasis] the experience has to be 100% authentic. If the experience is cultivated by the educator or by the program, it is not going to work” (OCM1).

“I try to help people achieve their passion. If the passion is not entrepreneurship, that is okay by me. We focus a lot on resilience, which is, do you make sure that at some point during the class, students suffer a major setback and have to bounce back. They have to find a problem and come up with a solution; create a business plan from scratch” (NAM32).

8.2.2 Reflexivity on Perceived Mastery

Inquiry trained students to acknowledge (reflect) their mastery and life experiences that enhanced ESE. EUM12 and EUM38 used inquiry to empower their trainees who acknowledged their achievements that reinforced self-identity and enhanced their ESE.

Reflecting on one’s strengths (and weaknesses) was a crucial learning experience that updated ESE. EUM38’s students were empowered when they realised that they had the potential to succeed. They subsequently challenged and inspired themselves to plan and take further action based on these reflections.

“I always sincerely let them be themselves. So many incredible things are generated by these people. ... They are empowered with their own creativity and their own new realisation that ‘yes I am’. Remember one of their family members who has a business, from memory, and try to recite all the knowledge that they have. Then look at that from a different perspective- facts can change as facts. They have a lot of learning material within their own context. Not that they measure themselves to big stars but that they learn the mindset. They have more potential to succeed because they have more problems to solve in their context, ‘because I can’...”
(EUM38).

EUM38 facilitated the development of IEA by relating mastery to their interests and aspirations.

Her students subsequently **“dived into the unknown, making decisions based on moving forward. You keep repeating what (is) special in others. If you don't recognise your own value, then you cannot create. ... I want them to be aware of: 'look, this is what you did', 'this is what you told me that', 'here you are'. ... That was when they start awakening. ... I simply repeat what the person in front of me said and ask, ‘Where is that energy? Where did that come from? Why are you now projecting on me ‘I cannot. I do not want or I have no idea?’ I leave them with that. Then they will see reality from a completely different level It is getting them to believe that they are and can be creative and entrepreneurial and also directing that self-belief into something tangible, for example, start a business that supports your family The mindset, tools and decision-making skills help crystal their passion towards new business”** (EUM38).

Some CDs developed mastery in creativity that reinforced CSE (Section 2.2.3). NAM43 enabled reflexivity related to IEA, leading to ESE development, through creativity exercises.

“(Students) find a repressed part of ourselves, to be willing to say, ‘Absolutely! I have ideas for the future. Absolutely! I can create a vision.’ I do not teach creativity. They already have it. I am there to give them the confidence and the tools. Students learn from each other way more than they learn from me. Confidence is the key. The answer is two-fold. Are they more creative? No, because their brains are still the same brains. But are they more creative? Yes. Because they can do better. The admission of the skill is what makes the difference, any time you improve creative confidence” (NAM43).

FLGs facilitated by CDs assisted in the discovery of students' areas of mastery. Areas of weaknesses were identified and addressed through advisory-focused coaching (EUM42). Students of EUM42 self-critically reflected on their weaknesses to request what they needed (resources) from real-life investors.

“To recognise that they are short of a specific skill set or knowledge, or access to a particular network. What they are saying to the investor (is) that we want to identify, not only do we want the money but also demonstrate the skill set required from the investor to fill a gap, perhaps knowledge” (EUM42).

“Small group mentoring helps students discover their strengths. Do not spoon-feed and give ample room for students to self-discover” (AZM5).

8.2.3 Reflexivity on Emotions

As students obtained feedback and generated activity outcomes, they experienced a range of emotions. Reflections on these emotions were synthesised with self-perceptions, prior reflections and entrepreneurial awareness. These reflections led to further academic and entrepreneurial activities, multiple learning experiences and the development and update of their ESE. Feedback and outcomes were generated from a combination of practical and lifelike pedagogies.

A component of ESE was a perceived ability to cope with challenging situations. ESE was enhanced when negative emotions (such as anger, frustration, nervousness, hopelessness and fear) were acknowledged and addressed.

The practice of reflexivity developed one's emotions related to entrepreneurship. Inquiry guided students to perform reflexivity and self-evaluations on their emotional constitution and knowledge domains as part of their entrepreneurial formation. IEA was **“self-understanding”** (OCM1) moderated by self-assessed emotions arising from failure and achievement. Positivity towards entrepreneurship enhanced one's entrepreneurial self-identity.

Academics and guest entrepreneurs utilised both practical and lifelike pedagogies to stimulate positive emotions and negative emotions. The major emotions were disappointment due to 'safe' failure (OCM1, EUM53) and unexpected crises (EUM58), inspiration when they vicariously learnt

from industry sources (EUM12, OCM47), or felt challenged when they reacted to advisories from guest judges (EUM42, AFM46).

ESE measured as self-confidence could vary considerably due to emotions (OCM17). Hence, self-management (control) of emotions was crucial to maintain ESE to persevere through both academic and entrepreneurship challenges.

“These **temporary negative feelings are part of the 'basic equation'**. I cannot see an **entrepreneur being happy all the time**. Because the **stress is part of the game**. No one should be expecting in a good and effective **formation process**, joy all the time” (AZM11).

EUM23 and NAM43 observed that all pedagogies stimulated both positivity and negativity.

“It's every pedagogy in the course. The whole class. I like to **put them in a heightened stage of emotional mix-ups**, which is **intentional**. **You were not learning, unless out of their comfort zone**, a bottom-line fact. I want them to **learn about themselves**. Otherwise, I am not effective” (NAM43).

Students of EUM42 were guided to experience and express their negativities towards entrepreneurship. This pedagogical design facilitated the self-assessment of emotions.

“**You need to upset them. Obviously, you do it in a sensitive, measured way. You need to destabilise them. I am very comfortable with students showing negative emotions** within certain parameters. The **uncertainty of running your own business, working with a new team. The whole experience can be a roller-coaster**” (EUM42.)

Through inquiry, students of EUM38 learned to control their emotions in a safe environment.

“(They) **expressed themselves without fear, with complete confidence, how they perceive their world**. Guess what? It is **inspiring if you 'set yourself'**. **You receive (data from actions), then you replan and make (decide) on your second step**. That was the only way. The **alternative for them is frustration, fear, anger, worry**. You will **find yourself not doing things in an entrepreneurial way**” (EUM38).

Contrastingly, NAM30, NAM36 and NAM43 designed humorous creativity exercises to develop CSE. Their students laughed and enjoyed themselves during the exercises. Practical and lifelike pedagogies that generated positivity could enhance ESE development.

“Because they have fun. They are learning. Doing something together outside their comfort level. They experience that it's okay to do that” (NAM36).

“They need to change their behaviour first. ... When these folks experience this and go, 'Wow! I never thought I could solve this. Wow! I'm amazed at the ideas that my colleagues have given me when dealing with this challenge which I didn't think I could make any progress on...' It literally blows your mind. So what happens when you develop self-efficacy, that **creative self-confidence, that you have these tools, you can apply this stuff**, and way you go!” (NAM30).

Following prescribed methodologies (processes) assisted students in managing negativity. Reflection on one's emotions through inquiry (EUM12), enabled self-management to achieve one's aims and self-awareness of one's emotions. Acknowledging the negativities from setbacks and reflexively deconstructing, analysing and evaluating the reasons behind those setbacks, were paramount in entrepreneurial mindset formation.

Structured problem-solving, an entrepreneurship method, alleviated the negativity of entrepreneurial learning. AZM13 advocated methods to alleviate the negativities of starting up.

“Suppose I ask someone to think of and start a business. They will say, 'Huh? How to do!' Now, students can follow these two methodologies. First, I must identify my problem and then find solutions. I must do a unique selling proposition” (AZM13).

EUM12 emphasised managing emotions before deciding on further action.

“(Students) reflect, particularly on the emotional side. How these things are making them feel; get them out in the open, address any issues and to put their best to find out what that is telling them about what they need to do next” (EUM12).

A gradual progression from theoretical to moderated and subsequently to authentic learning also assisted in minimising the negativities of entrepreneurship. Students developed mastery of the basics of entrepreneurship and developed some initial ESE to perform more complex activities.

“You would get blank sheets on the first day, saying, ‘What's a business? What's a plan? I do not know what entrepreneurship is.’ They are equipped to develop an executive summary, a pitch deck, a business plan, a full set of financials. Some do not know what a balance sheet is. They read some basic accounting ... how to do ‘bottom-up’ research ... how to create a portfolio of opportunities. ... They develop

confidence. They know how to do a case study. They can speak more intelligently in a public forum, present. All the learning elements of the class are very clearly evidenced throughout and especially towards the end” (NAM37).

SAM40 observed her students’ entrepreneurial formation in relation to acquired knowledge and emotions.

“I teach **the entrepreneurial mindset then teach creativity to identify opportunities, then exploit them and foster more entrepreneurial spirit. In the second year, it is an approximation, like the idea of an entrepreneur, making money, making business,** to inject in the **emotions to be entrepreneur.** With more knowledge, at the end of their degree, they can do more scalable and bigger business” (SAM40).

NAM48 also emphasized acknowledging and becoming accustomed to negativity associated with criticism, overcoming the anxiety of presenting, and the reluctance of field work. Emotions related to achievement and challenges influenced memory, perception, awareness and ESE.

Consistent reflection on one’s reactions to an entrepreneurial task identified one’s domains of control and led to ESE development. Students of EUM12 reflected on how they solved entrepreneurial challenges in relation to their entrepreneurship attributes and how to manage emotions using theory.

“After every single task they do, ... I go around and invariably say, **‘tell me how you felt’.** That is the most important thing. **We talk about those negative emotions, about how to use and convert them. ... Emotions of any type, positive or negative will tell you what you are feeling in control of and what you are not feeling in control of.**

“**The same as self-efficacy as everything you have the confidence in your ability to control.** It does not mean to say you do not feel panicked. **By articulating it and being able to address it, you can then regain confidence in your ability to do something about it.** All of that really is about **taking ownership of your emotions**” (EUM12).

Uncertainty, volatility, time pressure and “**information asymmetry**” (EUM4) developed creativity. Students learned to accept negativities and reflected on authentic criticism (NAM48).

NAM19 taught his students to detach themselves from their emotions so that they could handle customers and other business situations without getting emotional themselves.

“It is important to **separate oneself from the emotions of creation, the pride of conceiving a solution to a particular problem.** Always process the customer emotions

first as these shape the value proposition; oneself as second priority. Students actually do not **know what customers want** but **they have to find out what they want** because that will **create their value proposition**. As opposed to a regular course, where you basically learn by reading a book and write a test. So, this **equation of uncertainty and almost volatility, allows them to more or less experience what a real entrepreneurial journey is all about**" (NAM19).

OCM49 and OCM17 coached students to reflect on situations and to develop emotional resilience and flexibility to counter uncertainty. Students learnt to become more adaptable and to think on-the-spot as entrepreneurs did, which helped them to improve their ESE.

"The idea behind this [anonymized] module is **to objectively assess the data**. Towards the end, they might **realize that they have to change their idea, be adaptable, flexible**, to facilitate discussion among peers, **stress them to generate solutions on-the-spot**, working, presenting under time pressure" (OCM49).

"We keep them in the **state of uncertainty and be comfortable with not knowing what is next**, not fully understanding what they are doing; and **forcing them to make decisions with limited information**. I make them realize that this is not abnormal. This is **actually quite common**. The world is **not neat and tidy assignments** that you are asked what to do and that there is a right or wrong answer. They sort of **go out on a limb**. We will often default in **providing them with some assurance that these feelings are normal**. I try **not to give them too many examples of what previous cohorts have done**" (OCM17).

Some EEDs enabled students to grow as entrepreneurs through learning and reflecting on their business failure experiences, allowing them to pass their courses as long as they submitted high quality reports on their reflections (OCM1, EUM53). Students were taught to manage their emotions, to deal with criticism and to humbly understand what they did not know in order to move forward.

"Everyone **got to get past their emotional hang-ups with their ideas and hearing criticisms**. That was often the hardest thing, especially for scientists. **Field research is getting out of the building, getting over the anxiety of presenting to people and having direct feedback**; and having your reflective submission at the end of the term ... it is **the humility to understand what you do not know and to able to go out find answers to your urgent questions, to move your venture forward**.

“That is the most important skill. You can have an idea. **Through the customer discovery process, (you) find out things you do not know yet. You need to go out and do that, a sort of adaptability and flexibility. That is most important.** The creativity is coming up with that idea, but the **validation is more important than the idea itself**” (NAM48).

EUM53 and AZM54 advocated teaching their students adaptability and reflexivity from their failures.

“**That is being an entrepreneur! Expectations are high but you fail.** That was **learning by or through failures: the disappointment, the uncertainty they experience for five to six weeks, without selling anything ... Fail, but fail safely. We practice this very carefully because we cannot have them fail in their life.** This is an experience. **You fail, you learn and get back on your feet**” (EUM53).

“It is **not about being very successful in their entrepreneurial journey. We need to learn from failures**, no doubt. What went wrong? How exactly they landed there? What were the issues? **If you have a failure story, please come and share because we learn from failure. We never learn from successes**” (AZM54).

OCM1 designed authentic assessments to acclimatise students to failure.

“**If I can help you to become entrepreneurial, it will be helping you to embrace failure. Do not be scared of it.** Seven out of ten of my students are petrified of failing in anything. **You can afford to fail in this process.** It was **only worth two to three marks! But you cannot afford not to deconstruct it and be honest with it**, in your reflection. ... If you come up ‘short’, **first time in life you ever failed, don't worry about it**” (OCM1).

Like EUM58’s self-determined learning EED, NAM43 simulated ambiguity, uncertainty, volatility, management in crisis and hazy real-life conditions, encouraging students to perform retrospection (reflexivity). Inquiry-focused coaching assisted self-determined learning.

Sometimes authentic negative experiences by guest entrepreneurs were curated to model and simulate entrepreneurial reality. However, reflection on the negatives of entrepreneurship could erode ESE and create an emotional response towards planning or embarking on entrepreneurship.

“**Self-doubt, feeling lousy, ‘I failed’, ‘this is something not for me’ feelings** when confronted with **challenging aspects of entrepreneurship**, the toughest job on earth,

in combination with developing mastery, with social persuasion and role modelling will develop ESE. Emotional states are so important, but we have not stressed upon in [anonymized course.] Our guest lecturers try to provide reality checks. Site visits, information from guest lecturers, the tutors and students' own reflection may lead some to conclude that entrepreneurship is not for me" (AZM5).

8.3 Interpretation: Multiple Practical and Lifelike Experiences and Entrepreneurial Self-Efficacy

Both practical and lifelike pedagogies were useful in developing ESE, through a process of reflexivity leading to entrepreneurial awareness.

For the students, authenticity (Lifelikeness) was more important in developing a more accurate sense of ESE, and they were able to Self-Curate ESE sources that were personally relatable to themselves. CDs tended to design a fuller range of pedagogies, and curate both more and less practical, and both more and less lifelike, ESE sources. They had a wide range of students to educate and were unable to personally customise ESE sources for each of their students according to their needs.

A wider range of practical and lifelike pedagogies was more beneficial in developing ESE, as the students were all different and needed different ESE sources that they could relate to. The more lifelike ESE sources enabled the students to experience more real-life situations. However, these either built or eroded the students' ESE as examples of failure or difficulties could deter them from entrepreneurship.

Reflections on one's self-identity in relation to role models, emotions, perceived mastery and interests developed IEA. This type of reflexivity enabled better control of one's emotions to maintain one's ESE. Students reflected on the failure and achievement processes of curated role models. They acknowledged the frustration, nervousness, fear (negativities) in themselves while vicariously learning how other entrepreneurs operated. Table 8.2 summarises the developed themes related to IEA.

The definition of self-concept (Gecas 1982) implied a practical relationship between the Self-Authentic (internal) and one's external authentic context. The researcher interpreted entrepreneurial awareness as a synthesis of IEA and EEA to facilitate entrepreneurial activity and reflexivity. The

development of entrepreneurial awareness inducted students into entrepreneurship through an iterative process of feasible activity and reflexivity that developed their ESE.

Table 8.2: Theme Development- Cultivating Internal Entrepreneurial Awareness

Summary of First Order Concepts*	<i>Second Order Concepts (Themes)**</i>	Aggregate Dims***
<ul style="list-style-type: none"> • Ask what does this mean for my project? (AZM14, EUM12). • What went right/wrong? Do I do something different? Go, no-go? (NAM26). • Feedback from CDs, guest speakers or judges, mentors, seniors and peers. • Pedagogies: FLGs, reflective discussions, sharing experiences, questioning, experimenting, critiquing. • Identify areas for development (NAM26, EUM42). • Awaken, sensitise, prompt, show them their potential (AFM46). 	<p><i>Evaluation of perceived mastery and ESE deficiencies. Self-assessment (reflection) through inquiry. Analysis, interpretation of peer and authentic advisory.</i></p>	<p>Internal Entrepreneurial Self-Awareness (IEA)</p>
<ul style="list-style-type: none"> • Work on what one is passionate about (OCM47). • Be motivated by one’s passion, something meaningful with impact (NAM37). • Ask what matters to you? What do you want to change when given opportunity? (OCM1). • Identify self-doubts that hinder start-up (AZM10). • Find creative repressed part of oneself (NAM43). 	<p><i>Evaluation of aspirations, interests, ‘lived’ experiences, mindsets, thoughts and attitudes about entrepreneurship.</i></p>	
<ul style="list-style-type: none"> • Awareness of mental inertia (AZM35). • Discover what is stopping you (NAM32). • Evolving self-identity, personhood, personal visions (EUM57). • Developing self-awareness by comparing self to others in knowledge and achievement (AFM46). • Developing awareness of one’s positive and negative emotions (EUM12, EUM31, EUM58), from safe failures, VL from cases, videos, coaches, mentors, entrepreneurs, investors, seniors and peers (Table 7.1 in Chapter 7). 	<p><i>Reflexivity through inquiry on emotions and entrepreneurial self-identity. Discard dysfunctional thinking and develop entrepreneurial mindset to realise opportunities and manage failure.</i></p>	
<p>* First order concepts are groups of similar horizons.</p>		
<p>** <i>Second order concepts (themes) are groups of similar first order concepts.</i></p>		
<p>*** Aggregate dimensions are groups of similar themes.</p>		

CDs harnessed the student's interests to initiate the first few entrepreneurial activities and initial reflections. Based on these reflections, some students decided not to pursue entrepreneurship while others decided to persevere with learning entrepreneurship. However, it was paramount for students to reflectively discuss with their CDs, how they would initiate an entrepreneurial project for academic purposes or a start-up.

“If they attempt to do something quite complex, they will be 'in over their heads'. They do not have the empathy or understanding of who they are and their surrounds. (They) need to understand who they are because (they are) individual people working with others in a given environment that determines whether they succeed. **If you do not understand your environment and who you are, you cannot relate to other people, all the theories and concepts won't matter for anything”** (OCM1).

Themes indicated that reflections on prior experiences synthesised with self-perceptions (IEA) and reflections on current activity outcomes (EEA) initiated further activities and self-discovery. Through further activities (in ECAs or other courses) and reflexivity, the IEA of entrepreneurship students continued to develop and evolve.

CD-Curation was supplemented by Self-Curation in many EEDs. Reflections on Self-Curated authentic advisory developed a more accurate sense of ESE (Section 7.2).

8.4 Summary of Research Focus Three Analysis

This chapter focused on combinations of practical and lifelike EEDS in the development of ESE in entrepreneurship students.

Both practical and lifelike pedagogies were useful in developing ESE, through a process of reflexivity leading to entrepreneurial awareness. For the students, authentic lifelike pedagogies developed a more accurate sense of ESE, especially when they were Self-Curated.

Overall, a wider range of practical and lifelike pedagogies was more beneficial in developing ESE. The more lifelike ESE sources enabled students to experience and learn from both the positive and negative aspects of entrepreneurship.

Reflections on one's self-identity developed IEA and enabled better control of one's emotions and thoughts to maintain one's ESE. Entrepreneurial awareness was a synthesis of IEA and EEA, facilitating an iterative process of entrepreneurial activity and reflexivity that developed one's ESE.

The next chapter is the analysis of research focus four, GRE perceptions on pedagogy combinations that developed ESE.

9 RESEARCH FOCUS FOUR ANALYSIS: GRADUATE PERCEPTIONS

This chapter explains the theme developments guided by research focus four (GRE perceptions on pedagogy combinations that developed ESE). The GREs (the participating CDs' entrepreneurship course graduates who had launched businesses) were from six different countries. Their responses validated and elaborated on the description of ESE-enhancing or ESE-eroding pedagogies and roles (ESE sources).

Their narratives consisted of CD roles, the activities and multiple practical and lifelike pedagogies the GREs experienced. The commonalities found among the themes were that inquiry-focused coaching and reflexivity on curated ESE sources during their courses developed ESE through entrepreneurial awareness.

Themes were developed from horizons (significant words or phrases) related to GRE perceptions on ESE development from combinations of practical and lifelike pedagogies. The horizons (in **bold text**) from the participants' interview data (quotes) were used in thematic analysis to present their perspectives faithfully.

9.1 Entrepreneurial Self-Efficacy from Instruction and Inquiry

The GREs experienced multiple learning experiences from a combination of instruction-based (higher Practicality) and inquiry-based (lower Practicality) pedagogies. GRE1, GRE2, GRE4, GRE5, GRE6, GRE7 and GRE9 reported ESE enhancements through the practical structured entrepreneurship methods such as BMC and Design Thinking. GRE3 and GRE8 mentioned that inquiry guided reflexivity on their entrepreneurial activities enhanced ESE.

The questions associated with the BMC method facilitated reflection on start-up activity outcomes (GRE2). The BMC method assisted GRE2, GRE5, GRE6 and GRE8 to perceive opportunities based on resources and relationships in their respective contexts.

The practice of inquiry enabled reflexivity that modified GREs' business strategies as their IEA and EEA (sources of ESE) developed.

The quality of GRE6's reflexivity and entrepreneurial awareness was enhanced by inquiry-focused coaching.

"If you are reflecting on your own, I would not go to that level. Personally, that opened up new potential and thinking. We would come to the conclusion together but still individually. It was her probing that enabled my realization. It would start with your significant activities- what are going, how are you achieving your goals, what are the outcomes, it will start with that surface level.

"Beyond that are the whys. How have you done it, why have you done it this way, why do you feel the way you feel about it. Then after we go through the whys, how are you going to grow from this, how are we going to implement this, how are we going to use this as a learning to improve what we are doing.

"That personally was very beneficial because it changed the course of where my idea went, based on answers to those whys. Once I understood the why, now what? How am I going to go forward?" (GRE6).

Both GRE6 and GRE9 had pre-enrolment business concepts, and the instructions from multiple pedagogies implemented in their courses provided them the ESE to start-up.

"It gives you slightly more self-belief that you can do it, than prior doing the MBA. I cannot say that it does not. It definitely builds up a level of confidence. So, when you walk out of there, you are still riding on it. It was only that I did the entrepreneurship course that I realized that a lot of the tools we were learning, the role models I understood what it meant to understand your customer, 'walk the customer journey'. I understood the importance of creating a brand.

"... the BMC, how we had to look at each element and how they work as a whole. I understood all of that intuitively. Yet I never had that the self-confidence in myself to go. Just not calling it the correct, academic or scientific terms. I realized that I can actually do this. I have done it with a new venture" (GRE6).

"What I brought in prior to that course was that absolute desire and passion to run a business. Being enrolled in that course made me feel 'this is real'. This is tangible. This isn't like a pipe dream. This might be something I can actually do. ...

"The course helped me to take the tools out of my backpack and put it all together and feel that I could actually start a business. ... The course very much put the structure together, provided some foundational learning on pretty much everything. Here what you need to consider from a financial and investment standpoint, your

balance sheets, how to show a profit versus a loss, also marketing, knowing how to tell your whole story, the whole gamut of things but from a very basic foundational perspective. The **formalized learning** was simply very **‘textbook’** (GRE9).

Learning theory, case studies, executing, analysis and evaluation (reflection) of data combined to teach entrepreneurship. GRE5 resolved his business challenges from the practice of activity and reflexivity using the pedagogies he experienced.

“All (pedagogies) work together as a process. This whole process is important, every element of it! Reflecting on what the learning points are, after you experienced a setback or rejection in the market. The learning points will be the most important things.

“The 'doing' (pedagogies) are definitely number one. That is no doubt! The second, is theoretical knowledge and reflection. More or less like an early exposure to what are **the things you need to know. Knowledge derives from both practical experiences and what I read or heard about.** It is important to **have the foundational learning ... (a) theory base that can be translated. You do actually learn and apply theory in the real-world, time spent with clients, scoping their projects.** Selective theoretical learning is a **very quick way to test out what works and does not work** (firstly). Secondly, to form general knowledge.

“I feel a good synergy between theoretical knowledge and the creative practical side of things. Because many times, **when I face a barrier where I have to solve something on-the-ground,** on-the-spot, during a sale, I have to generate a creative solution fast. That would **highly depend on the amount of knowledge that I have”** (GRE5).

The application of entrepreneurship methods enabled reflexivity that clarified GRE2’s understanding of his accessible resources and relationships (EEA) that improved his competitive advantage.

“When I was reading those books, I did not necessarily have the context to understand what was said. During my business degree, it was clearer to me because **you had to apply the theory to a real-life company.** ... It was not, this is my supplier, and this is my VP. It is, **how my supplier ‘gets’ my value proposition.** Simply speaking, it is **connecting the dots of one's BMC”** (GRE2).

Some CDs guided their students to turn their hobbies into real-life businesses during the programs (GRE1, GRE4). GREs were more likely to start up in their areas of interest.

“Before that we did not even have a logo, website. It was only after I moved to university and started on the course where it was a business rather than a hobby” (GRE4).

“Before, it was a hobby, when in university, that's when it definitely became a business. ... (I) followed the methodology ... to unpack the necessary academic or business plan milestones that you need to achieve. To have that structure in place to say, ‘I have done all the research’, that really helps you. Not to muster up the courage, but to really formulate and buy into your idea that it is more than just a gut feeling. I think this will make money. It allows you to structure your thinking and put it into place to execute ultimately your idea” (GRE1).

An Academic Mentor coached GRE2 on how to apply the BMC on his start-up. The BMC became a reflexivity device to help evaluate activity outcomes and to formulate further improvements for both GRE2 and GRE3, improving their entrepreneurial awareness.

“I am constantly thinking what my value proposition is at that time. What about my supply chain? Ah, that is an issue. I should find different ... how can I change my suppliers? There are questions to reflect on, questions that I think about all the time about my business model. What could I have done better? What did I miss? ... it forces you to reflect on every single key component, whether you do it in the right or wrong way. ... When I look for my business, I look at what is out there, what other businesses are doing. Then I decide, ‘What can I do better? What can I do differently?’ You trial your business idea, you come back to your BMC with the feedback you got from your trial. ‘Okay, that didn't work. Let us try this’” (GRE2).

“In terms of the BMC, I did that in my second year, after making that mistake not knowing who my customers were, I actually looked at who can I target. I started getting into societies now; where else can I go to now? Are there still opportunities in the [anonymized] market?” (GRE3).

“You create a whole business and pitch it, similar to a kind of 'Dragon's Den', 'Shark Tank' type, my idea to the class. It really got me thinking about formulating the story and how I would present myself, what do I talk about. Things prior to the

class (that) was not on my radar. I was not sure what to do, **how to speak to the value proposition.** **There was so much textbook material in that class that was really great**” (GRE9).

GRE7 had no prior entrepreneurial experience. Participating in entrepreneurship courses improved her entrepreneurial awareness and subsequently her ESE, assisting her to start-up.

“I never saw myself as someone that could do it. Through the program, I realized that even entrepreneurship can be structured. You can structure it in a way that works for you. Everything I learnt about making your business model, having clear objectives. Before you start, have a clear target audience, checking out who your competitors (are), the revenue model, all these things I assessed before I started working on my business. When we know that certain things are not working, we just go back to our business plan as a reference- what are our goals? We change our tactics to meet those goals” (GRE7).

Multiple entrepreneurship-related programs provided domain knowledge and subsequent ESE development that enabled GRE8 to launch a technology start-up.

“You do a course on project management, entrepreneurial finance, a technical study of some kind. There was also a course that ran through the whole eight months, much the same as in the undergraduate, (to) achieve set milestones throughout those eight months- customer discovery, problem identification, then creating an MVP (minimally viable product)” (GRE8).

GRE1 vividly recalled the lifelike inquiry-focused coaching that enhanced his ESE.

“You had to present almost in a ‘Shark Tank’ execution, where you have a proper investor, with subject matter experts and some academia. They ask you questions. They look at your business model. ... It is, test your business idea, run it through the mill, to see if it makes sense. That builds a lot of (self) belief, having that almost like ‘rubber stamp’ of approval. It has gone through a rigorous testing process with people that do this for a living and it actually passed” (GRE1).

9.2 Entrepreneurial Self-Efficacy from Advisory-Based Coaching and Mentoring

Coaching and mentoring-related pedagogies were a combination of Practicality and Lifelikeness in varying degrees, depending on the learning contexts.

GRE2, GRE3, GRE5, GRE7 and GRE8 experienced one-on-one individualised mentoring that imparted feedback and inquiry that enabled self-reflexivity and activity reflections. Mentors who assisted GRE2, GRE5 and GRE7 followed up on them and their start-ups after graduation. GRE1, GRE3, GRE4, GRE6 and GRE8 experienced long-term (one to three years) coaching throughout the program.

GRE7 experienced development in ESE, such as critical thinking, information alertness and creative problem-solving (Table 5.12), through AZM10's one-on-one inquiry-focused coaching.

“In a month’s time, come back with your objectives, or with a prototype. We were given something to do. Every month we would have a regular session with her, which was non-negotiable. You have to go, talk and discuss on the progress you made. Other times, she was always accessible. We asked the questions we wanted. It was not a typical lecture format. But a mentor on your project ...

“For AZM10, it was more, ‘What do you think the problem is?’ She's encouraging me to give her different solutions that I think are feasible. She would just ask questions like ‘Why is it not going to work? ... Is it logistics that's the problem?’ It's kind of like a brainstorming session where she is asking questions that encourage me to think why I'm facing a problem, rather than, 'Okay, what is the solution?’ Many solutions come from just thinking about why do you have that problem. What are the root causes? How can you eliminate them? ... When we went out into the real-world, I do not ... have someone telling ‘Hey, this is wrong. This is the right way to do something’. You are learning-on-the-go. I think what helped from the beginning was someone that helped you critique, with critical thinking” (GRE7).

GRE9 described NAM15's time-efficient mentoring sessions as, “him **talking about the content, asking me questions**. No more than one hour per week, out of the four hours I was with him, every week.”

GRE5 commented that inquiry-focused coaching “**served as a catalyst**” to discover customer-oriented innovation solutions. The addition of coaching and mentoring to the existing pedagogies was important in developing students’ CSE.

“Without **the structure of the coaching and mentoring**, I think students will not even go to the step of being innovative, being **put into a position where you have to think of a relatively realistic solution that your user will need**. ... Not forced, but this is where this serves as a **catalyst to be innovative**, you will brainstorm for ideas, solutions (GRE5).

GRE7 combined the benefits of her year-long advisory-focused and inquiry-focused coaching with authentic feedback from guest entrepreneurs. She developed the habit of reflexivity that assisted her start-up development. Likewise, GRE3, GRE4, GRE6, GRE8, who experienced long-term coaching and mentoring, practiced reflexivity consistently when developing their start-ups.

“When **you have a mentor that challenges your ideas, you pick up on challenging them yourself**. Sometimes, **your thinking is pretty one dimensional**. You were **thinking, ‘Here is the problem, here is my only solution.’** But there are **different perspectives that yourself may not wired to think about, because your experiences have not led you there**.

“She was more a mentor. She was **looking at our business plans from when we started and when we were testing our prototype**. She would provide lots of input along the way. These entrepreneurs were not ... following my entire journey. They did not help me along the way. **They were testing the feasibility of my idea but not developing the idea completely**. I think they were very effective but in different ways. They were **providing me inputs from their experience, challenging the idea versus AZM10 who helped guide my entire business plan until to completion**” (GRE7).

GRE8 experienced regular advisory-focused coaching throughout his final undergraduate and postgraduate program, curated by NAM26. Authentic feedback enabled him to progress with his start-up (ESE).

“We had **great advisors** whom we could approach. We met them [anonymized] every week. **Ran through with them everything we were doing**. We were **going to them to inquire and get advice, ... to talk about the engineering and the entrepreneurial side**. It was simply great to be able to **talk about your efforts to someone** or NAM26. We were **reflecting on the company** ... made the decision to pivot towards the

software-centric side. ... (we) **decided** on it, but it **stemmed from the questions we received from people**” (GRE8).

9.3 Vicarious Learning and Entrepreneurial Self-Efficacy

Lifelike pedagogies such as interviews, dialogues, pitches and live projects with real-life entrepreneurs and role models facilitated ESE development through vicarious learning (VL) and social persuasion (instruction and feedback). The above pedagogies ranged from low to high Practicality respectively.

Of 77 CDs, 51 curated authentic (lifelike) role models for their students, to enable a wider range of experiences leading to reflexivity and ESE development. GRE1, GRE2, GRE3, GRE4, GRE8 were inspired by seniors and guest speakers curated by CDs. ESE was developed by recursive and contextualised entrepreneurial learning, augmented by a diversity of ESE sources curated by CDs or Self-Curated by students.

During his EE program, GRE1 experienced setbacks in his corporate entrepreneurship project. A combination of theory application, VL, authentic experiences and advisory enhanced his ESE. He gained the following conviction:

“Entrepreneurs spot problems and find solutions to these problems, for society as a whole. When all the chips are down, entrepreneurs keep on grinding away to find a solution to a problem. An entrepreneur can spot failure, acknowledge failure and move on from that to something successful” (GRE1).

Reflective discussions, FLG (proposing and critiquing), brainstorming and collaborative projects facilitated ESE development through VL and social persuasion among peers. The above pedagogies ranged from low to high Practicality respectively, and varied in Lifelikeness.

Brainstorming and group discussions were commonly utilised pedagogies in the development of creativity (leading to CSE) through VL and collaboration. GRE4 and GRE7 benefitted from peer problem-solving sessions.

“You are around people who are talking about not the exact same idea, but a lot of the challenges that you face in a business are quite similar regardless of what the idea is; for example, you are trying to reduce some of your overhead costs. Or, how do

I reach my target audience? Creating awareness of your business idea? ... **Being around other students** who, regardless of their business, **were facing similar challenges.**

“We were talking about creatively solving those problems, (it) was also **encouraging, pushing your creativity to another level because you were hearing different perspectives. Many of these perspectives were encouraged.** Definitely, it came with mentorship, but it came about being (with) other students who were creative. I felt that that was a very creativity inducing environment” (GRE7).

“I would have an initial group discussion, do some brainstorming initially. Once I got a little more of an idea, I would then take that more educated idea, problem or maybe half-solved problem to someone with relative interest and knowledge” (GRE4).

Regardless of the context (moderated, authentic or Self-Authentic) and type of curated ESE sources, VL facilitated reflexivity on role models and/or entrepreneurial activities.

9.4 Interpretation: Multiple Practical and Lifelike Experiences and Graduate Entrepreneurial Self-Efficacy

The GREs validated that pedagogies that involve inquiry-focused and advisory-focused coaching (lower Practicality) developed ESE through reflexivity leading to entrepreneurial awareness. Instruction-focused coaching (higher Practicality) gave the GREs the structured entrepreneurship methods and knowledge to execute entrepreneurship, leading to increased confidence and ESE.

Reflection on CD-curated and Self-Curated ESE sources also developed ESE through the development, modification and clarification of EEA (Section 7.5) and IEA (Section 8.2). Peer VL and peer emotional support also enhanced ESE. All GREs experienced the authentic complexities of entrepreneurship while vouching for the benefits of the structure provided by entrepreneurship methods.

Their ESE was developed primarily through reflexivity from the activities derived from multiple pedagogies including inquiry-focused coaching, self-determined learning, Self-Curation and self-initiated ECA. These pedagogies were highly lifelike and mixture of higher and lower Practicality.

After graduation, these GREs continued to develop their Self-Authentic (personally meaningful) start-ups. They possessed the necessary ESE to persevere, modify and develop their start-ups. GREs developed a more accurate sense of ESE from Self-Curated authentic activities (ECA) and feedback, both highly lifelike and a mixture of higher and lower Practicality.

CD-curation of theoretical and moderated ESE sources (less lifelike) was useful in developing some ESE but not an authentic sense of ESE. A balance between inspiration from real-life ESE sources and the negatives of entrepreneurial reality (more lifelike) was required to develop a more accurate sense of ESE.

Horizons validated the necessity for credible authentic social persuasion (instruction and feedback) and modelling (VL) in developing ESE (Sections 7.2). Both were highly lifelike and a mixture of higher and lower Practicality.

GREs developed EEA that modified and updated an awareness of accessible resources, relationships and opportunities (or the lack of them) that modified their perceptions of feasibility. Self-Curation of entrepreneurial capital guided by EEA assisted GREs in their start-ups.

GREs also Self-Curated personally significant or Authentic ESE sources of instruction, inquiry and advisory to assist them in their start-ups. GREs obtained authentic feedback and instructions from non-CD sources such as their personal networks.

Some GREs reflected on curated ESE sources that conflicted with their self-perceptions of entrepreneurship. Crucially, it was reflection on a range of prior experiences, credible and relatable role models and authentic feedback that developed ESE. Self-curation permitted students to reflect on a more personalized and diverse suite of ESE sources, to self-discover, reinforce or modify entrepreneurial self-identities.

9.5 Summary of Research Focus Four Analysis

This chapter concluded the research analyses by reviewing the GRE perceptions on pedagogy combinations that developed ESE. The GREs validated and elaborated on the description of ESE-enhancing or ESE-eroding pedagogies and educator roles.

The GREs experienced ESE development primarily through reflexivity, from the activities derived from multiple practical and lifelike pedagogies and from coaching and mentoring.

Higher Practicality pedagogies gave the GREs the structured entrepreneurship methods and knowledge to execute entrepreneurship, leading to increased confidence and ESE.

Lifelike pedagogies involving contact with industry, live projects, entrepreneurs and role models facilitated ESE development through vicarious learning (VL) and social persuasion (instruction and feedback).

CD-curated and Self-Curated ESE sources developed ESE through both VL and reflexivity. The GREs' reflexivity contributed to the development and refinement of EEA and IEA, the components of entrepreneurial awareness. The next chapter presents the research findings.

10 RESEARCH FINDINGS

This research identified the entrepreneurship education (EE) pedagogies and educator types and roles that developed entrepreneurial self-efficacy (ESE) in tertiary students. Thematic analyses guided by research foci one to three revealed further aspects of ESE development that were not clearly understood prior to this study.

The findings (discoveries) of this research were entrepreneurial awareness (both internal and external), role-transitioning among educator types and roles by course designers (CDs), the curation of ESE sources, and CDs, peers and ESE sources as catalysts of entrepreneurship. These findings were not conceptualised or investigated in the extant EE literature. The following sections discuss and integrate these findings with the researcher's reflexive comments.

10.1 Composite Description: Education Design Enhancing Entrepreneurial Self-Efficacy

A composite description of ESE-enhancing pedagogical designs was constructed from a combination of textural and structural themes. The textural themes of this research described the essence of the characteristics of the experiences of entrepreneurship education designs (EEDs). The structural themes described how contextual conditions influenced the participants' experiences. Contextual commonalities of the pedagogical designs that enhanced ESE, the phenomenon under investigation, were also derived from structural themes. When relevant, the researcher utilised extant EE theories that offered the most accurate explanations for the experiences and commonalities, and to identify new discoveries from the interview data.

Students transitioned between four learning contexts (theoretical, moderated, authentic and Self-Authentic) resulting in multiple learning experiences that developed ESE. The researcher integrated ESE development from IEA, EEA, role-transitioning and curation of ESE sources. CDs, peers and curated ESE sources were also catalysts that initiated activity and reflexivity.

Table 10.1 integrates four of the key findings of this research. Themes related to **ESE development** (**EEA** and **IEA**, **role-transitioning** between the educator types and roles, and **curation**) are associated with each other. The educator and curated roles in the pedagogies supported the development of entrepreneurial awareness.

Table 10.1: Entrepreneurial Self-Efficacy from Entrepreneurial Awareness, Role-Transitioning and Curation

Components of Internal Entrepreneurial Awareness (IEA) in ESE Development	CD Assisted Learning	Self-Determined Learning
Perceived mastery to actualise aims, interest and entrepreneurial self-identity (who I am).	Recursive EED from role-transitioning between educator types and roles. This enabled activity and reflexivity that developed and updated student entrepreneurial awareness.	Self-initiated inquiry leading to reflexivity. Perceived mastery and structure from instruction, leading to emotional stability (IEA). Evolving dynamic between self and resources, peers, mentors and coaches (EEA).
Evolving and reflexive self-concept relative to role models (what I think and believe, how I feel about myself).		
Self-assessed emotions (positive or negative) from the realities of entrepreneurship.		
Self-perceptions (IEA) in relation to external conditions (EEA).		
Components of External Entrepreneurial Awareness (EEA) in ESE Development		
Theoretical and moderated awareness of resources and relationships related to opportunities. Reflection on feedback from peers and CDs.	CD-Curation (Table 7.4).	Self-Curation (Table 8.1).
Reflection on activity outcomes and/or authentic advice from market, customers, guest speakers, investors and entrepreneurs. Reflection on perceived accessible (or inaccessible) resources and relationships.		
Reflection on stimulated emotions from curated real-life cases and role models (successes and failures).		

The Entrepreneurship Education Pedagogy Grid (EPG) discussion device was modified to become the composite description of EED in Table 10.2. Columns one and two highlighted cognitive and executional learning actions with their designed outcomes. Column three contained the ESE-enhancing pedagogies and the curation of ESE sources.

The researcher’s initial theoretical model of EED (Figure 3.1) was modified to become Figure 10.1. The four known literature-informed ESE sources within the groupings of IEA and EEA were perceived mastery, emotions, VL and social persuasion. Pedagogies generated ESE sources in the original model in Figure 3.1. The new model in Figure 10.1 showed that role-transitioning by CDs together with catalysts and curation of ESE sources, in conjunction with the application of entrepreneurship methods and pedagogies, enabled activity and reflexivity that developed entrepreneurial awareness and ESE. IEA assisted one’s start-up plans, while EEA determined whether resources are accessible and whether a start-up is feasible.

Table 10.2: The Composite Description of Entrepreneurship Education Design

Lifelikeness: Pedagogies Used in Entrepreneurship Education Design	Practicality: Cognitive and Executional Actions in Pedagogies	
<p>Theoretical Entrepreneurship Learning: What is entrepreneurship, who an entrepreneur? CD-Curation of theoretical content.</p>	<p>Passive cognitive actions: Hear, observe, read. Exposure to short examples.</p>	<p>No executional actions. Commencement of entrepreneurial learning. Gaining factual knowledge from learning entrepreneurship theories.</p>
<p>Pedagogies used in theoretical contexts: Theory or concept lectures.</p>		
<p>Moderated Entrepreneurship Learning: Experiencing assessments by academics, no work-related interactions with real entrepreneurs. Curation of games/simulations with site visits.</p>	<p>Passive and active cognitive actions: Explain, question, understand, analyse, assess, interpret. Changes in factual, application, procedural knowledge through inquiry-focused coaching and advisory-focused coaching. Guided reflection on cases, outcomes and feedback.</p>	<p>Passive executional actions: Decide which theories to apply in which situations, analyse fictitious or simulated entrepreneurship. Comparing one’s self-identity with case protagonists. Decision to initiate further actions. Planning and experiments initiate some changes in conceptual understanding.</p>
<p>Pedagogies used in moderated contexts: Methods application lectures. Case or problem-oriented tests, reflection journal, reflective discussions, secondary research, analytical papers on entrepreneurship topics/concepts, group argumentation, conceptual research, product development, value-chain experiments, simulations, role-playing founders, consultants and investors.</p>		
<p>Authentic Entrepreneurship Learning: Experiencing work-related interactions and assessments by entrepreneurs/investors in industry/society-facing projects. Assisted Self-Curated and CD-Curated authentic VL, advisory and resources.</p>	<p>Active cognitive actions: Analysis, assessments, inquiry. Inquiry effected further changes in skills, attitudes, conceptual understanding and knowledge. Reflections on outcomes and reflexivity based on academic and industry inquiry and advisory. Transition from CD-led to self-determined learning.</p>	<p>Combination of cognitive and passive executional actions: Decide, propose, justify, critique and integrate knowledge with reflections to develop IEA (awareness of self-identity and self-concept) and EEA (awareness of accessible capital and relationships). Peer-enhanced ESE, student-led collaborative business planning and projects.</p>
<p>Pedagogies used in authentic contexts: Pedagogies in theoretical and moderated contexts, dialogue, interviews with entrepreneurs, feasibility studies, Business Model Canvas, primary field research/surveying, prototyping, real-life customer validation, field projects, ‘live’ cases, discussion group with peer feedback, presentation/pitch to industry practitioners, entrepreneurs and/or funders, Go-to-Market, product or strategic plans, e-commerce website, starting a real small/online business.</p>		

Lifelikeness: Pedagogies Used in Entrepreneurship Education Design	Practicality: Cognitive and Executional Actions in Pedagogies	
<p>Self-Authentic Entrepreneurship Learning: Experiencing personally meaningful authentic/industry/society-facing start-ups or entrepreneurial projects. Self-Curation of instruction, inquiry, advisory and VL, academic and entrepreneurial resources with minimal guidance from coaches.</p>	<p>Passive and active cognitive actions: Changes in entrepreneurial thinking through self-determined learning and ECA.</p>	<p>Combination of cognitive, passive executional and active executional actions: Create, test, iterate and practice. ESE development through evolving EEA and IEA. Highly individualized outcomes, assisted by collaborations in one's context.</p>
<p>Pedagogies used are those used in theoretical, moderated and authentic entrepreneurship learning contexts.</p>	<p>Development of creativity and reflexivity.</p>	

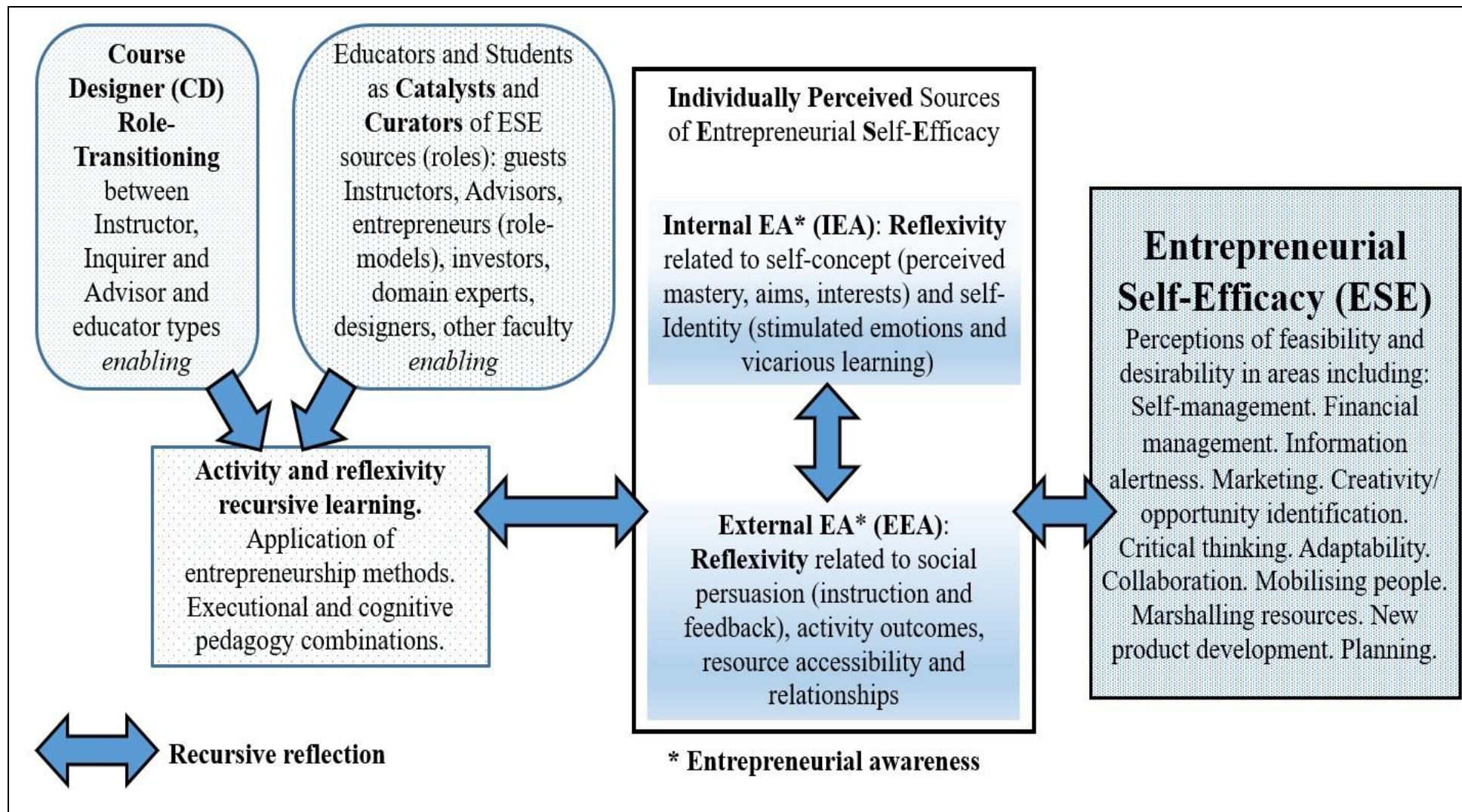


Figure 10.1: Main Educational Influences on Entrepreneurial Self-Efficacy Development

10.2 Activity and Reflexivity Through Role-Transitioning

Lower and higher Practicality pedagogies both assisted in developing ESE. Students performed entrepreneurship methods (higher Practicality) to derive activity outcomes (experiences). They subsequently reflected on activity outcomes (lower Practicality).

Role-transitioning between educator types and roles enabled oscillation between activity and reflection. This activity-reflexivity recursive developed entrepreneurial awareness, regardless of the learning context. All EE educator types encompassed different pedagogical emphases among the three educator roles (instruction, advisory and inquiry).

Activity outcomes from executional pedagogies and reflexivity from cognitive pedagogies were both beneficial in developing entrepreneurial awareness and consequently ESE. Role-transitioning between the educator types and roles facilitated reflexivity that developed and modified entrepreneurial awareness that initiated further entrepreneurial activities and reflexivity that influenced the development of ESE.

Creative Self-Efficacy (CSE), an important component of ESE, enabled students to become more adaptable and to solve entrepreneurial challenges more effectively. Both ESE and CSE could be improved through coaching and mentoring.

Role-transitioning by CDs and/or their team of educators facilitated recursive learning where students repeatedly executed entrepreneurship methods and subsequent reflexivity on their resources and relationships (EEA), and their evolving self-perceptions (IEA).

Students critically assessed evolving contextual conditions and self-assessed their personal entrepreneurial development or regression. This type of reflexivity modified perceptions of feasibility and desirability towards entrepreneurial opportunities. Positive perceptions enhanced ESE while negative perceptions eroded ESE.

Table 10.3 shows a selection of data relating to activity and reflexivity through role-transitioning.

Table 10.3: Research Data - Activity and Reflexivity Through Role-Transitioning

Finding	Selection of Participants' Quotes
Activity and reflexivity through role-transitioning	<p>"I see myself as facilitator, advisor, coach. I try to build up their confidence to succeed" (NAM15).</p>
	<p>"It is about giving them confidence. ... They need confidence to be able to go out and execute. I give them frameworks and tools. ... As they learn those and experience 'that', they grow in confidence. Facilitator comes together with coach because I'm facilitating the experience, then coaching them through those experience" (NAM28).</p>
	<p>"In the beginning, they are listening to your ideas when you 'open the door' to topics. When the evolution of the students is going well, when you think that they are maturing in the topics, towards the end, you coach and mentor, when there is more mutual confidence in order to develop ideas. The extent of mentoring is based on students' eagerness to pick your brain or ask for advice" (AZM21).</p>
	<p>"I tell them: maybe the business ideas that we develop now, would not work. But I want you to be able to apply those tools. ... That is given by coaching. They need to develop their business ideas, to know where they stand, know how to think entrepreneurially, internalising the entrepreneurial mindset including the skills: managing uncertainty, being adaptable, flexible, changing one's plans if needed" (EUM38).</p>
	<p>"When I tell them of my own experience, I can be an expert and a coach to inspire them. Tell them of my work, experiences, failures, achievements. ... they can learn from me in class but 'outside'" (SAM29).</p>
	<p>"It's kind of like a brainstorming session where she is asking questions that encourage me to think why I'm facing a problem, rather than 'Okay, what is the solution?' ... I think what helped from the beginning was someone that helped you critique, with critical thinking" (GRE7).</p>
	<p>"If you are reflecting on your own, I would not go to that level. Personally, that opened up new potential and thinking. ... It was her probing that enabled my realization. ... That personally was very beneficial because it changed the course of where my idea went, based on answers to those whys" (GRE6).</p>
	<p>"When you have a mentor that challenges your ideas, you pick up on challenging them yourself. Sometimes, your thinking is pretty one dimensional. ... But there are different perspectives that yourself may not wired to think about, because your experiences have not led you there. ... AZM10 who helped guide my entire business plan until to completion" (GRE7).</p>
	<p>"It was simply great to be able to talk about your efforts to someone or NAM26. We were reflecting on the company ... (we) decided on it, but it stemmed from the questions we received from people" (GRE8).</p>

10.3 Reflexivity on Curated Entrepreneurial Self-Efficacy Sources

This research defined curation as the selection and utilisation of contextual content from theoretical, simulated or real-life authentic sources. CDs supplemented the content and context of entrepreneurship courses or programs with curated entrepreneurship methods (theories), real-life cases and simulations. Authentic ESE sources were real people providing instruction and feedback arising from real-life entrepreneurial activities. ESE development was significantly related to the CDs who taught the students and curated ESE sources for them, and people who influenced them.

The Lifelikeness of a learning context was based on the proportion of its real-life content/context. This research identified three external learning contexts: theoretical, moderated (less lifelike) and authentic (more lifelike). A fourth Self-Authentic learning context was discovered, related to the internal personal world of students. Overall, lifelike pedagogies developed more ESE. The authenticity (Lifelikeness) of the learning contextual conditions influenced the accuracy of the ESE that was developed.

ESE was also influenced by student reflections on the activities and outcomes of entrepreneurs (real-life cases) and authentic feedback from outcomes and assessors. Curated ESE sources supplemented educator types and roles. CDs were also industry liaisons and ecosystem guides who directed students to authentic ESE sources and start-up resources.

CDs designed courses with a variety of practical and lifelike pedagogies and curated both practical and lifelike ESE sources. They had a wide range of students to educate and were unable to personally customise ESE sources for each of their students according to their needs. CD-Curation was supplemented by student Self-Curation. Some students selected real-life (authentic) ESE sources that were personally relatable to themselves. Authentic (lifelike) pedagogies and real-life ESE sources were more effective in developing a more accurate and enduring sense of ESE in students.

Guided by entrepreneurial awareness, students Self-Curated Self-Authentic sources of ESE. Self-Authentic ESE sources were relatable role models, mentors, peers, authentic instruction and feedback useful to one's start-up. Self-Curation of social capital (relationships) and entrepreneurial resources (funding, technology, expertise) assisted start-up development that reinforced perceptions of ESE.

Table 10.4 shows a selection of data relating to reflexivity on curated ESE sources.

Table 10.4: Research Data - Reflexivity on Curated ESE Sources

Finding	Selection of Participants' Quotes
Reflexivity on curated ESE sources	<p>“Honest authentic real-world feedback and a set of highly self-critical questions aided my progression. In my first year, I probably would not be that bothered. But in my second and third year, when I was slightly more serious with my business, I would relish that feedback. ... something that was negative about it so that I could improve. I didn't want everyone to say, ‘oh, that's fantastic’ or ‘well done’. I needed something where I could go away and work with” (GRE4).</p>
	<p>“The guest speakers he brought in ... 'C' had a significant influence in my life. It might have been a different guest speaker that had a significant influence in someone else's life. ‘C’, a very successful entrepreneur, ... helping you to really crystallize and clarify your thinking” (GRE1).</p>
	<p>I was very fortunate to spend the day with people like that, for a long time, especially with this lady to 'understand'. That had an immense impact on me! That really kick-started my self-belief!” (GRE1).</p>
	<p>People who influenced me greatly and how their impact would impact who I am and my business. I found it extremely therapeutic” (GRE6).</p>
	<p>“The biggest learning came from the people we connected with. Actually, talking to people. ... all kinds of repeat entrepreneurs, those who have done it before and funding organizations who can talk about entrepreneurs who have done this before” (GRE8).</p>
	<p>“The practical questions that he (anonymized investor) asked on your business model. How are you going to finance it, how you are doing to generate income. That surpasses what you can learn in a textbook” (GRE1).</p>
	<p>“You ... meet people who have done it before, with experience, and say: this is kind of what I'm thinking; they go: that sounds like a good idea. That build a lot of self-confidence over time, especially doing this consistently. ... multiple times when they say, ‘this is a good idea” (GRE8).</p>
	<p>“A real person in class truly motivates, especially if he/she is a much less successful entrepreneur. Inviting them in, makes a difference. ... big success stories could provide guest lectures, but I don't think they provide the impact in a class than would a local entrepreneur who is struggling and is 'making it every day’. The closer they are to the context; the cases and the guests makes a tremendous difference” (EUM56).</p>

10.4 Reflexivity Developed External Entrepreneurial Awareness

The feasibility of entrepreneurial activities partly depended on the accessibility of resources and relationships. An awareness of accessible relationships (social capital) and start-up resources

(entrepreneurial capital) was identified as external entrepreneurial awareness (EEA) that assisted in determining which opportunities were feasible. These perceptions of feasibility enhanced ESE. Due to the constantly changing business environment, these relationships and resources sometimes became inaccessible due to a variety of reasons such as business closure or relocation.

Inquiry-focused coaching and reflexive pedagogies developed entrepreneurial awareness that consequently developed ESE. The habit of reflexivity developed through inquiry-focused coaching and reflexive pedagogies assisted in the discovery of potential collaborations, previously unknown resources from networks and opportunities in different yet related industries. A combination of practical and lifelike pedagogies including those utilised in self-determined learning facilitated the discovery and actualisation of feasible opportunities.

Table 10.5 shows a selection of the data relating to External Entrepreneurial Awareness (EEA).

Table 10.5: Research Data - External Entrepreneurial Awareness (EEA)

Finding	Selection of Participants' Quotes
External entrepreneurial awareness (EEA)	<p>“How can I improve the process? What can I do better in the next iteration? Or another business of mine? ... it might be the idea that you had, was not viable. But out of that, something else shows itself to be viable” (GRE1).</p>
	<p>“Definitely being able to spot opportunities, to see what are the adjacent stuff, rather than being so fixated on what you are doing... That is how you start unpacking more opportunities that exist” (GRE1).</p>
	<p>“It relates a lot to showing them what is out there, at least at the beginning. To make them acknowledge, to make them conscious of opportunities that are around them. Many students when they first enrol, think about other students, faculty in the university. They do not perceive the opportunities in the ecosystem” (EUM59).</p>
	<p>“They will have self-efficacy because they really try to interview customers, competitors, visit competitors' store. That experience itself gives them very high confidence if they really want to do an entrepreneurial career. When they do their research projects, they really try to setup a business or shop. So, their self-efficacy is developed, going through this process, their experiences when making decisions, taking risks” (AZM9).</p>
	<p>“The number one determinant of entrepreneurial behaviour is confidence. Now, one cannot be overconfident. ... But if you are not confident about something, we are not going to do it anyhow. So we have to develop the person in terms of their awareness of their surrounds (and) their proclivities” (OCM1).</p>

10.5 Reflexivity Developed Internal Entrepreneurial Awareness

Self-perception included perceived mastery, aims, interests, reflections of prior ‘lived’ experiences, emotions and comparisons to role models. Reflections on these internal components developed internal entrepreneurial awareness (IEA).

These self-perceptions influenced favouring or abandoning the pursuit of entrepreneurship, and were clarified and updated through the practice of activity and reflexivity. The synthesis of IEA and EEA assisted in generating perceptions of entrepreneurial feasibility that influenced the perceptions of ESE.

Some CDs encouraged students to perform entrepreneurial activities in their areas of interest. The Self-Authentic context consisted of personally significant and relevant learning experiences that were the most practical and lifelike. Self-Authentic pedagogies facilitated reflections and development of IEA, assisted by inquiry-focused coaching, self-determined learning and/or self-initiated extra-curricular activities (ECA). Both authentic and Self-Authentic pedagogies developed EEA and IEA.

Although the university context was start-up friendly and supportive, the students sometimes discovered that real-life (very lifelike) entrepreneurial challenges were far worse than they anticipated. This could erode their ESE unless they had sufficient exposure to authentic entrepreneurship realities and feedback during their courses.

Authentic entrepreneurship helped them to develop realistic perceptions of entrepreneurship. Reflections on authentic entrepreneurship outcomes developed and updated IEA and EEA and consequently modified their ESE. Setbacks (negative activity outcomes) included inability to generate profits and source for resources, and inaccessibility to relationships, which generated perceptions of unfeasibility.

Activity outcomes and obtained feedback stimulated both positive and negative emotions. Reflexivity on emotions and feedback through structured inquiry (questioning by CDs, guest entrepreneurs or peers) reduced the effects of negativity related to entrepreneurial setbacks. The application of entrepreneurship methods learnt in their courses provided the students the expertise and confidence to manage their situations that minimised ESE erosion.

Conflicting feedback from multiple ESE sources sometimes caused students to feel confused. This represented an erosion in their ESE. Ultimately these experiences developed students' entrepreneurial self-reliance and emotional coping mechanisms to maintain their developed ESE. OCP14 highlighted that ESE erosion was “**not a bad thing**” as it could motivate students to examine themselves more closely (IEA).

Entrepreneurship courses could develop sufficient ESE to initiate start-up and entrepreneurial activities. However, after graduation, to prevent ESE erosion (when GREs encountered authentic setbacks), the habit of reflexivity to update and refine entrepreneurial awareness (EEA and IEA) was necessary to maintain persistent entrepreneurial activities.

The development of ESE through entrepreneurial awareness also involved the crucial self-assessment of emotions stimulated by activity outcomes, feedback and comparison to role models. Reflections on one's emotions (component of IEA) facilitated recursive reflexivity on EEA, such as relationships and instruction/feedback (social persuasion), and other aspects of IEA, such as vicarious learning and mastery experiences.

As an example, negative feedback could lead to discouragement and other negative emotions. Self-assessment and reflections on these negative emotions would enable reflections on this feedback and situation, which would lead recursively to further reflection and improved entrepreneurial awareness.

Table 10.6 shows a selection of the data relating to Internal Entrepreneurial Awareness (IEA).

Table 10.6: Research Data - Internal Entrepreneurial Awareness (IEA)

Finding	Selection of Participants' Quotes
Internal entrepreneurial awareness (IEA)	<p>“He (NAM26) gets different entrepreneurs to come in, to talk about their experience- what were the hardest parts, they had to go through. You do a lot of self-reflection; on the things you actually care about and what do you want to get out of this” (GRE8).</p>
	<p>“If you are not self-assured, or you have not gone through your 'rationality' or your why's and those inquiries sufficiently, then you start to doubt based on the feedback. Whereas with inquiry, you have gone through that level of self-reflection, I find that you are more self-assured on what you offering to the world” (GRE6).</p>
	<p>“They learnt more about themselves and entrepreneurship in those three weeks than they do in four years in university. Partly because every day, they have to do a reflection journal. Partly because every other day, they have to do ‘circle time’ where they have to share their insights and reflections with other people and give feedback to each other. Partly because, they have to pitch and get feedback from the class every day. So, they have to learn that resilience and pivoting components” (NAM32).</p>
	<p>“We were not only looking at the business model ... (but) on the things they were not doing and how they could use more innovative thinking into their business model. ... reflection help students realize or be self-aware of what is happening” (AZM10).</p>
	<p>“Emotions of any type, positive or negative will tell you what you are feeling in control of and what you are not feeling in control of. The same as self-efficacy as everything you have the confidence in your ability to control. ... By articulating it and being able to address it, you can then regain confidence in your ability to do something about it” (EUM12).</p>

10.6 Entrepreneurial Self-Efficacy Sources as Catalysts of Entrepreneurship

When one student started a business, the rest felt pressured and motivated to start-up as well. David et al. (2018, p.331) suggested educators, policymakers and “others to deliver enterprise programmes and be a catalyst for entrepreneurship”.

This research found that ESE in conjunction with catalysts were contributors to initiating entrepreneurial activity. The development of ESE was enabled by recursive reflexivity that developed

entrepreneurial awareness (EEA and IEA) and improved by role-transitioning of educators and curation of ESE sources.

Multiple ESE-enhancing experiences were derived from teams and collaborations with peers that facilitated peer VL and feedback. Peers primarily assisted in developing ESE through VL and positivity by sharing and helping each other with their start-up problems. Catalysts could include peers, seniors, alumni, guest entrepreneurs and educators.

Some EEDs were designed to remove unmotivated students and those who lacked crucial entrepreneurial skills. This activity resulted in enabling the remaining students to learn entrepreneurship with more motivated and capable peers which facilitated VL and peer-enhanced ESE. The educators in these EEDs could also allocate more time to those who were eager to develop ESE and their entrepreneurial mastery.

Table 10.7 shows a selection of data relating to ESE sources as catalysts of entrepreneurship.

Table 10.7: Research Data - ESE Sources as Catalysts of Entrepreneurship

Finding	Selection of Participants' Quotes
ESE sources as catalysts of entrepreneurship	<p>“I learnt from a lot various people (experts, entrepreneurship professors), who worked with venture capitalists, advisors to start-up businesses. ... it was the entrepreneurial environment that has convinced me: ‘Hey, you can do this’” (GRE2).</p>
	<p>“I was the first person to actually do something, do a business. That started off a kind of catalyst. I came to the coaching sessions and said, ‘I’ve done this, this and this’ and told people specifically what skills I developed, my experiences. I have now switched everybody from ‘I’m going to party’ (to) suddenly, ‘Oh s***, he’s done a business. Maybe I should do something now!’ Instantly, people started, attempted to develop their businesses” (GRE3).</p>
	<p>“One thing really valuable in education, personally, has been talking to people you can relate to. Seeing people who literally went through the program we were going through, and two years later actually have a company and have raised money and more, is so valuable. You go, ‘This is possible!’” (GRE8).</p>
	<p>“I never even thought about starting a company at all, until I started talking with him, getting this into my mind, ‘It is possible’. ... It was people that you perceive as close to your age, doing things” (GRE8).</p>
	<p>“We invite into class a young entrepreneur so that the students see. ‘Oh, he is young like me and he is successful businessman. Ah! I can do it too!’” (SAM40).</p>
	<p>“We observe teamwork increasing the quality of their submissions significantly, resulting in applicability of their findings in their later professional lives, either in a big company or in a start-up. There is social pressure within the class to work well and they try to do their best. In a sense, it is also co-production of their self-efficacy since they are very much supporters to one another” (EUM59).</p>
	<p>“They go into the field and see what the situation is. Along the way, (they) motivate, persuade, create a self-belief in themselves that they can do it” (AZM3).</p>
	<p>“Without the structure of the coaching and mentoring, I think students will not even go to the step of being innovative, being put into a position where you have to think of a relatively realistic solution that your user will need. ... Not forced, but this is where this serves as a catalyst to be innovative, you will brainstorm for ideas, solutions” (GRE5).</p>
<p>“You are around people who are talking about not the exact same idea, but a lot of the challenges that you face in a business are quite similar regardless of what the idea is; ... it came about being other students who were creative. I felt that that was a very creativity inducing environment” (GRE7).</p>	

10.7 Researcher's Reflexivity

The researcher reflected on his iterative coding activities during data analysis. Iterative coding assisted theme development and was initiated and guided by certain horizons (significant words) that changed the way the researcher interpreted EED experiences. Several rounds of iterative analyses were necessary to refine the themes.

AZM22 was the first to mention how he transitioned from lecturer to discussion facilitator and subsequently to mentor outside the classroom for some students. The researcher remained unaware of distinct educator types and roles until NAM41 emphasised on the separation the role of the mentor from lecturer, to minimise cognitive overload in students. Subsequently, NAM45 highlighted the role of the curator.

These horizons prompted the researcher to recall what previously interviewed CDs had mentioned when they curated guest entrepreneurs as supplementary speakers and assessors. Ultimately, iterative coding generated themes related to role-transitioning between instructor, inquirer and advisor.

NAM45 further remarked, “the **mixing of facilitation with coaching** ...”. OCM1 suggested a way to highlight varying proportions of activity and reflexivity within the EPG. Despite NAM32 and NAM43 highlighting the challenges of separating themselves into distinct roles, the horizons of OCM1 and NAM45 prompted the identification of the variations in the pedagogical emphasis of educator roles, actions and pedagogies in EEDs using identifiers.

AZM7 noticed, “**the community is teaching you**”. This horizon alerted the researcher to authentic projects that involved start-up stakeholders in industry-situated contexts, when he was transcribing the interviews of OCM17, EUM23, EUM38 and AZM54. Furthermore, the horizons of AZM3, AZM6, AZM7, AZM9, AZM10, AZM14, AZM22, AZM34, NAM2, NAM26, NAM28, NAM43, EUM23, EUM55, EUM58, SAM29, SAM40, AFM46 and OCM33 highlighted the significance of obtaining authentic feedback from real customers, clients, investors and/or entrepreneurs.

These horizons assisted the delineation of the authentic learning context where students interacted with entrepreneurs and/or customer, from the moderated context where students did not interact entrepreneurs or customers.

Pilot data revealed OCP13 training his students on commercialisation through inquiry (questioning). Upon review, inquiry was also used in the tutorials of OCP7 and OCP10, but described using other words. In the main study, NAM2 performed role-playing using questions: “**How would you respond? How are you doing to present a potential solution ...?**”

EUM12 was the first to use the horizon “inquire”. Prompted by this distinct pedagogy, unique identifiers for inquiry, instruction and advisory were introduced into the transcript data. Subsequently, the NVivo software registered the occurrences of these educator types and roles in EEDs to identify data patterns (Section 5.5). Subsequent thematic analyses identified educator types with varying pedagogical emphasises of instruction, inquiry and advisory.

Other recurring horizons were also coded with identifiers for example, ‘rfx’ for reflexivity, ‘esa’ for self-awareness and ‘cognpeg’ for cognitive actions. The interview responses were checked with their pre-interview Qualtrics responses and course outlines whenever available. Interestingly, only one out of 42 pre-interview responses mentioned ‘self-awareness’.

Reflexivity and self-awareness were identified as less common ESE sources (Table 5.11). Thematic analysis eventually revealed the EEA and IEA constructs. Transcript data containing similar identifiers were grouped into distinct NVivo folders. These folders were labelled using identifiers as part of iterative coding.

Further scrutiny of the following horizons prompted the delineation between EEA and IEA: “**what would you like to do**”, “**make sense of things**”, “**who am I relative to this task**”, “**what I can access**” and “**develop awareness of their surrounds**” (OCM1). OCM1 required students to solve problems “**of interest**”, to reflect on their “**agency**” and awareness of relationships and accessible resources that enabled entrepreneurial activities. Their horizons reinforced the emergent construct of IEA and significance of reflexivity.

EUM23, EUM27 and OCM33 were reinterviewed to confirm a distinction between IEA and EEA. The external context was separated from the internal world of students related to IEA. “**100% authentic**” (OCM1) as a horizon guided the interpretation and identification of the Self-Authentic context. Thus, the description of EED evolved from each round of iterative coding and interpretation.

Some participants openly shared with students about the negativities of entrepreneurship that potentially eroded the ESE of some students. NAM26 required his students to critically reflect on

their personalities and backgrounds to convince themselves that they required more mentoring to become entrepreneurs. This was interpreted as an awareness of mastery deficiencies. Their horizons assisted in ‘thematically’ relating emotions with entrepreneurial awareness. The interviewer also acknowledged the claims and concerns of fatigue from role-transitioning between several educator types and roles (NAM41, EUM53, EUM59). Their horizons reinforced the themes related to curation.

The interviewer asked CDs to rank and compare the importance of pedagogies in developing ESE in their pre-interview questionnaire. This prompted some participants to describe how they designed their courses in their own way. Some CDs commented that ranking pedagogies was too artificial and subjective. NAM51 reflected:

“I feel as though the choices are limiting for how I think about teaching. You gave me 11 things that I may or may not do, and so ranked them only based on what you gave me. Because **it does not fully capture the course that I am teaching or how I teach it.** My feeling, I think **the pedagogy is ... more important than the content.** Students are not going learn anything unless it is done **in a way that is relevant to them,** where **they have the opportunity to try things (play).** The only reason I put that (field project) first is because it was the final thing that they do and everything leads up to that. **Other pedagogies:** simulation, lecture, all that kind of stuff, we use those but **may not use them in the order of importance”** (NAM51).

NAM32 remarked that ranking of EE pedagogies was not as important as identifying pedagogies that enabled activity and reflexivity. He shared that students’ experiences from projects, site visits, theory lectures and reflective discussions would adequately develop ESE.

Some CDs ranked sometimes up to several cognitive and executional pedagogies as of equal importance. Their horizons combined with those related to role-transitioning reinforced the interpretation that pedagogy combinations were recursive relationships between activity and reflexivity.

10.8 Limitations of this Research

Research limitations are shortcomings in a research design that likely influence the conclusions of the research. The main limitation of this research was the researcher’s inability to interview non-

English-speaking CDs due to time, resource and language constraints. Hence, the cultural nuances of ESE development were limited as only English-speaking CDs were interviewed.

Personal data privacy regulations in a vast majority of institutions restricted access to GREs. Only nine GREs from six countries were referred by CDs and subsequently interviewed. Some already had entrepreneurial intentions before enrolment in their courses which indicated that they already possessed some ESE. Therefore, it was difficult to determine how much their ESE increased during their courses. The evidence that all GREs started-up during or after their courses/programs suggested that their ESE was developed or increased.

The researcher strove to maximise sample heterogeneity across a variety of contexts to minimize self-selection bias, and to minimise systematic or response bias (Patton 1999). Ultimately, the sample consisted of traditional (theory-focused) and experiential (action-focused) EEDs of approximately equal proportions.

Data related to EE pedagogical designs originated from 26 countries with approximately equal proportions of practitioners and academics, and approximately equal proportions of small and large institutions, teaching undergraduate and postgraduate courses. However, it was possible that some CDs did not participate in this research because they did not believe in ESE-enhancement.

11 DISCUSSION: RESEARCH IMPLICATIONS AND FUTURE RESEARCH

This chapter highlights some implications of the findings and some recommendations for future research on areas related to the findings.

11.1 Implications of Entrepreneurial Awareness and Future Research

This research reveals how reflexivity on activity outcomes and curated ESE sources developed entrepreneurial awareness and ESE. The assembly of resources to achieve competitive advantages (Alvarez and Barney 2007) may be supported and improved by entrepreneurial awareness. Future research may discover how varying proportions of developed or modified external entrepreneurial awareness (EEA) and internal entrepreneurial awareness (IEA) influence entrepreneurship behaviour.

In this research, student and GRE self-perceptions were predominantly related to self-concept and self-identity. Other self-perceptions that may influence the development of entrepreneurial awareness may include entrepreneurial passion (Cardon and Kirk 2015), intentions or self-reliance. Future studies may examine how other types of self-perceptions interact with self-concept and self-identity and how an expanded set of self-perceptions influence the development of entrepreneurial awareness (and consequently ESE).

This research reveals that mentoring and coaching assist entrepreneurial awareness development (and ESE). Students develop entrepreneurial self-perceptions (IEA) and an awareness of relationships and resources (EEA) that enable entrepreneurship. Training entrepreneurship students in persuasion and emotional intelligence (an aspect of IEA) may assist them in accessing social and entrepreneurial capital more competently. Future research may examine more closely the effects of interpersonal training, inquiry-focused coaching and role-transitioning in the four contexts (theoretical, moderated, authentic and Self-Authentic) on the development of entrepreneurial awareness.

EEA assists in forging new or modifying existing collaborations, by reflecting on outcomes and obtaining activity feedback. Future research may investigate how alertness to opportunities (Tang, Kacmar and Busenitz 2012) and entrepreneurial awareness are developed during entrepreneurship courses or during ECA. Such studies may identify more precisely the pedagogical emphases of educator roles and pedagogies (more or less Practicality/Lifelikeness) to assist in effectively identifying accessible start-up capital and relationships.

Interpretation of contextual conditions by entrepreneurs involved discovering missing information, interpreting matching or inconsistent information to determine “how clear the focal situation resembled an opportunity in actors’ minds” (Barreto 2012, p.366). Earlier, Choi, Lévesque, and Shepherd (2008, p.338) posited, “entrepreneurs need to wait until their level of ignorance reaches an acceptable level before deciding on shifting focus to exploitation. This level is acceptable when it provides the entrepreneur sufficient confidence to proceed with the investments required for exploitation of the opportunity.” Barreto (2012) posited that higher levels of interpretative determination (determining what information to look for) reduced the level of ignorance of opportunity, and vice versa. He suggested that entrepreneurial interpretation under conditions of information uncertainty guided alertness to contextual changes.

Future studies may investigate how educator types and roles, and pedagogies that develop entrepreneurial awareness, may reduce levels of opportunity ignorance and clarify the components of opportunity in a student’s or GRE’s context. Higher levels of entrepreneurial awareness may reduce levels of ignorance to actualise opportunities more effectively. Varying levels of entrepreneurial awareness may influence the quality of opportunity actualisation. A lower or higher level of entrepreneurial awareness may influence how students and GREs perceive different entrepreneurial contexts with varying levels of uncertainty and risk. A higher level of entrepreneurial awareness may result in more GREs and start-ups. Future research may investigate the effects of varying levels of entrepreneurial awareness on the perceptions of and commitment to entrepreneurial activities by both students and entrepreneurs.

The nature of reflexivity in EED remains under-documented. As student start-ups (or entrepreneurial projects) progress or regress, perceptions of feasibility (leading to ESE) may be enhanced or eroded. Future research may investigate the types of inquiry-focused strategies or questions asked by coaches/mentors that can develop or degrade one’s level of entrepreneurial awareness, consequently enhancing or eroding ESE. Further studies may focus on the effects of various reflective questions and the intensity of the inquirer on the levels of entrepreneurial awareness.

This research highlighted reflexive pedagogies, for example, reflective discussions and one-on-one mentoring. Future research may discover which specific reflexive pedagogies may enhance reflexivity to develop entrepreneurial awareness more effectively and the contextual conditions that enhance the quality of reflexivity.

All GREs in this research indicated that their ESE developed during their studies. However, when they experienced authentic setbacks after graduation, some mentioned that their ESE eroded. This suggested that a portion of their ESE may have been unrealistic before they graduated. Through reflexivity, these GREs modified their ESE and re-started or modified their start-ups.

GREs who experienced start-up setbacks during the course benefited from inquiry, peer VL and emotional support. The commonality among these experiences implies that reflection on authentic outcomes namely accessibility (or inaccessibility) to requisite start-up capital and feedback from real-life customers developed a more accurate sense of ESE than classroom derived ESE development. This finding also implies that start-up plans should be closely paired with a well-developed sense of entrepreneurial awareness.

Individuals exerted control over their context by initiating goal-directed actions (Bandura 1997) and invested in education to change their behaviour (Bandura 2001). Further investigations may examine how entrepreneurial awareness may influence perceived behavioural and emotional control to reduce overconfidence in students and entrepreneurs when they select industries and social contexts to venture into.

11.2 Implications of Role-Transitioning and Future Research

This research highlights that role-transitioning between educator types and roles has a crucial function in facilitating activity and reflexivity that develop the students' ESE. CDs and/or their teams of educators switch between roles to meet their various students' needs and help them to solve the many entrepreneurship-related issues that arise during the courses. No single role is sufficient by itself. The differences between pedagogical emphases and educator types and roles may influence the activity and reflexivity by students, and therefore their ESE development. Those that produce a higher level of reflexivity are more likely to develop ESE.

In this research, all the educator types and roles contributed towards ESE development, and the GREs stated the need for both formal instruction and more informal coaching and mentoring. The GREs in this research estimated the proportions of instruction, advisory and inquiry for a variety of EEDs that they experienced. Their estimations are displayed in Figure 5.2, Figure 5.3 and Figure 5.4 in Section 5.8. Most of the GREs stated that mentoring was helpful to their ESE development, and this role had

an extremely high proportion of inquiry and very low amount of instruction. GREs also mentioned that more inquiry-focused coaching and authentic feedback by mentors were beneficial.

The necessary use of multiple educator types and roles, pedagogies and learning environments makes effective entrepreneurship courses difficult and complex to design, teach and administer. The need for frequent role-transitioning is also tiring and exhausting for some CDs. As mentioned by EUM59, “we do have different roles and we do more than others. ... It can be mentally exhausting”. The need for one-on-one time with students for mentoring or coaching makes entrepreneurship courses more time-consuming than some other types of more traditional courses.

All the CD participants interviewed showed great passion and dedication to their courses, and many of them shared remarkable pedagogies designed to train their students for entrepreneurship - “the toughest job on earth” (AZM5).

These entrepreneurship CDs teach within tertiary education institutions, and need the support, understanding and resources from their institutions in order to adopt multiple roles and/or curate educators to operate effectively. Government and institutional policies need to include support and funding for entrepreneurship education, CDs, students and alumni, or these CDs may eventually burn out from exhaustion.

The qualitative nature of the research did not include measurements of the extent of ESE improvement, which will require future quantitative studies to determine. Future studies may also more precisely examine how role specialisation and the curation of supplementary ESE sources (role outsourcing) may help to alleviate role-transition fatigue in CDs.

11.3 Implications of Curation and Catalysts, and Future Research

This research highlights reflections on curated role models and/or real-life cases, and the related emotions generated by curated ESE sources. This reflexivity may generate perceptions of entrepreneurship that favour or discredit the pursuit of entrepreneurial careers.

Some GREs mentioned they experienced role models whom they did not agree with. GREs also mentioned that they needed to relate well with curated ESE sources to benefit from the encounters. This suggests that some students may have been inflexible as they had difficulty relating to some

people. CDs therefore had to expend more effort to find multiple role models or mentors in order to relate to as many of their students as possible. These students themselves also lost the opportunity to learn from unrelatable role models who may have given them new perspectives to develop their entrepreneurial awareness.

The implementation of EEDs involving curation depends on a “large network of collaborators developed over time, with whom they have always collaborated either for lectures, project works, or internships” (Ndou, Mele and Vecchio 2019, p.8). Programs naturally accumulate alumni (GREs) over time that can aide the development of ESE through sharing their stories. This suggests that a relatively new program/course might be at a disadvantage in curating relatable role models and therefore in developing ESE. CD-Curation and Self-Curation are offered as alternatives to enhance ESE.

This research reveals a progression in entrepreneurship courses from more prescriptive to more self-determined pedagogies such as Self-Curated learning, perhaps to induct students into entrepreneurship in a more manageable manner. Learning in moderated contexts safeguards students from the potential negativities of authentic entrepreneurship. These findings imply that students should develop some ESE through the practice of applying entrepreneurship methods and reflexivity before venturing into authentic and Self-Authentic entrepreneurship. Further studies may examine the optimal balance between CD-Curation and Self-Curation to maximise the development of entrepreneurship awareness and consequently ESE.

CD-Curation and Self-Curation can generate catalysts that encourage entrepreneurship among the students, through students’ seniors or other curated ESE sources. CDs themselves can be catalysts by requiring students to start-up or conduct authentic entrepreneurial activities during their courses. CDs and/or their teams of educators can become catalysts when they inspire and coach students to cope with entrepreneurial challenges and to develop entrepreneurial awareness and ESE.

Students can also be each other’s catalysts, especially when they learn together with other motivated students who are growing their ESE. These catalysts are a beneficial by-product of VL, curation and collaborative pedagogies (teamwork), and may lead to increased rates of start-up activities and an increased number of entrepreneurs in society.

Some of the GREs mentioned that they felt alone after graduation, having lost their supportive environments after their courses ended. The advice, mentoring and encouragement from their CDs

and peers had been essential during their courses, and the sharp drop-off was unsettling. Cultivating a supportive structure for alumni would benefit both the institutions and their graduates, as well as provide the CDs with a steady source of (hopefully) successful entrepreneurs to call upon for guiding the new undergraduates (curation of ESE sources).

Government and institutional policies to provide funding, technology transfers, start-up incubators and support to entrepreneurship graduates and alumni would increase the likelihood of start-up activity as well as the success of start-ups. These entrepreneurs and start-ups would in return provide the institutions with the good reputation and prestige to attract good quality new undergraduates. Classes that comprise highly motivated and capable students will contribute towards generating peer inspiration and catalysts, further perpetuating a virtuous cycle of success.

The many aspects of ESE development and catalysts need to work together to initiate entrepreneurial activity. This research did not exhaustively explore all potential ESE sources that could be feasibly curated. Further studies may discover more ESE sources from societal and/or cultural domains that could influence the development of entrepreneurship awareness differently from academic and industry-based ESE sources.

12 CONCLUSION: CONTRIBUTIONS OF THIS RESEARCH

This concluding chapter contains the achievements, methodological, theoretical and practical contributions of this research.

The effects of entrepreneurship courses on ESE development were mixed (Malebana and Swanepoel 2014; Mozahem and Adlouni 2021). Several studies showed that the effect of pedagogies on ESE development were reportedly marginal (Zieba and Golik 2018), inconclusive (Bell, Dearman and Wilbanks 2015) and negative (Karimi et al. 2016).

This research revealed that pedagogies were not the only or even the main contributor to ESE development. Instead, the main contributors were found to be the activity-reflexivity recursive learning enabled by role-transitioning, and reflexivity on curated ESE sources, that enabled entrepreneurial awareness and subsequent ESE development.

Given that entrepreneurs generate economic, intellectual, and social value (Bacq and Janssen 2011), currently there is insufficient literature about the pedagogies and educator types and roles utilised in entrepreneurship courses that develop ESE. This research has explored and identified some educator types and roles (Table 6.2 in Section 6.2) that enable reflexivity on activity outcomes and self-perceptions that initiate entrepreneurial activities (ESE).

The documented rates of GRE (Section 2.5) indicate that the majority of graduates do not desire to pursue entrepreneurship after graduating. The findings of this research may contribute towards refining EEDs to increase the number of GREs.

12.1 Methodological Contribution of the Research

The main study EPG (Table 5.6) differentiated Lifelikeness (learning contexts) from Practicality (learning actions). This feature aided the development of structural themes to discover the commonalities of the phenomenon of EED in varied contexts. This research contributes to the interpretive phenomenological analysis (IPA) methodology in the EE domain by introducing a discussion process that facilitates the derivation of contextual themes.

The goal of IPA was the discovery of meanings behind the experiential claims and concerns of participants about the specific contexts (Larkin, Watts and Clifton 2006). The EPG discussion process implemented a “double hermeneutic whereby participants are seen to make sense of x while researchers make sense of the participants’ sense making” (Finlay 2014, p.127). This discussion process was based on a deliberately incomplete representation of EED. This motivated CDs to justify why certain pedagogies and educator types and roles were employed by identifying and explaining contextual conditions and learning actions.

The derived structural themes were not simply contextual descriptions of EED but interpretations of how entrepreneurship courses were designed based on the interpretations of EED from participants. Thematic analysis based on this enriched data facilitated a deeper understanding and interpretation of EED.

12.2 Theoretical Contributions of the Research

This research revealed that role-transitioning between educator types and roles (instructor, inquirer and advisor) enabled reflexivity related to entrepreneurial activity outcomes and self-perceptions. This reflexivity highlighted two groups of entrepreneurial awareness (ESE sources) that related to perceptions of accessible relationships and start-up resources (EEA) and self-perceptions (IEA). This research discovered these two new (previously unidentified in the literature) groups of ESE sources, external entrepreneurial awareness (EEA) and internal entrepreneurial awareness (IEA). These forms of entrepreneurial awareness developed perceptions of feasibility and desirability that facilitated entrepreneurial activities and ventures (ESE).

The researcher attained a self-authentic context delineating a student’s internal self-perceived world from the external contexts, where EEDs are experienced. This self-concept and self-identity, including aspirations, thoughts and emotions, exists within this Self-Authentic context. Reflexivity on self-concept and self-identity developed self-perceptions or IEA evolved with start-up progression and in a dynamic entrepreneurial environment.

Robinson et al. (2016) earlier advocated a student-centred, socially situated experiential and continuous learning to develop the entrepreneurial mindset and promote an awareness of individual entrepreneurial potential or opportunities. Ndou et al. (2018) defined ‘entrepreneurial awareness’ as one’s understanding and familiarity of entrepreneurial activities. These studies presented tentative

conceptualisations of ‘self- awareness’. This research made practical distinction between the internal and external contexts that conceptually divided the entrepreneurial awareness construct into external and internal entrepreneurial awareness.

Dobson, Jacobs, and Dobson (2017, p.61) advocated four aspects for an effective EED: “pursue a real opportunity, exposing students to grade-safe failure, intrinsic motivation resulting from student ownership of the business idea and engagement in the entrepreneurial cycle.” . This thesis reveals a personalised ESE development strategy through IEA and EEA that is designed to effectively motivate and guide students to actualise feasible start-ups or entrepreneurial projects. The pedagogical designs that develop ESE are described in the next section.

Entrepreneurial awareness, once cultivated, enables initial entrepreneurial activity and reflexivity that clarifies and reinforces student IEA and EEA. This initial activity and reflexivity may potentially result in a self-awareness that an entrepreneurial career is unsuitable. Should student IEA and EEA be further developed and strengthened, continued participation in an activity-reflexivity recursive learning should further strengthen and update entrepreneurial awareness that develops ESE.

IEA and EEA continue to evolve as the students’ and graduates’ start-ups progress and when new relationships and resources become accessible or inaccessible. IEA and EEA guide the Self-Curation of social and entrepreneurial capital, facilitating start-up development.

12.3 Practical Contributions of the Research

This research provides a comprehensive description and understanding of pedagogical designs that are designed to enhance ESE. A variety of educator types and roles facilitate the activity-reflexivity recursive utilised in four learning contexts not previously described in literature. This research highlights the significance of reflexivity in developing entrepreneurial awareness and consequently ESE. The interactions between activity outcome and reflexivity were under-described to explain ESE development. This research reveals a reflexive recursive between higher Practicality (executorial) pedagogies and lower Practicality (cognitive) pedagogies that develops entrepreneurial awareness and consequently ESE.

Although the literature identified a variety of educator roles (Evans and Volery 2001; Jones, Penaluna and Penaluna 2019; Wraae, Brush and Nikou 2022), role-transitioning in the EED domain has not

been identified previously. Role-transitioning between educator types and roles is the process that enables activity-reflexivity recursive learning that develops perceptions of feasibility and desirability that enhances ESE. . A range of educator types involved in role-transitioning between instruction, inquiry and advisory roles (Table 6.2 in section 6.2), were presented to help understand this phenomenon.

This research demonstrates that all educator types, roles and EEDs facilitate activity and reflexivity to some extent, revealing that multiple learning experiences develop ESE. It is not simply developed through EEDs but through many other sources in concert, such as reflexivity related to CD-Curated and Self-Curated ESE sources. Students also obtain authentic feedback from guest entrepreneurs and domain experts on their business plans and pitches. Some GREs experience authentic entrepreneurship when they self-initiate ECA and performed consultancy for clients.

EEDs develop entrepreneurial awareness (leading to ESE) through a balanced and wide mix of pedagogies and educator types and roles, especially those which are more lifelike. ESE development is highly influenced by reflexivity and the people (ESE sources) who enable it; those who design, curate, teach, coach, mentor and inspire the students.

The researcher suggests that inquiry-focused coaching, authentic (industry-based) lifelike pedagogies, collaborative (team-based) pedagogies and the curation of relatable lifelike ESE sources as part of course design may improve the ESE development of students. The increase of ESE through recursive reflexivity and entrepreneurial awareness, facilitated by catalysts, curation and role-transitioning by educators in the teaching of EE pedagogies, may lead to an increase in the numbers of entrepreneurially competent graduate entrepreneurs.

^{12b} *“Of making many books there is no end, and much study wearies the body.*

¹³ *Now all has been heard; here is the conclusion of the matter:*

Fear God and keep his commandments, for this is the duty of all mankind.”

The Holy Bible, Book of Ecclesiastes 12 : 12b-13 (New International Version).

REFERENCES

- Abaho, Ernest, Donath R. Olomi, and Goodluck Charles Urassa. 2015. "Students' Entrepreneurial Self-Efficacy: Does the Teaching Method Matter?" *Education + Training* 57 (8/9): 908-923.
- Abdelkarim, Abbas. 2021. "From Entrepreneurial Desirability to Entrepreneurial Self Efficacy: The Need for Entrepreneurship Education—a Survey of University Students in Eight Countries." *Entrepreneurship Education* 4 (1): 67–88. <https://doi.org/10.1007/s41959-021-00046-8>.
- Abecassis-Moedas, Celine, Francesco Sguera, and John E. Ettl. 2016. "Observe, Innovate, Succeed: A Learning Perspective on Innovation and the Performance of Entrepreneurial Chefs." *Journal of Business Research* 69 (8): 2840-2848.
- Abiddin, N.Z., and S. Turiman. 2009. *A Manager's & Mentor's Handbook on Mentoring: Enhancing Professional Development through Mentoring*. Wolverhampton, UK: University of Wolverhampton Business School.
- Adebusuyi, Adeola Samuel, Olubusayo Foluso Adebusuyi, and Oluwaseun Kolade. 2022. "Development and Validation of Sources of Entrepreneurial Self-Efficacy and Outcome Expectations: A Social Cognitive Career Theory Perspective." *The International Journal of Management Education* 20 (2): Article 100572. <https://doi.org/10.1016/j.ijme.2021.100572>.
- Ahlin, Branka, Mateja Drnovšek, and Robert D. Hisrich. 2014. "Entrepreneurs' Creativity and Firm Innovation: The Moderating Role of Entrepreneurial Self-Efficacy." *Small Business Economics* 43 (1): 101-117. <https://doi.org/10.1007/s11187-013-9531-7>.
- Ahmad, Syed Z., Abdul R. Abu Bakar, and Norita Ahmad. 2018. "An Evaluation of Teaching Methods of Entrepreneurship in Hospitality and Tourism Programs." *The International Journal of Management Education* 16 (1): 14-25. <https://doi.org/10.1016/j.ijme.2017.11.002>.
- Ahmed, Tariq, V.G.R. Chandran, Jane E. Klobas, Francisco Liñán, and Panagiotis Kokkalis. 2020. "Entrepreneurship Education Programmes: How Learning, Inspiration and Resources Affect Intentions for New Venture Creation in a Developing Economy." *The International Journal of Management Education* 18 (1): Article 100327. <https://doi.org/10.1016/j.ijme.2019.100327>.
- Ahsan, Mujtaba, Congcong Zheng, Alex DeNoble, and Martina Musteen. 2018. "From Student to Entrepreneur: How Mentorships and Affect Influence Student Venture Launch." *Journal of Small Business Management* 56 (1): 76–102.
- Al-Dajani, Haya, Evangelos Dedoussis, Erika Watson, and Nikolaos Tzokas. 2014. "Graduate Entrepreneurship Incubation Environments: A Framework of Key Success Factors." *Industry and Higher Education* 28 (3): 201-213. <https://doi.org/10.5367/ihe.2014.0205>.
- Alfieri, Louis, Patricia J. Brooks, Naomi J. Aldrich, and Harriet R. Tenenbaum. 2011. "Does Discovery-Based Instruction Enhance Learning?" *Journal of Educational Psychology* 103 (1): 1-18. <https://doi.org/10.1037/a0021017>.
- Alvarez, S.A., and J.B. Barney. 2007. "Discovery and Creation: Alternative Theories of Entrepreneurial Action." *Strategic Entrepreneurship Journal* 1 (1-2): 33-48.
- Alvarez, Sharon A., and Jay B. Barney. 2005. "How Do Entrepreneurs Organize Firms under Conditions of Uncertainty?" *Journal of Management* 31 (5): 776-793. <https://doi.org/10.1177/0149206305279486>.
- Alvarez, Sharon A., and Lowell W. Busenitz. 2001. "The Entrepreneurship of Resource-Based Theory." *Journal of Management* 27 (6): 755-775.
- Amabile, Teresa M. 1988. "A Model of Creativity and Innovation in Organizations." In *Research in Organizational Behaviour*, edited by B.M. Staw and L.L. Cummings, 123-167. Greenwich, CT: JAI Press.
- Amit, Raphael, and Christoph Zott. 2012. "Creating Value through Business Model Innovation." *MIT Sloan Management Review* 53 (3): 41-49.
- Arora, Punit, J. Michael Haynie, and Gregory A. Laurence. 2013. "Counterfactual Thinking and Entrepreneurial Self-Efficacy: The Moderating Role of Self-Esteem and Dispositional Affect." *Entrepreneurship Theory and Practice* 37 (2): 359-385. <https://doi.org/10.1111/j.1540-6520.2011.00472.x>.

- Arpiainen, Riitta-Liisa, Martin Lackéus, Marge Täks, and Päivi Tynjälä. 2013. "The Sources and Dynamics of Emotions in Entrepreneurship Education Learning Process." *TRAMES: A Journal of the Humanities & Social Sciences* 17 (67/62) (4): 331–346.
- Arshad, Muhammad, Omer Farooq, and Sadia Afzal. 2018. "The Role of Entrepreneurship Education in Developing a Passion for Business." *Global Business and Organizational Excellence* 38 (1): 15–21. <https://doi.org/10.1002/joe.21896>.
- Åstebro, Thomas, Navid Bazzazian, and Serguey Braguinsky. 2012. "Startups by Recent University Graduates and Their Faculty: Implications for University Entrepreneurship Policy." *Research Policy* 41 (4): 663–677.
- Audretsch, David B., and Maksim Belitski. 2013. "The Missing Pillar: The Creativity Theory of Knowledge Spillover Entrepreneurship." *Small Business Economics* 41 (4): 819–836.
- Audretsch, David B., Werner Bönte, and Max Keilbach. 2008. "Entrepreneurship Capital and Its Impact on Knowledge Diffusion and Economic Performance." *Journal of Business Venturing* 23 (6): 687–698.
- Autio, Erkkö, Satish Nambisan, Llewellyn D.W. Thomas, and Mike Wright. 2018. "Digital Affordances, Spatial Affordances, and the Genesis of Entrepreneurial Ecosystems." *Strategic Entrepreneurship Journal* 12 (1): 72–95.
- Ayalew, Mesfin Mulu, and Shumet Amare Zeleke. 2018. "Modeling the Impact of Entrepreneurial Attitude on Self-Employment Intention among Engineering Students in Ethiopia." *Journal of Innovation and Entrepreneurship* 7: Article 8. <https://doi.org/10.1186/s13731-018-0088-1>.
- Bacigalupo, Margherita, Panagiotis Kampylis, Yves Punie, and Godelieve Van den Brande. 2016. *Entrecomp: The Entrepreneurship Competence Framework (Eur 27939 En)*. Luxembourg: <https://doi.org/10.2791/593884>.
- Bacq, Sophie, and Frank Janssen. 2011. "The Multiple Faces of Social Entrepreneurship: A Review of Definitional Issues Based on Geographical and Thematic Criteria." *Entrepreneurship & Regional Development* 23 (5–6): 373–403.
- Bae, Tae Jun, Shanshan Qian, Chao Miao, and James O. Fiet. 2014. "The Relationship between Entrepreneurship Education and Entrepreneurial Intentions: A Meta - Analytic Review." *Entrepreneurship Theory and Practice* 38 (2): 217–254.
- Bailey, Joseph A. 2003. "Self-Image, Self-Concept, and Self-Identity Revisited." *Journal of the National Medical Association* 95 (5): 383–386.
- Baker, Ted, and Reed E. Nelson. 2005. "Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage." *Administrative Science Quarterly* 50 (3): 329–366. <https://doi.org/10.2189/asqu.2005.50.3.329>.
- Ballereau, Valérie, Christine Sinapi, Olivier Toutain, and Edwin Juno-Delgado. 2020. "Developing a Business Model: The Perception of Entrepreneurial Self-Efficacy among Students in the Cultural and Creative Industry." In *Cultural Entrepreneurship in Theory, Pedagogy and Practice*, edited by Annick Schramme Olaf Kuhlke, Rene Kooyman, 164–177. Utrecht, NL: Eburon Academic Publishers.
- Baluku, Martin M., Leonsio Matagi, Khamisi Musanje, Julius Fred Kikooma, and Kathleen Otto. 2019. "Entrepreneurial Socialization and Psychological Capital: Cross-Cultural and Multigroup Analyses of Impact of Mentoring, Optimism, and Self-Efficacy on Entrepreneurial Intentions." *Entrepreneurship Education and Pedagogy* 2 (1): 5–42.
- Bandura, Albert. 1977a. "Self-Efficacy: Toward a Unifying Theory of Behavioural Change." *Psychological Review* 84 (2): 191–215.
- Bandura, Albert. 1977b. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, Albert. 1982. "Self-Efficacy Mechanism in Human Agency." *American Psychologist* 37 (2): 122–147.
- Bandura, Albert. 1986a. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, Albert. 1989. "Human Agency in Social Cognitive Theory." *American Psychologist* 44 (9): 1175–84.
- Bandura, Albert. 1993. "Perceived Self-Efficacy in Cognitive Development and Functioning." *Educational Psychologist* 28 (2): 117–148. https://doi.org/10.1207/s15326985Sep2802_3.
- Bandura, Albert. 1994. "Self-Efficacy." In *Encyclopedia of Human Behaviour (Vol. 4)*, edited by V.S. Ramachandran, 71–81. New York: Academic Press.

- Bandura, Albert. 1995. "Exercise of Personal and Collective Efficacy in Changing Societies." In *Self-Efficacy in Changing Societies*, edited by A. Bandura, Cambridge, UK: Cambridge University Press.
- Bandura, Albert. 1997. *Self-Efficacy: The Exercise of Control*. New York: W. H. Freeman and Company.
- Bandura, Albert. 2000. "Cultivate Self-Efficacy for Personal and Organizational Effectiveness." In *Handbook of Principles of Organization Behavior*, edited by E. A. Locke, 120-136. Oxford, UK: Blackwell.
- Bandura, Albert. 2001. "Social Cognitive Theory: An Agentic Perspective." *Annual Review of Psychology* 52 (1): 1-26.
- Bandura, Albert. 2008. "An Agentic Perspective on Positive Psychology." In *Positive Psychology: Expecting the Best in People*, edited by S.J. Lopez, 167–196. Westport, CT: Greenwood Publishing.
- Bandura, Albert 1986b. "The Explanatory and Predictive Scope of Self-Efficacy Theory." *Journal of Social and Clinical Psychology* 4 (Special Issue: Self-Efficacy Theory in Contemporary Psychology): 359-373. <https://doi.org/10.1521/jscp.1986.4.3.359>.
- Bandura, Albert 2012. "On the Functional Properties of Perceived Self-Efficacy Revisited." *Journal of Management* 38 (1): 9-44. <https://doi.org/10.1177/0149206311410606>.
- Bandura, Albert, and Robert Wood. 1989. "Effect of Perceived Controllability and Performance Standards on Self-Regulation of Complex Decision Making." *Journal of Personality and Social Psychology* 56 (5): 805.
- Barakat, Shima, Monique Boddington, and Shailendra Vyakarnam. 2014. "Measuring Entrepreneurial Self-Efficacy to Understand the Impact of Creative Activities for Learning Innovation " *International Journal of Management Education* 12: 456-468.
- BarNir, Anat, Warren E. Watson, and Holly M. Hutchins. 2011. "Mediation and Moderated Mediation in the Relationship among Role Models, Self-Efficacy, Entrepreneurial Career Intention, and Gender." *Journal of Applied Social Psychology* 41 (2): 270–297. <https://doi.org/10.1111/j.1559-1816.2010.00713.x>.
- Barr, Steve H., Ted Baker, Stephen K. Markham, and Angus I. Kingon. 2009. "Bridging the Valley of Death: Lessons Learned from 14 Years of Commercialization of Technology Education." *Academy of Management Learning & Education* 8 (3): 370-388.
- Barreto, Ilídio. 2012. "Solving the Entrepreneurial Puzzle: The Role of Entrepreneurial Interpretation in Opportunity Formation and Related Processes." *Journal of Management Studies* 49 (2): 356-380. <https://doi.org/10.1111/j.1467-6486.2011.01023.x>.
- Baughn, Christopher, Johnson S.R. Cao, Linh Thi My Le, Victor A. Lim, and Kent E. Neupert. 2006. "Normative, Social and Cognitive Predictors of Entrepreneurial Interest in China, Vietnam and the Philippines." *Journal of Developmental Entrepreneurship* 11 (1): 57–77.
- Baum, J. Robert, Michael Frese, and Robert A. Baron. 2014. "Born to Be an Entrepreneur? Revisiting the Personality Approach to Entrepreneurship." In *The Psychology of Entrepreneurship*, edited by Michael Frese J. Robert Baum, Robert A. Baron, 73-98. Psychology Press.
- Bauman, Antonina, and Carol Lucy. 2021. "Enhancing Entrepreneurial Education: Developing Competencies for Success." *The International Journal of Management Education* 19 (1): Article 100293. <https://doi.org/10.1016/j.ijme.2019.03.005>.
- Beck, Cheryl Tatano, Barbara A. Keddy, and Marlene Zichi Cohen. 1994. "Reliability and Validity Issues in Phenomenological Research." *Western Journal of Nursing Research* 16 (3): 254-267.
- Belitski, Maksim, and Keith Heron. 2017. "Expanding Entrepreneurship Education Ecosystems." *Journal of Management Development* 36 (2): 163-177. <https://doi.org/10.1108/JMD-06-2016-0121>.
- Bell, Joseph R., David Dearman, and James E. Wilbanks. 2015. "Evaluating the Effects of a Problem-Based Learning Business Planning Course on Student Entrepreneurial Intentions." *Journal of Entrepreneurship Education* 18 (1): 169-182.
- Bell, Robin. 2015. "Developing the Next Generation of Entrepreneurs: Giving Students the Opportunity to Gain Experience and Thrive." *The International Journal of Management Education* 13 (1): 37-47.
- Bellò, Benedetta, Veronica Mattana, and Michela Loi. 2018. "The Power of Peers: A New Look at the Impact of Creativity, Social Context and Self-Efficacy on Entrepreneurial Intentions." *International Journal of Entrepreneurial Behavior & Research* 24 (1): 214-233. <https://doi.org/10.1108/IJEBR-07-2016-0205>.

- Belwal, Rakesh, Hanan Al Balushi, and Shweta Belwal. 2015. "Students' Perception of Entrepreneurship and Enterprise Education in Oman." *Education + Training* 57 (8/9): 924-947. <https://doi.org/10.1108/ET-12-2014-0149>.
- Berggren, E., and A. Lindholm Dahlstrand. 2008. "Creating an Entrepreneurial Region: Two Waves of Academic Spin-Offs from Halmstad University." In *Bridging the Functional and Territorial Views on Regional Entrepreneurship and Development*, edited by B. Johannisson, Lindholm Dahlstrand, A., 35–54. Boston, MA: FSF Publication.
- Berggren, Eva. 2011. "The Entrepreneurial University's Influence on Commercialisation of Academic Research– the Illustrative Case of Chalmers University of Technology." *International Journal of Entrepreneurship and Small Business* 12 (4): 429-444.
- Berglund, Henrik, Tomas Hellström, and Sören Sjölander. 2007. "Entrepreneurial Learning and the Role of Venture Capitalists." *Venture Capital* 9 (3): 165-181. <https://doi.org/10.1080/13691060701324445>.
- Bernard, H. Russell. 2012. *Research Methods in Anthropology Qualitative and Quantitative Approaches (Fourth Edition)*. Lanham, Maryland: AltaMira Press/ Rowman & Littlefield Publishers, Inc.
- Bethlehem, Jelke. 2010. "Selection Bias in Web Surveys." *International Statistical Review* 78 (2): 161-188. <https://doi.org/10.1111/j.1751-5823.2010.00112.x>.
- Bhaskar, Roy. 2008. *A Realist Theory of Science: With a New Introduction*. Abingdon, OX: Routledge.
- Bisk, L. 2002. "Formal Entrepreneurial Mentoring: The Efficacy of Third Party Managed Programs." *Career Development International* 7 (5): 262-270.
- Blankesteyn, Marlous, Bart Bossink, and Peter van der Sijde. 2021. "Science-Based Entrepreneurship Education as a Means for University-Industry Technology Transfer." *International Entrepreneurship and Management Journal* 17 (2): 779-808. <https://doi.org/10.1007/s11365-019-00623-3>.
- Blenker, Per, Poul Dreisler, Helle Meibom Faergemann, and John Kjeldsen. 2013. "A Framework for Developing Entrepreneurship Education in a University Context." *International Journal of Entrepreneurship and Small Business* 5 (1): 45-63. <https://doi.org/10.1504/IJESB.2008.015953>.
- Blenker, Per, Stine T. Elmholdt, Signe H. Frederiksen, Steffen Korsgaard, and Kathleen Wagner. 2014. "Methods in Entrepreneurship Education Research: A Review and Integrative Framework." *Education + Training* 56 (8/9): 697-715. <https://doi.org/10.1108/ET-06-2014-0066>.
- Bliemel, Martin, Ricardo Flores, Saskia De Klerk, and Morgan P. Miles. 2019. "Accelerators as Start-up Infrastructure for Entrepreneurial Clusters." *Entrepreneurship & Regional Development* 31 (1-2): 133-149. <https://doi.org/10.1080/08985626.2018.1537152>.
- Bolton, Gillie 2010. "Reflection and Reflexivity: What and Why." In *Reflective Practice: Writing and Professional Development (3ed.)*, edited 1-24. Thousand Oaks, CA: Sage.
- Borasi, Raffaella, and Kara Finnigan. 2010. "Entrepreneurial Attitudes and Behaviors That Can Help Prepare Successful Change-Agents in Education." *The New Educator* 6 (1): 1-29.
- Bosma, N., K. Jones, E. Autio, and J. Levie. 2007. *Executive Report- Global Entrepreneurship Monitor*.
- Bosma, Niels, Jolanda Hessels, Veronique Schutjens, Mirjam Van Praag, and Ingrid Verheul. 2012. "Entrepreneurship and Role Models." *Journal of Economic Psychology* 33 (2): 410-424.
- Botha, Melodi, and Alex Bignotti. 2016. "Internships Enhancing Entrepreneurial Intent and Self-Efficacy: Investigating Tertiary-Level Entrepreneurship Education Programmes." *The Southern African Journal of Entrepreneurship and Small Business Management* 8 (1): article 45. <https://doi.org/10.4102/sajesbm.v8i1.45>.
- Boyd, Nancy G., and George S. Vozikis. 1994. "The Influence of Self-Efficacy on the Development of Entrepreneurial Intentions and Actions." *Entrepreneurship Theory and Practice* 18 (4): 63-75.
- Bradburn, Norman M., Seymour Sudman, and Brian Wansink. 2004. *Asking Questions: The Definitive Guide to Questionnaire Design- for Market Research, Political Polls, and Social and Health Questionnaires*. San Francisco, CA: Jossey-Bass (Wiley Imprint).
- Brändle, Leif, Elisabeth SC Berger, Stephan Golla, and Andreas Kuckertz. 2018. "I Am What I Am-How Nascent Entrepreneurs' Social Identity Affects Their Entrepreneurial Self-Efficacy." *Journal of Business Venturing Insights* 9: 17-23. <https://doi.org/10.1016/j.jbvi.2017.12.001>.
- Brandstätter, H. 2011. "Personality Aspects of Entrepreneurship: A Look at Five Meta-Analyses." *Personality and Individual Differences* 51: 222–230.

- Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77-101.
- Braun, Virginia, and Victoria Clarke. 2021. "To Saturate or Not to Saturate? Questioning Data Saturation as a Useful Concept for Thematic Analysis and Sample-Size Rationales." *Qualitative Research in Sport, Exercise and Health* 13 (2): 201-216. <https://doi.org/10.1080/2159676X.2019.1704846>.
- Bridge, Simon. 2017. "Is 'Entrepreneurship' the Problem in Entrepreneurship Education?" *Education + Training* 59 (7/8): 740-750.
- Brown, Robert. 1990. "Encouraging Enterprise: Britain's Graduate Enterprise Program." *Journal of Small Business Management* 28 (4): 71-77.
- Bullough, A., M. Renko, and T. Myatt. 2014. "Danger Zone Entrepreneurs: The Importance of Resilience and Self-Efficacy for Entrepreneurial Intentions." *Entrepreneurship Theory & Practice* 38: 473-499. <https://doi.org/10.1111/Etap.12006>.
- Burbules, Nicholas C. 2000. "The Limits of Dialogue as a Critical Pedagogy." In *Revolutionary Pedagogies: Cultural Politics, Instituting Education, and the Discourse of Theory*, edited by Peter Trifonas, New York, NY: Routledge.
- Burke, Lisa A., and Monica K. Miller. 2001. "Phone Interviewing as a Means of Data Collection: Lessons Learned and Practical Recommendations." *Forum: Qualitative Social Research* 2 (2): Art. 7.
- Burnard, P. 1994. "The Telephone Interview as a Data Collection Method." *Nurse Education Today* 14 (1): 67-72.
- Burnette, Jeni L., Jeffrey M. Pollack, Rachel B. Forsyth, Crystal L. Hoyt, Alexandra D. Babij, Fanice N. Thomas, and Anthony E. Coy. 2020. "A Growth Mindset Intervention: Enhancing Students' Entrepreneurial Self-Efficacy and Career Development." *Entrepreneurship Theory and Practice* 44 (5): 878-908.
- Busenitz, Lowell W. 1999. "Entrepreneurial Risk and Strategic Decision Making: It's a Matter of Perspective." *The Journal of Applied Behavioral Science* 35 (3): 325-340.
- Busenitz, Lowell W., Carolina Gomez, and Jennifer W. Spencer. 2000. "Country Institutional Profiles: Unlocking Entrepreneurial Phenomena." *Academy of Management Journal* 43 (5): 994-1003.
- Carayannis, Elias G., and David F.J. Campbell. 2011. "Open Innovation Diplomacy and a 21st Century Fractal Research, Education and Innovation (Freie) Ecosystem: Building on the Quadruple and Quintuple Helix Innovation Concepts and the "Mode 3" Knowledge Production System." *Journal of the Knowledge Economy* 2 (3): 327.
- Cardon, Melissa S., Michael Glauser, and Charles Y. Murnieks. 2017. "Passion for What? Expanding the Domains of Entrepreneurial Passion." *Journal of Business Venturing Insights* 8: 24-32. <https://doi.org/10.1016/j.jbvi.2017.05.004>.
- Cardon, Melissa S., Denis A. Gregoire, Christopher E. Stevens, and Pankaj C. Patel. 2013. "Measuring Entrepreneurial Passion: Conceptual Foundations and Scale Validation." *Journal of Business Venturing* 28 (3): 373-396. <https://doi.org/10.1016/j.jbusvent.2012.03.003>.
- Cardon, Melissa S., and Colleen P. Kirk. 2015. "Entrepreneurial Passion as Mediator of the Self - Efficacy to Persistence Relationship." *Entrepreneurship Theory and Practice* 39 (5): 1027-1050.
- Carey, Charlotte, and Harry Matlay. 2011. "Emergent Issues in Enterprise Education: The Educator's Perspective." *Industry and Higher Education* 25 (6): 441-450.
- Carland, James W., Frank Hoy, William R. Boulton, and Jo Ann C. Carland. 1984. "Differentiating Entrepreneurs from Small Business Owners: A Conceptualization." *Academy of Management Review* 9 (2): 354-359.
- Carland, James W., Frank Hoy, William R. Boulton, and Jo Ann C. Carland. 2007. "Differentiating Entrepreneurs from Small Business Owners: A Conceptualization." In *Entrepreneurship*, edited 73-81. Berlin, Heidelberg: Springer.
- Carrier, C. 2007. "Strategies for Teaching Entrepreneurship: What Else Beyond Lectures, Case Studies and Business Plans?" In *Handbook of Research in Entrepreneurship Education* edited by A. Fayolle, 143-159. Cheltenham, UK: Edward Elgar.
- Casson, Mark, and Nigel Wadeson. 2007. "Entrepreneurship and Macroeconomic Performance." *Strategic Entrepreneurship Journal* 1 (3/4): 239-262.

- Chan, Peter, Ronald Miller, and Eula Monroe. 2009. "Cognitive Apprenticeship as an Instructional Strategy for Solving Corporate Training Challenges." *TechTrends: For Leaders in Education & Training* 53 (6): 35-41. <https://doi.org/10.1007/s11528-009-0341-3>.
- Chandler, Gaylen N., and E. Jansen. 1997. "Founder Self-Efficacy and Venture Performance: A Longitudinal Study." *Academy of Management Proceedings (Meeting Abstract Supplement)*: 98-102.
- Chang, J., and A. Rieple. 2013. "Assessing Students' Entrepreneurial Skills Development in Live Projects." *Journal of Small Business and Enterprise Development* 20 (1): 225-241.
- Chell, Elizabeth. 2007. "Social Enterprise and Entrepreneurship: Towards a Convergent Theory of the Entrepreneurial Process." *International Small Business Journal* 25 (1): 5-26.
- Chell, Elizabeth, Katerina Nicolopoulou, and Mine Karataş-Özkan. 2010. "Social Entrepreneurship and Enterprise: International and Innovation Perspectives." *Entrepreneurship and Regional Development* 22 (6): 485-493. <https://doi.org/10.1080/08985626.2010.488396>.
- Chen, Chao. C., Patricia G. Greene, and Ann Crick. 1998. "Does Entrepreneurial Self-Efficacy Distinguish Entrepreneurs from Managers?" *Journal of Business Venturing* 13: 295-316.
- Chen, Tzu-Ling, and Ching-Cheng Shen. 2012. "Today's Intern, Tomorrow's Practitioner? The Influence of Internship Programmes on Students' Career Development in the Hospitality Industry." *Journal of Hospitality, Leisure, Sport & Tourism Education* 11 (1): 29-40. <https://doi.org/10.1016/j.jhlste.2012.02.008>.
- Chenail, Ronald J. 2011. "Interviewing the Investigator: Strategies for Addressing Instrumentation and Researcher Bias Concerns in Qualitative Research." *The Qualitative Report* 16 (1): 255-262. <http://www.nova.edu/ssss/QR/WQR/interviewing.pdf>.
- Cheng, Yijie, Yun Liu, Wei Fan, Zhe Yan, and Xuanning Ye. 2019. "Triple Helix on Globalization: A Case Study of the China International Nanotech Innovation Cluster." *Information Development* 35 (2): 272-289. <https://doi.org/10.1177/0266666917743050>.
- Chi, Yang, Yue Qin, Rui Song, and Hao Xu. 2018. "Knowledge Graph in Smart Education: A Case Study of Entrepreneurship Scientific Publication Management." *Sustainability* 10 (4): Article 995. <https://doi.org/10.3390/su10040995>.
- Cho, Yoonyoung, and Maddalena Honorati. 2013. *Entrepreneurship Programs in Developing Countries: A Meta-Regression Analysis (Social Protection and Labor Discussion Paper 1302)*. Washington, DC: <https://doi.org/http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-6402>.
- Choi, Young R., Moren Lévesque, and Dean A. Shepherd. 2008. "When Should Entrepreneurs Expedite or Delay Opportunity Exploitation?" *Journal of Business Venturing* 23 (3): 333-55. <https://doi.org/10.1016/j.jbusvent.2006.11.001>.
- Chowdhury, Sanjib, Megan Lee Endres, and Crissie Frye. 2019. "The Influence of Knowledge, Experience, and Education on Gender Disparity in Entrepreneurial Self-Efficacy." *Journal of Small Business & Entrepreneurship* 31 (5): 371-389.
- Christensen, Clayton, and Michael Raynor. 2013. *The Innovator's Solution: Creating and Sustaining Successful Growth*. Boston, MA: Harvard Business Review Press.
- Cilesiz, Sebnem. 2011. "A Phenomenological Approach to Experiences with Technology: Current State, Promise, and Future Directions for Research." *Educational Technology Research and Development* 59 (4): 487-510. <https://doi.org/10.1007/s11423-010-9173-2>.
- Clark, Delwyn N., Sophie Reboud, Olivier Toutain, Valérie Ballereau, and Tim Mazzarol. 2021. "Entrepreneurial Education: An Entrepreneurial Ecosystem Approach." *Journal of Management & Organization* 27 (4): 694-714. <https://doi.org/10.1017/jmo.2020.26>.
- Coduras, Alscia, José Manuel Saiz-Alvarez, and Jesús Ruiz. 2016. "Measuring Readiness for Entrepreneurship: An Information Tool Proposal." *Journal of Innovation and Knowledge* 1 (2): 99-108. <https://doi.org/10.1016/j.jik.2016.02.003>.
- Collins, Christopher J., Paul J. Hanges, and Edwin A. Locke. 2004. "The Relationship of Achievement Motivation to Entrepreneurial Behavior: A Meta-Analysis." *Human Performance* 17 (1): 95-117.
- Collins, Christopher S., and Carrie M. Stockton. 2018. "The Central Role of Theory in Qualitative Research." *International Journal of Qualitative Methods* 17 (1): 1-10. <https://doi.org/10.1177/1609406918797475>.

- Conway, Martin A. 1990. *Autobiographical Memory: An Introduction*. Buckingham, UK: Open University Press.
- Cooper, Sarah Y., C. Bottomley, and J. Gordon. 2004. "Stepping out of the Classroom and up the Ladder of Learning: An Experiential Learning Approach to Entrepreneurship Education." *Industry and Higher Education* 18 (1): 11-22.
- Cooper, Sarah Y., and William A. Lucas. 2006. "Enhancing Self-Efficacy for Entrepreneurship and Innovation: An Education Approach." *Regional Frontiers Of Entrepreneurship Research* 3: 667 - 683.
- Cope, Jason. 2003. "Entrepreneurial Learning and Critical Reflection: Discontinuous Events as Triggers for 'Higher-Level' Learning." *Management Learning* 34 (4): 429-50.
<https://doi.org/10.1177/1350507603039067>.
- Cope, Jason. 2005a. "Toward a Dynamic Learning Perspective of Entrepreneurship." *Entrepreneurship: Theory and Practice* 29 (4): 373-98.
- Cope, Jason. 2011. "Entrepreneurial Learning from Failure: An Interpretative Phenomenological Analysis." *Journal of Business Venturing* 26 604-623. <https://doi.org/10.1016/j.jbusvent.2010.06.002>.
- Cope, Jason, and Gerald Watts. 2000. "Learning by Doing: An Exploration of Experience, Critical Incidents and Reflection in Entrepreneurial Learning." *International Journal of Entrepreneurial Behaviour and Research* 6 (3): 104-24.
- Cox, Don R. , and Delbert C. Goff. 1996. "Starting and Operating a Student Investment Club." *Financial Practice and Education* 6 (2): 78-85.
- Cox, Larry W., Stephen L. Mueller, and Sherry E. Moss. 2002. "The Impact of Entrepreneurship Education on Entrepreneurial Self-Efficacy." *International Journal of Entrepreneurship Education* 1 (2): 229-247.
- Creswell, John W. 2012. *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research (4th Ed.)*. Boston, MA: Pearson.
- Creswell, John W. Sage. . 2013. *Qualitative Inquiry and Research Design: Choosing among Five Approaches. (3rd Edition)*. Thousand Oaks, CA: Sage.
- Cull, John. 2006. "Mentoring Young Entrepreneurs: What Leads to Success?" *International Journal of Evidence Based Coaching and Mentoring* 4 (2): 8-18.
- Cunliffe, Ann L. 2002. "Reflexive Dialogical Practice in Management Learning." *Management Learning* 33 (1): 35-61.
- Curtis, Vic, Rob Moon, and Andy Penaluna. 2021. "Active Entrepreneurship Education and the Impact on Approaches to Learning: Mixed Methods Evidence from a Six-Year Study into One Entrepreneurship Educator's Classroom." *Industry and Higher Education* 35 (4): 443-453.
- Dahlberg, Karin. 2006. "The Essence of Essences—the Search for Meaning Structures in Phenomenological Analysis of Lifeworld Phenomena." *International Journal of Qualitative Studies on Health and Well-being* 1 (1): 11-19.
- Darmanto, Susetyo, and Giyah Yuliari. 2018. "Mediating Role of Entrepreneurial Self-Efficacy in Developing Entrepreneurial Behaviour of Entrepreneur Students." *Academy of Entrepreneurship Journal* 24 (1): 1-14.
- Davey, Todd, Carolin Plewa, and Miemie Struwig. 2011. "Entrepreneurship Perceptions and Career Intentions of International Students." *Education + Training* 53 (5): 335-352.
- David, Kathryn, Kathryn Penaluna, Elin McCallum, and Caroline Usei. 2018. "Embedding Entrepreneurial Skills Development in Teacher Education (Chapter 19)." In *Entrepreneurial Learning City Regions*, edited by Jean Preece Judith James, Raúl Valdés-Cotera, 319-340. Cham, Switzerland: Springer.
- Davidson, Neil, Claire Howell Major, and Larry K. Michaelsen. 2014. "Small Group Learning in Higher Education-Cooperative, Collaborative, Problem-Based, and Team-Based Learning: An Introduction by the Guest Editors." *Journal on Excellence in College Teaching* 25 (3): 1-6.
- Davidsson, Per 2006. "Foundations and Trends in Entrepreneurship." *Nascent Entrepreneurship: Empirical Studies and Developments* 2 (1): 1-76.
- Deakins, D., and Mark Freel. 1998. "Entrepreneurial Learning and the Growth Process in Smes." *The Learning Organization* 5 (3): 144-55.
- Deakins, David, Linda Graham, Robert Sullivan, and Geoff Whittam. 1998. "New Venture Support: An Analysis of Mentoring Support for New and Early Stage Entrepreneurs." *Journal of Small Business and Enterprise Development* 5 (2): 151-161.

- Deakins, David, and Janette Wyper. 2010. "A Longitudinal and Dynamic Approach to Entrepreneurial Learning." *New Zealand Journal of Employment Relations* 35 (1): 35-47.
- Dees, J. Gregory, and Beth Battle Anderson. 2006. "Framing a Theory of Social Entrepreneurship: Building on Two Schools of Practice and Thought." *Research on Social Entrepreneurship: Understanding and Contributing to an Emerging Field* 1 (3): 39-66.
- Deliana, Marlina, Kusdi Rahardjo, and Tri Wulida Afriyanti. 2019. "Influence of Business Education on Entrepreneurial Intention with Feasibility and Entrepreneurial Self-Efficacy as Intervening Variables." *Jurnal Bisnis dan Manajemen (Journal of Business and Management)* 20 (2): 125-135.
- Desa, Geoffrey, and Sandip Basu. 2013. "Optimization or Bricolage? Overcoming Resource Constraints in Global Social Entrepreneurship." *Strategic Entrepreneurship Journal* 7 (1): 26-49. <https://doi.org/10.1002/sej.1150>.
- Dillman, Don A. 1978. *Mail and Telephone Surveys: The Total Design Method*. New York, NY: Wiley.
- Dobson, John A., Elizabeth Jacobs, and Lisa Dobson. 2017. "Toward an Experiential Approach to Entrepreneurship Education." *Journal of Higher Education Theory and Practice* 17 (3): 57.
- Doody, Owen, and Catriona M. Doody. 2015. "Conducting a Pilot Study: Case Study of a Novice Researcher." *British Journal of Nursing* 24 (21): 1074-1078.
- Du Boulay, Benedict, Katerina Avramides, Rosemary Luckin, Erika Martínez-Mirón, Genaro Rebolledo Méndez, and Amanda Carr. 2010. "Towards Systems That Care: A Conceptual Framework Based on Motivation, Metacognition and Affect." *International Journal of Artificial Intelligence in Education* 20 (3): 197-229.
- Duchek, Stephanie. 2018. "Entrepreneurial Resilience: A Biographical Analysis of Successful Entrepreneurs." *International Entrepreneurship and Management Journal* 14 (2): 429-455. <https://doi.org/10.1007/s11365-017-0467-2>.
- Duval-Couetil, Nathalie, Teri Reed-Rhoads, and Shiva Haghghi. 2012. "Engineering Students and Entrepreneurship Education: Involvement, Attitudes and Outcomes." *International Journal of Engineering Education* 28 (2): 425-435.
- Eddles-Hirsch, Katrina. 2015. "Phenomenology and Educational Research." *International Journal of Advanced Research* 3 (8): 251-260. journalijar.com/article/5631/phenomenologyand-educational-research/.
- Eesley, Charles E., Delin Yang, Edward B. Roberts, and Li Tan. 2016. "Understanding Entrepreneurial Process and Performance: A Cross-National Comparison of Alumni Entrepreneurship between Mit and Tsinghua University." *Asian Journal of Innovation and Policy* 5 (2): 146-184.
- Eesley, Charles, and Yanbo Wang. 2017. "Social Influence in Career Choice: Evidence from a Randomized Field Experiment on Entrepreneurial Mentorship." *Research Policy* 46 (3): 636-650.
- Efklides, Anastasia. 2009. "The Role of Metacognitive Experiences in the Learning Process." *Psicothema* 21 (1): 76-82.
- Eisenstein, Alon, Cynthia Goh, and Emanuel Istrate. 2021. "Supervised Entrepreneurial Work-Integrated Learning." *International Journal of Work-Integrated Learning* 22 (3): 413-422.
- Eleyan, Derar, and Amna Eleyan. 2011. "Coaching, Tutoring and Mentoring in the Higher Education as a Solution to Retain Students in Their Major and Help Them Achieve Success" *presented at the The Internationa Arab Conference on Quality Assurance in Higher Education (IACQA May 10-12, 2011), Zarqa University, Jordan*.
- Elliott, Catherine, Catherine Mavriplis, and Hanan Anis. 2020. "An Entrepreneurship Education and Peer Mentoring Program for Women in Stem: Mentors' Experiences and Perceptions of Entrepreneurial Self-Efficacy and Intent." *International Entrepreneurship and Management Journal* 16 (1): 43-67. <https://doi.org/10.1007/s11365-019-00624-2>.
- Elnadi, Moustafa, and Mohamed Hani Gheith. 2021. "Entrepreneurial Ecosystem, Entrepreneurial Self-Efficacy, and Entrepreneurial Intention in Higher Education: Evidence from Saudi Arabia." *The International Journal of Management Education* 19 (1): Article 100458. <https://doi.org/10.1016/j.ijme.2021.100458>.
- EOS Gallup, Europe. 2002. *Flash Eurobarometer 134 'Entrepreneurship'*. Brussels:
- Erikson, Erik H. 1980. *Identity and the Life Cycle*. New York: Norton.
- Eriksson, E.L. 1996. *Akademiskt Företagande- Från Student Till Företagare*. Lund, Sweden:

- Etzkowitz, Henry. 2003. "Research Groups as 'Quasi-Firms': The Invention of the Entrepreneurial University." *Research Policy* 32 (1): 109-121.
- Evans, Daniel, and Thierry Volery. 2001. "Online Business Development Services for Entrepreneurs: An Exploratory Study." *Entrepreneurship & Regional Development* 13 (4): 333-350.
- Evans, M.D., and D.M. Evans. 2001. "Community Service Project Planning for Asce Student Chapters/Clubs." *Journal of Professional Issues in Engineering Education and Practice* 127 (4): 175-183. [https://doi.org/10.1061/\[ASCE\]1052-3928\[2001\]127:4\[175\]](https://doi.org/10.1061/[ASCE]1052-3928[2001]127:4[175]).
- Farashah, Ali D. 2013. "The Process of Impact of Entrepreneurship Education and Training on Entrepreneurship Perception and Intention: Study of Educational System of Iran." *Education + Training* 55 (8/9): 868-885. <https://doi.org/10.1108/ET-04-2013-0053>.
- Fayolle, A., and B. Gailly. 2015. "The Impact of Entrepreneurship Education on Entrepreneurial Attitudes and Intention: Hysteresis and Persistence." *Journal of Small Business Management* 53 (1): 75-93.
- Fayolle, Alain. 2013. "Personal Views on the Future of Entrepreneurship Education." *Entrepreneurship & Regional Development* 25 (7-8): 692-701. <https://doi.org/10.1080/08985626.2013.821318>.
- Fayolle, Alain, and Benoit Gailly. 2008. "From Craft to Science: Teaching Models and Learning Processes in Entrepreneurship Education." *Journal of European Industrial Training* 32 (7): 569-593. <https://doi.org/10.1108/03090590810899838>.
- Felin, Teppo, and Todd R. Zenger. 2009. "Entrepreneurs as Theorists: On the Origins of Collective Beliefs and Novel Strategies." *Strategic Entrepreneurship Journal* 3 (2): 127-146.
- Fillis, Ian, and Ruth Rentschler. 2010. "The Role of Creativity in Entrepreneurship." *Journal of Enterprising Culture* 18 (01): 49-81. <https://doi.org/10.1142/s0218495810000501>.
- Finfgeld-Connett, Deborah. 2014. "Use of Content Analysis to Conduct Knowledge-Building and Theory-Generating Qualitative Systematic Reviews." *Qualitative Research* 14 (3): 341-352.
- Finlay, Linda. 2014. "Engaging Phenomenological Analysis." *Qualitative Research in Psychology* 11 (2): 121-141. <https://doi.org/10.1080/14780887.2013.807899>.
- Fisher, Greg. 2012. "Effectuation, Causation, and Bricolage: A Behavioral Comparison of Emerging Theories in Entrepreneurship Research." *Entrepreneurship Theory and Practice* 36 (5): 1019-1051. <https://doi.org/10.1111/j.1540-6520.2012.00537>.
- Fisher, Greg, and Herman Aguinis. 2017. "Using Theory Elaboration to Make Theoretical Advancements." *Organizational Research Methods* 20 (3): 438-464.
- Fisher, Robert J. 1993. "Social Desirability and the Validity of Indirect Questioning." *Journal of Consumer Research* 20 (2): 303-315.
- Fitzsimmons, Jason R., and Evan J. Douglas. 2011. "Interaction between Feasibility and Desirability in the Formation of Entrepreneurial Intentions." *Journal of Business Venturing* 26 (4): 431-440.
- Flanagan, John C. 1954. "The Critical Incident Technique." *Psychological Bulletin* 51 (4): 327-58.
- Fletcher, Sarah. 2000. *Mentoring in Schools: A Handbook of Good Practice*. Hove, UK: Psychology Press (Taylor & Francis).
- Florin, J., R. Karri, and N. Rossiter. 2007. "Fostering Entrepreneurial Drive in Business Education: An Attitudinal Approach." *Journal of Management Education* 31 (1): 17-42.
- Forbes, Daniel P. 2005. "Are Some Entrepreneurs More Overconfident Than Others?" *Journal of Business Venturing* 20 (5): 623-640. <https://doi.org/10.1016/j.jbusvent.2004.05.001>.
- Fox, Joe, Luke Pittaway, and Ikenna Uzuegbunam. 2018. "Simulations in Entrepreneurship Education: Serious Games and Learning through Play." *Entrepreneurship Education and Pedagogy* 1 (1): 61-89.
- Francis, Jill J., Marie Johnston, Clare Robertson, Liz Glidewell, Vikki Entwistle, Martin P. Eccles, and Jeremy M. Grimshaw. 2010. "What Is an Adequate Sample Size? Operationalising Data Saturation for Theory-Based Interview Studies." *Psychology and Health* 25 (10): 1229-1245. <https://doi.org/10.1080/08870440903194015>.
- Frese, M. 2007. "The Psychological Actions and Entrepreneurial Success: An Action Theory Approach." In *The Psychology of Entrepreneurship*, edited by M. Frese & R. Baron J.R. Baum, 151-188. Mahwah, NJ: Lawrence Erlbaum Associates.
- Fusch, Patricia I., and Lawrence R. Ness. 2015. "Are We There Yet? Data Saturation in Qualitative Research." *The Qualitative Report* 20 (9): 1408-1416. <http://www.nova.edu/ssss/QR/QR20/9/fusch1.pdf>.

- Gachanja, Isaac Muiruri, Irura Nganga, and Lucy Maina. 2016. "The Influence of Blended Learning on Entrepreneurial Self-Efficacy of University Students." *European Journal of Business and Social Sciences* 5 (3): 16-27.
- Galloway, Laura, and Steve W. Kelly. 2009. "Identifying Entrepreneurial Potential? An Investigation of the Identifiers and Features of Entrepreneurship." *International Review of Entrepreneurship* 7 (4): 1-24.
- Garavan, Thomas N., and Barra O'Conneide. 1994. "Entrepreneurship Education and Training Programmes: A Review and Evaluation - Part 1." *Journal of European Industrial Training* 18 (8): 3-12.
- Gartner, W. B. 1984. "Problems in Business Startup: The Relationships among Entrepreneurial Skills and Problem Identification for Different Types of New Ventures." In *Frontiers of Entrepreneurship Research*, edited by F. Tarpley J.A. Hornaday, J.A. Timmons, and K.H. Vesper, 496–512. Babson College, Wellesley, MA:
- Gecas, Viktor. 1982. "The Self-Concept." *Annual Review of Sociology* 8: 1-33.
- Gecas, Viktor. 1989. "The Social Psychology of Self-Efficacy." *Annual Review of Sociology* 15: 291-316.
- Gedeon, Steven A., and Dave Valliere. 2018. "Closing the Loop: Measuring Entrepreneurial Self-Efficacy to Assess Student Learning Outcomes." *Entrepreneurship Education and Pedagogy* 1 (4): 272-303.
- Gemmell, Robert M., Richard J. Boland, and David A. Kolb. 2012. "The Socio-Cognitive Dynamics of Entrepreneurial Ideation." *Entrepreneurship Theory and Practice* 36 (5): 1053-1073.
- Gerry, Chris, Carla Susana Marques, and Fernanda Nogueira. 2008. "Tracking Student Entrepreneurial Potential: Personal Attributes and the Propensity for Business Start-Ups after Graduation in a Portuguese University." *Problems and Perspectives in Management* 6 (4): 45-53.
- Gess, Ashley, Eleonora Brivio, and Gianluca De Leo. 2021. "Signature Pedagogy for Entrepreneurship Education: An Emerging Perspective." *International Journal for Business Education* 162 (1): Art. 4.
- Giacomin, Olivier, Frank Janssen, Mark Pruett, Rachel S. Shinnar, Francisco Llopis, and Bryan Toney. 2011. "Entrepreneurial Intentions, Motivations and Barriers: Differences among American, Asian and European Students." *International Entrepreneurship And Management Journal* 7 (2): 219-238.
- Gibb, Allan. 2002b. "In Pursuit of a New 'Enterprise' and 'Entrepreneurship' Paradigm for Learning: Creative Destruction, New Values, New Ways of Doing Things and New Combinations of Knowledge." *International Journal of Management Reviews* 4 (3): 233–269.
- Gibb, Allan A. 2012. "Exploring the Synergistic Potential in Entrepreneurial University Development: Towards the Building of a Strategic Framework." *Annals of Innovation & Entrepreneurship* 3 (1). <https://doi.org/10.3402/aie.v3i0.17211>.
- Gibbert, Michael, and Philip Scranton. 2009. "Constraints as Sources of Radical Innovation? Insights from Jet Propulsion Development." *Management and Organizational History* 4 (4): 385–99.
- Gibson, David, Jonathan M. Scott, and Aisling Harkin. 2009. "New Venture Based Learning - an Experiential Pedagogy for High-Growth Entrepreneurship 09_1." *Working Paper Series*.
- Gielnik, Michael M., Michael Frese, Audrey Kahara-Kawuki, Isaac Wasswa Katono, Sarah Kyejjusa, Muhammed Ngoma, and John Munene et al. 2015. "Action and Action-Regulation in Entrepreneurship: Evaluating a Student Training for Promoting Entrepreneurship." *Academy of Management Learning & Education* 14 (1): 69-94.
- Gimmon, Eli. 2014. "Mentoring as a Practical Training in Higher Education of Entrepreneurship." *Education + Training* 56 (8/9): 814-825.
- Gindling, Thomas H., and David Newhouse. 2012. "Self-Employment in the Developing World (Policy Research Working Paper Wps6201)."
- Gioia, Dennis A., Kevin G. Corley, and Aimee L. Hamilton. 2012. "Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology." *Organizational Research Methods* 16 (1): 15-31. <https://doi.org/10.1177/1094428112452151>.
- Giorgi, Amedeo. 2008. "Difficulties Encountered in the Application of the Phenomenological Method in the Social Sciences." *Indo-Pacific Journal of Phenomenology* 8 (1): 1-9.
- Giorgi, Amedeo. 2010. "Phenomenology and the Practice of Science." *Existential Analysis: Journal of the Society for Existential Analysis* 21 (1): 3-22.
- Giorgi, Amedeo, Barbro Giorgi, and James Morley. 2017. "The Descriptive Phenomenological Psychological Method." In *The Sage Handbook of Qualitative Research in Psychology (2ed.)*, edited by Rogers Willig, 176-192. Sage Publishing: Newbury Park, CA.

- Giorgi, Amedeo P. , and Barbro M. Giorgi. 2003. "The Descriptive Phenomenological Psychological Method." In *Qualitative Research in Psychology: Expanding Perspectives in Methodology and Design*, edited by J. E. Rhodes P. M. Camic, L. Yardley, 243–273. Washington, DC: American Psychological Association. <https://doi.org/https://doi.org/10.1037/10595-013>.
- Gist, M.E., and T.R. Mitchell. 1992. "Self-Efficacy: A Theoretical Analysis of Its Determinants and Malleability." *Academy of Management Review* 17 (2): 183-211.
- Gist, Marilyn E. 1987. "Self-Efficacy: Implications for Organizational Behaviour and Human Resource Management." *Academy of Management Review* 12: 472-485.
- Gist, Marilyn E. 1989. "The Influence of Training Method on Self-Efficacy and Idea Generation among Managers." *Personnel Psychology* 42: 787-805.
- Gordon, Ian, Eleanor Hamilton, and Sarah Jack. 2012. "A Study of a University-Led Entrepreneurship Education Programme for Small Business Owner/Managers." *Entrepreneurship & Regional Development* 24 (9-10): 767-805.
- Gray, David E. 2016. "Theoretical Perspectives and Research Methodologies." In *Doing Research in the Real World (3ed.)*, edited Los Angeles, CA: Sage.
- Greene, Francis J. , and George Saridakis. 2006. *Understanding the Factors Influencing Graduate Entrepreneurship (National Council for Graduate Entrepreneurship Research Report 001/2007)*. Coventry< UK www.ncge.org.uk.
- Greene, Francis J., and George Saridakis. 2008. "The Role of Higher Education Skills and Support in Graduate Self - Employment." *Studies in Higher Education* 33 (6): 653-672.
- Grichnik, Dietmar, Jan Brinckmann, Luv Singh, and Sophie Manigart. 2014. "Beyond Environmental Scarcity: Human and Social Capital as Driving Forces of Bootstrapping Activities." *Journal of Business Venturing* 29 (2): 310-326. <https://doi.org/10.1016/j.jbusvent.2013.02.006>.
- Gries, Thomas, and Wim Naudé. 2011. "Entrepreneurship and Human Development: A Capability Approach." *Journal of Public Economics* 95 (3-4): 216-224.
- Grimm, Michael, Peter Knorringa, and Jann Lay. 2012. "Constrained Gazelles: High Potentials in West Africa's Informal Economy." *World Development* 40 (7): 1352–68.
- Grinder, B., D.W. Cooper, and M. Britt. 1999. "An Integrative Approach to Using Student Investment Clubs and Student Investment Funds in the Finance Curriculum." *Financial Services Review* 8 (4): 211-221.
- Grodal, Stine, Michel Anteby, and Audrey L. Holm. 2021. "Achieving Rigor in Qualitative Analysis: The Role of Active Categorization in Theory Building." *Academy of Management Review* 46 (3): 591-612. <https://doi.org/10.5465/amr.2018.0482>.
- Guerrero, Maribel, Josep Rialp, and David Urbano. 2008. "The Impact of Desirability and Feasibility on Entrepreneurial Intentions: A Structural Equation Model." *International Entrepreneurship and Management Journal* 4 (1): 35-50. <https://doi.org/10.1007/s11365-006-0032-x>.
- Guest, Greg, Arwen Bunce, and Laura Johnson. 2006. "How Many Interviews Are Enough? An Experiment with Data Saturation and Variability." *Field Methods* 18(1): 59-82.
- Gupta, Vishal K., Daniel B. Turban, S. Arzu Wasti, and Arijit Sikdar. 2009. "The Role of Gender Stereotypes in Perceptions of Entrepreneurs and Intentions to Become an Entrepreneur." *Entrepreneurship Theory and Practice* 33 (2): 397-417.
- Hand, Chris, Marfuga Iskandarova, and Robert Blackburn. 2020. "Founders' Social Identity and Entrepreneurial Self-Efficacy Amongst Nascent Entrepreneurs: A Configurational Perspective." *Journal of Business Venturing Insights* 13: Article 160.
- Hannon, Paul D., Jonathan Scott, Srikanth Reddy Sursani, and Cindy Millman. 2006. "The State of Education Provision for Enterprise and Entrepreneurship: A Mapping Study of England's Heis." *International Journal of Entrepreneurship Education* 4: 41-72.
- Harris, Lisa, Martyn Jones, and Sally Coutts. 2010. "Partnerships and Learning Communities in Work-Integrated Learning: Designing a Community Services Student Placement Program." *Higher Education Research & Development* 29 (5): 547-559.
- Harvey, Michael, and Rodney Evans. 1995. "Strategic Windows in the Entrepreneurial Process." *Journal Of Business Venturing* 10 (5): 331–347. [https://doi.org/10.1016/0883-9026\(95\)00037-9](https://doi.org/10.1016/0883-9026(95)00037-9).
- Hatt, Lucy. 2018. "Threshold Concepts in Entrepreneurship- the Entrepreneurs' Perspective." *Education + Training* 60 (2): 155-167. <https://doi.org/10.1108/ET-08-2017-0119>.

- Hattie, John, and Helen Timperley. 2007. "The Power of Feedback." *Review of Educational Research* 77 (1): 81–112.
- Hauge, Jannicke B., Francesco Bellotti, Riccardo Berta, Maira B. Carvalho, Alessandro De Gloria, Elisa Lavagnino, Rob Nadolski, and Michela Ott. 2013. "Field Assessment of Serious Games for Entrepreneurship in Higher Education." *Journal of Convergence Information Technology* 8 (13): 1-12.
- Haynie, J. Michael, Dean Shepherd, Elaine Mosakowski, and P. Christopher Earley. 2010. "A Situated Metacognitive Model of the Entrepreneurial Mindset." *Journal of Business Venturing* 25 (2): 217-229.
- Hayward, Mathew L.A., William R. Forster, Saras D. Sarasvathy, and Barbara L. Fredrickson. 2010. "Beyond Hubris: How Highly Confident Entrepreneurs Rebound to Venture Again." *Journal of Business Venturing* 25 (6): 569-578.
- Hechavarria, D.M., M. Renko, and C.H. Matthews. 2012. "The Nascent Entrepreneurship Hub: Goals, Entrepreneurial Self-Efficacy and Start-up Outcomes." *Small Business Economics* 39: 685-701. <https://doi.org/10.1007/s11187-011-9355-2>.
- Hegarty, C., and C. Jones. 2008. "Graduate Entrepreneurship: More Than Child's Play." *Education + Training* 50 (7): 626-37.
- Heritage, J. 1997. "Conversation Analysis and Institutional Talk: Analysing Data." In *Qualitative Research: Theory, Method and Practice*, edited by D. Silverman, London, UK: Sage Publications.
- Hernández-Carrión, Carlos, Carmen Camarero-Izquierdo, and Jesús Gutiérrez-Cillán. 2019. "The Internal Mechanisms of Entrepreneurs' Social Capital: A Multi-Network Analysis." *BRQ Business Research Quarterly* 23: Article 116. <https://doi.org/10.1016/j.brq.2018.12.001>.
- Herrington, Anthony J., and Janice A. Herrington. 2007. "What Is an Authentic Learning Environment?" In *Online and Distance Learning: Concepts, Methodologies, Tools, and Applications*, edited by L.A. Tomei, 68-77. Hershey, PA: Information Science Reference.
- Herrington, Jan, Thomas C. Reeves, and Ron Oliver. 2007. "Immersive Learning Technologies: Realism and Online Authentic Learning." *Journal of Computing in Higher Education* 19 (1): 80-99.
- Hibben, Kristen Cibelli, Barbara Felderer, and Frederick G. Conrad. 2022. "Respondent Commitment: Applying Techniques from Face-to-Face Interviewing to Online Collection of Employment Data." *International Journal of Social Research Methodology* 25 (1): 15-27. <https://doi.org/10.1080/13645579.2020.1826647>.
- Higgins, David, and Chris Elliott. 2011. "Learning to Make Sense: What Works in Entrepreneurial Education?" *Journal of European Industrial Training* 35 (4): 345-367. <https://doi.org/10.1108/03090591111128324>.
- Higgins, David, Deema Refai, and Diene Keita. 2019. "Focus Point: The Need for Alternative Insight into the Entrepreneurial Education Paradigm." *Journal of Small Business & Entrepreneurship* 31 (3): 225-242. <https://doi.org/10.1080/08276331.2018.146685>.
- Higgins, David, Kelly Smith, and Mohammed Mirza. 2013. "Entrepreneurial Education: Reflexive Approaches to Entrepreneurial Learning in Practice." *The Journal Of Entrepreneurship* 22 (2): 135-160. <https://doi.org/10.1177/0971355713490619>.
- Hitt, Michael A., R. Duane Ireland, David G. Sirmon, and Cheryl A. Trahms. 2011. "Strategic Entrepreneurship: Creating Value for Individuals, Organizations, and Society." *Academy of Management Perspectives* 25 (2): 57-75.
- Hjorth, Daniel. 2011. "On Provocation, Education and Entrepreneurship." *Entrepreneurship & Regional Development* 23 (1/2): 49-63. <https://doi.org/10.1080/08985626.2011.540411>.
- Hoang, Ha, and Javier Gimeno. 2010. "Becoming a Founder: How Founder Role Identity Affects Entrepreneurial Transitions and Persistence in Founding." *Journal of Business Venturing* 25 (1): 41-53. <https://doi.org/10.1016/j.jbusvent.2008.07.002>.
- Hoegl, Martin, Michael Gibbert, and David Mazursky. 2008. "Financial Constraints in Innovation Projects: When Is Less More?" *Research Policy* 37 (8): 1382–91.
- Holbrook, Allyson L., Melanie C. Green, and Jon A. Krosnick. 2003. "Telephone Versus Face-to-Face Interviewing of National Probability Samples with Long Questionnaires: Comparisons of

- Respondent Satisficing and Social Desirability Response Bias." *Public Opinion Quarterly* 67 (1): 79-125.
- Hoover, J. Duane, Robert C. Giambatista, and Liuba Y. Belkin. 2012. "Eyes on, Hands On: Vicarious Observational Learning as an Enhancement of Direct Experience." *Academy of Management Learning & Education* 11 (4): 591-608.
- Hoppe, Magnus. 2016. "Policy and Entrepreneurship Education." *Small Business Economics* 46 (1): 13-29. <https://doi.org/10.1007/s11187-015-9676-7>.
- Hsu, David H., Edward B. Roberts, and Charles E. Eesley. 2007. "Entrepreneurs from Technology-Based Universities." *Research Policy* 36 (5): 768-788. <https://doi.org/10.1016/j.respol.2007.03.001>.
- Hu, Rui, and Yinghua Ye. 2017. "Do Entrepreneurial Alertness and Self-Efficacy Predict Chinese Sports Major Students' Entrepreneurial Intention?" *Social Behavior and Personality* 45 (7): 1187-1196. <https://doi.org/10.2224/sbp.6356>.
- Hughes, Hilary. 2007. "Critical Incident Technique." In *Exploring Methods in Information Literacy Research*, edited by Kirsty Willimason Suzanne Lipu, Annemaree Lloyd, 49-66. New York, NY: Elsevier.
- Hycner, Richard H. 1985. "Some Guidelines for the Phenomenological Analysis of Interview Data." *Human Studies* 8 (3): 279-303.
- Hynes, B., Y. Costin, and N. Birdthistle. 2010. "Practice-Based Learning in Entrepreneurship Education: A Means of Connecting Knowledge Producers and Users." *Higher Education, Skills and Work-based Learning* 1 (1): 16-28.
- Hynes, Briga, and Ita Richardson. 2007. "Entrepreneurship Education: A Mechanism for Engaging and Exchanging with the Small Business Sector." *Education + Training* 49 (8/9): 732-744.
- Hytti, Ulla, and Colin O'Gorman. 2004. "What Is 'Enterprise Education'? An Analysis of the Objectives and Methods of Enterprise Education Programs in Four European Countries." *Education and Training* 46 (1): 11-23.
- Hytti, Ulla, Pekka Stenholm, Jarna Heinonen, and Jaana Seikkula-Leino. 2010. "Perceived Learning Outcomes in Entrepreneurship Education: The Impact of Student Motivation and Team Behaviour." *Education + Training* 52 (8/9): 587-606.
- Indarti, Nurul, and Stein Kristiansen. 2003. "Determinants of Entrepreneurial Intention: The Case of Norwegian Students." *Gadjah Mada International Journal of Business* 5 (1): 79-95.
- Isenberg, Daniel J. 2010. "How to Start an Entrepreneurial Revolution." *Harvard Business Review* 88 (6): 40-50.
- Jacobson, Jenna, and Leslie R. Shade. 2018. "Stringttern: Springboarding or Stringing Along Young Interns' Careers?" *Journal of Education and Work* 31 (3): 320-337. <https://doi.org/10.1080/13639080.2018.1473559>.
- Jaussi, Kimberly S., Amy E. Randel, and Shelley D. Dionne. 2007. "I Am, I Think I Can, and I Do: The Role of Personal Identity, Self-Efficacy, and Cross-Application of Experiences in Creativity at Work." *Creativity Research Journal* 19 (2-3): 247-258. <https://doi.org/10.1080/10400410701397339>.
- Jentsch, Birgit. 1998. "The 'Interpreter Effect': Rendering Interpreters Visible in Cross-Cultural Research and Methodology." *Journal of European Social Policy* 8 (4): 275-289. <https://doi.org/10.1177/095892879800800401>.
- Jones, Colin, Harry Matlay, Kathryn Penaluna, and Andy Penaluna. 2014. "Claiming the Future of Enterprise Education." *Education & Training* 56 (8/9): 764-775. <https://doi.org/10.1108/ET-06-2014-0065>.
- Jones, Colin, Kathryn Penaluna, and Andy Penaluna. 2019. "The Promise of Andragogy, Heutagogy and Academagogy to Enterprise and Entrepreneurship Education Pedagogy." *Education + Training* 61 (9): 1170-1186. <https://doi.org/10.1108/ET-10-2018-0211>.
- Kacperczyk, Aleksandra J. 2013. "Social Influence and Entrepreneurship: The Effect of University Peers on Entrepreneurial Entry." *Organization Science* 24 (3): 664-683.
- Kakouris, Alexandros, and Panagiotis Liargovas. 2021. "On the About/for/through Framework of Entrepreneurship Education: A Critical Analysis." *Entrepreneurship Education and Pedagogy* 4 (3): 396-421. <https://doi.org/10.1177/2515127420916740>.
- Kanfer, Ruth, and Phillip L. Ackerman. 1989. "Motivation and Cognitive Abilities: An Integrative/ Aptitude-Treatment Interaction Approach to Skill Acquisition." *Journal of Applied Psychology* 74 (4): 657-90.

- Karagiorgi, Yiasemina, and Loizos Symeou. 2005. "Translating Constructivism into Instructional Design: Potential and Limitations." *Educational Technology & Society* 8 (1): 17-27.
- Karimi, Saeid, Harm J.A. Biemans, Thomas Lans, Mohammad Chizari, and Martin Mulder. 2016. "The Impact of Entrepreneurship Education: A Study of Iranian Students' Entrepreneurial Intentions and Opportunity Identification." *Journal of Small Business Management* 54 (1): 187-209.
- Karlsson, Tomas, and Kåre Moberg. 2013. "Improving Perceived Entrepreneurial Abilities through Education: Exploratory Testing of an Entrepreneurial Self-Efficacy Scale in a Pre-Post Setting." *The International Journal of Management Education* 11 (1): 1-11.
- Karwowski, Maciej, Izabela Lebuda, Ewa Wisniewska, and Jacek Gralewski. 2013. "Big Five Personality Traits as the Predictors of Creative Self-Efficacy and Creative Personal Identity: Does Gender Matter?" *The Journal of Creative Behavior* 47 (3): 215-232.
- Kassean, Hemant, Jeff Vanevenhoven, Eric Liguori, and Doan E. Winkel. 2015. "Entrepreneurship Education: A Need for Reflection, Real-World Experience and Action." *International Journal of Entrepreneurial Behavior & Research* 21 (5): 690-708. <https://doi.org/10.1108/IJEBR-07-2014-0123>.
- Kavanagh, David J., and G.H. Bower. 1985. "Mood and Self-Efficacy: Impact of Joy and Sadness on Perceived Capabilities." *Cognitive Therapy and Research* 9 (5): 507-525.
- Kayes, A.B., D.C. Kayes, and D.A. Kolb. 2005b. "Experiential Learning in Teams." *Simulation & Gaming* 36: 330-354.
- Kelley, Donna, Slavica Singer, and Mike Herrington. 2016. *Global Entrepreneurship Monitor: Global Report 2015/16*. London, UK:
- Kelly, Phil. 2008. "Achieving Desirable Group-Work Outcomes through the Group Allocation Process." *Team Performance Management: An International Journal* 14 (1/2): 22-38.
- Kent, Tony, Charles Dennis, and Sue Tanton. 2003. "An Evaluation of Mentoring for Sme Retailers." *International Journal Of Retail & Distribution Management* 31 (8/9): 440-448.
- Keupp, Marcus, and Matthias O. Gassmann. 2013. "Resource Constraints as Triggers of Radical Innovation: Longitudinal Evidence from the Manufacturing Sector." *Research Policy* 42 (8): 1457-1468.
- Kickul, Jill, Fiona Wilson, Deborah Marlino, and Saulo D. Barbosa. 2008. "Are Misalignments of Perceptions and Self-Efficacy Causing Gender Gaps in Entrepreneurial Intentions among Our Nation's Teens?" *Journal of Small Business and Enterprise Development* 15 (2): 321-335.
- Kiger, Michelle E., and Lara Varpio. 2020. "Thematic Analysis of Qualitative Data." *Medical Teacher: AMEE Guide No. 131*. <https://doi.org/10.1080/0142159X.2020.1755030>.
- King, Nigel. 2004a. "Using Interviews in Qualitative Research." In *Essential Guide to Qualitative Methods in Organizational Research*, edited by Catherine Cassell Gillian Symon, 11-22. London, UK: Sage.
- Kirby, David A., and Harim Humayun. 2013. "Outcomes of an Entrepreneurship Education Programme: An Empirical Study in Egypt." *International Journal of Management* 30 (3): 23-35.
- Kirby, David A., and Nagwa Ibrahim. 2011. "Entrepreneurship Education and the Creation of an Enterprise Culture: Provisional Results from an Experiment in Egypt." *International Entrepreneurship Management Journal* 7 (2): 181-193.
- Kirkwood, Jodyanne, Kirsty Dwyer, and Brendan Gray. 2014. "Students' Reflections on the Value of an Entrepreneurship Education." *The International Journal of Management Education* 12 (3): 307-316.
- Kirschner, Paul A., John Sweller, and Richard E. Clark. 2006. "Why Minimal Guidance During Instruction Does Not Work: An Analysis of the Failure of Constructivist, Discovery, Problem-Based, Experiential, and Inquiry-Based Teaching." *Educational Psychologist* 41 (2): 75-86. https://doi.org/10.1207/s15326985ep4102_1.
- Kirwan, P.M., P. Van Der Sijde, and M. Klofsten. 2008. "Supporting High-Tech Companies: Using the Business Platform as a Practical Instrument." *International Journal Of Innovation And Regional Development* 1 (1): 48-65.
- Kirzner, Israel M. 1999. "Creativity and/or Alertness: A Reconsideration of the Schumpeterian Entrepreneur." *Review of Austrian Economics* 11: 5-17.
- Kisubi, Moses Kisame, Ronald Bonuke, and Michael Korir. 2021. "Entrepreneurial Education and Self-Employment: Does Entrepreneurial Self-Efficacy Matter?" *SEISENSE Business Review* 1 (1): 18-30. <https://doi.org/10.33215/sbr.v1i1.498>.

- Klapper, Leora, Raphael Amit, and Mauro F. Guillén. 2010. "Entrepreneurship and Firm Formation across Countries." In, edited by Josh Lerner and Antoinette Schoar, 129 - 158. Chicago, IL: University of Chicago Press. <http://www.nber.org/chapters/c8220>.
- Klapper, Rita G., and Silke Tegtmeier. 2010. "Innovating Entrepreneurial Pedagogy: Examples from France and Germany." *Journal of Small Business and Enterprise Development* 17 (4): 552- 568.
- Klein, Peter G., and J Bruce Bullock. 2006. "Can Entrepreneurship Be Taught?" *Journal of Agricultural and Applied Economics* 38 (2): 429-439.
- Klinger, Bailey, and Matthias Schündeln. 2011. "Can Entrepreneurial Activity Be Taught? Quasi-Experimental Evidence from Central America." *World Development* 39 (9): 1592-1610.
- Klofsten, M., and S. Öberg. 2012. "Chapter 4 Coaching Versus Mentoring: Are There Any Differences?" In *New Technology-Based Firms in the New Millennium*, edited by A. Groen, R. Oakey, P. Van Der Sijde and G. Cook, 39-48. Emerald: Bingley.
- Kluger, A.N., and A. DeNisi. 1996. "The Effects of Feedback Interventions on Performance: A Historical Review, a Meta-Analysis, and a Preliminary Feedback Intervention Theory." *Psychological Bulletin* 119: 254-284.
- Klyver, Kim, and Mark T. Schenkel. 2013. "From Resource Access to Use: Exploring the Impact of Resource Combinations on Nascent Entrepreneurship." *Journal of Small Business Management* 51 (4): 539-556. <https://doi.org/10.1111/jsbm.12030>.
- Kolb, A.Y., and D.A Kolb. 2005. "Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education." *Academy of Management Learning and Education* 4 (2): 193-212.
- Kolb, A.Y., and D.A. Kolb. 2009. "The Learning Way: Metacognitive Aspects of Experiential Learning." *Simulation and Gaming: An Interdisciplinary Journal* 40 (3): 297-327.
- Kolb, Alice Y., David A. Kolb, Angela Passarelli, and Garima Sharma. 2014. "On Becoming an Experiential Educator: The Educator Role Profile." *Simulation & gaming* 45 (2): 204-234.
- Kolb, David A. 1976. "Management and the Learning Process." *California Management Review* 18 (3): 21-31.
- Kolb, David A., Richard E. Boyatzis, and Caralampos Mainemelis. 2000. "Experiential Learning Theory: Previous Research and New Directions." In *Perspectives on Cognitive, Learning, and Thinking Styles*, edited by R. J. Sternberg and L. F. Zhang, 227-248. Mahwah, NJ: Lawrence Erlbaum.
- Kolvereid, Lars. 1996. "Predictions of Employment Status Choice Intentions." *Entrepreneurship Theory and Practice* 21 (1): 47-57.
- Kolvereid, Lars, and Oystein Moen. 1997. "Entrepreneurship among Business Graduates: Does a Major in Entrepreneurship Make a Difference?" *Journal of European Industrial Training* 21 (4-5): 154.
- Korsgaard, S., and A.R. Anderson. 2011. "Enacting Entrepreneurship as Social Value Creation." *International Small Business Journal* 29 (2): 135-151.
- Kozlinska, Inna. 2011. "Contemporary Approaches to Entrepreneurship Education." *Journal of Business Management* 4: 205-220.
- Kozlinska, Inna, Anna Rebmann, and Tõnis Mets. 2020. "Entrepreneurial Competencies and Employment Status of Business Graduates: The Role of Experiential Entrepreneurship Pedagogy." *Journal of Small Business & Entrepreneurship* Open Access: 1-38. <https://doi.org/10.1080/08276331.2020.1821159>.
- Krathwohl, David R. 2002. "A Revision of Bloom's Taxonomy: An Overview." *Theory Into Practice* 41 (4): 212-218. https://doi.org/10.1207/s15430421tip4104_2.
- Krosnick, Jon. 2000. "The Threat of Satisficing in Surveys: The Shortcuts Respondents Take in Answering Questions." *Survey Methods Newsletter* 20 (1): 1-8.
- Krosnick, Jon A. 1991. "Response Strategies for Coping with the Cognitive Demands of Attitude Measures in Surveys." *Applied Cognitive Psychology* 5 (3): 213-236.
- Krosnick, Jon A. 1999. "Survey Research." *Annual Review of Psychology* 50: 537-567.
- Krueger, N.F. 1993. "The Impact of Prior Entrepreneurial Exposure on Perceptions of New Venture Feasibility and Desirability." *Entrepreneurship Theory and Practice* 18 (1): 5-21.
- Krueger, Norris F., and Deborah V. Brazeal. 1994. "Entrepreneurial Potential and Potential Entrepreneurs." *Entrepreneurship Theory and Practice* 18 (3): 91-104.

- Krueger, Norris F., Michael D. Reilly, and Alan L. Carsrud. 2000. "Competing Models of Entrepreneurial Intentions." *Journal of Business Venturing* 15: 411-432.
- Krueger, Norris, Jr., and Peter R. Dickson. 1994. "How Believing in Ourselves Increases Risk Taking: Perceived." *Decision Sciences* 25 (3): 385.
- Krumpal, Ivar. 2013. "Determinants of Social Desirability Bias in Sensitive Surveys: A Literature Review." *Quality and Quantity* 47 (4): 2025-2047. <https://doi.org/10.1007/s11135-011-9640-9>.
- Kubberød, Elin, and Inger Beate Pettersen. 2017. "Exploring Situated Ambiguity in Students' Entrepreneurial Learning." *Education + Training* 59 (3): 265-279. <https://doi.org/10.1108/ET-04-2016-0076>.
- Kumar, Rakesh, and Shalini Shukla. 2022. "Creativity, Proactive Personality and Entrepreneurial Intentions: Examining the Mediating Role of Entrepreneurial Self-Efficacy." *Global Business Review* 23 (1): 101-118. <https://doi.org/10.1177/0972150919844395>.
- Kuratko, Donald F. 2017. *Entrepreneurship: Theory, Process, and Practice (10th Ed.)*. Mason, OH: Cengage Learning/South-Western Publishers.
- Kutzhanova, Nailya, Thomas S. Lyons, and Gregg A. Lichtenstein. 2009. "Skill-Based Development of Entrepreneurs and the Role of Personal and Peer Group Coaching in Enterprise Development." *Economic Development Quarterly* 23 (3): 193-210.
- Kvale, Steinar. 2006. "Dominance through Interviews and Dialogues." *Qualitative Inquiry* 12 (3): 480-500.
- Kyrö, P. 2008. "A Theoretical Framework for Teaching and Learning Entrepreneurship." *International Journal of Business and Globalisation* 2: 39-55. <https://doi.org/10.1504/IJBG.2008.016133>.
- Lackéus, Martin. 2014. "An Emotion Based Approach to Assessing Entrepreneurial Education." *The International Journal of Management Education* 12 (3): 374-396. <https://doi.org/10.1016/j.ijme.2014.06.005>.
- Lackéus, Martin, and Karen Williams Middleton. 2015. "Venture Creation Programs: Bridging Entrepreneurship Education and Technology Transfer." *Education+ Training* 57 (1): 48-73.
- Lackéus, Martin, and Karen Williams Middleton. 2018. "Assessing Experiential Entrepreneurship Education: Key Insights from Five Methods in Use at a Venture Creation Programme." In *Experiential Learning for Entrepreneurship: Theoretical and Practical Perspectives on Enterprise Education*, edited by Elizabeth Caldwell Denis Hyams-Ssekasi, 19-49. Cham, Switzerland: Palgrave Macmillan.
- Lam, Tony C.M. , and Priscilla Bengo. 2003. "A Comparison of Three Retrospective Self-Reporting Methods of Measuring Change in Instructional Practice." *American Journal of Evaluation* 24 (1): 65-80.
- Lange, Julian, Edward Marram, Ajay Solai Jawahar, Wei Yong, and William Bygrave. 2014. "Does an Entrepreneurship Education Have Lasting Value? A Study of Careers of 3,775 Alumni." *Journal of Business and Entrepreneurship* 25 (2 Spring): 1-31.
- Lans, Thomas, Harm Biemans, Martin Mulder, and Jos Verstegen. 2010. "Self-Awareness of Mastery and Improvability of Entrepreneurial Competence in Small Businesses in the Agrifood Sector." *Human Resource Development Quarterly* 21 (2).
- Lans, Thomas, Wim Hulsink, Herman Baert, and Martin Mulder. 2008. "Entrepreneurship Education and Training in a Small Business Context: Insights from the Competence-Based Approach." *Journal of Enterprising Culture* 16 (4): 363-383.
- Lantu, Donald C., Yulianto Suharto, Ira Fachira, Anggraeni Permatasari, and Grisna Anggadwita. 2022. "Experiential Learning Model: Improving Entrepreneurial Values through Internship Program at Start-Ups." *Higher Education, Skills and Work-Based Learning* 12 (1): 107-125. <https://doi.org/10.1108/HESWBL-01-2021-0014>.
- Larkin, Michael, Virginia Eatough, and Mike Osborn. 2011. "Interpretative Phenomenological Analysis and Embodied, Active, Situated Cognition." *Theory & Psychology* 21 (3): 318-337. <https://doi.org/10.1177/0959354310377544>.
- Larkin, Michael, Rachel Shaw, and Paul Flowers. 2019. "Multiperspectival Designs and Processes in Interpretative Phenomenological Analysis Research." *Qualitative Research in Psychology* 16 (2): 182-198. <https://doi.org/10.1080/14780887.2018.1540655>.
- Larkin, Michael, and Andrew Thompson. 2012. "Interpretative Phenomenological Analysis." In *Qualitative Research Methods in Mental Health and Psychotherapy: A Guide for Students and Practitioners*, edited by D. Harper A. Thompson, 99-116. Oxford, UK: Wiley & Sons.

- Larkin, Michael, Simon Watts, and Elizabeth Clifton. 2006. "Giving Voice and Making Sense in Interpretative Phenomenological Analysis." *Qualitative Research in Psychology* 3 (2): 102-120.
<https://doi.org/10.1191/1478088706qp062oa>.
- Larsson, Jan, and Inger Holmström. 2007. "Phenomenographic or Phenomenological Analysis: Does It Matter? Examples from a Study on Anaesthesiologists' Work." *International Journal of Qualitative Studies on Health and Well-Being* 2 (1): 55-64.
- Laspita, Stavroula, Nicola Breugst, Stephan Heblich, and Holger Patzelt. 2012. "Intergenerational Transmission of Entrepreneurial Intentions." *Journal of Business Venturing* 27 (4): 414-435.
- Lavolette, Eric Michael, Miruna Radu Lefebvre, and Olivier Brunel. 2012. "The Impact of Story Bound Entrepreneurial Role Models on Self-Efficacy and Entrepreneurial Intention." *International Journal Of Entrepreneurial Behavior & Research* 18 (6): 720-742.
- Lavolette, Eric Michael, and Radu Miruna Lefebvre. 2008. "Symbolic Role Models and Entrepreneurial Intention." *presented at the The 2008 International Council for Small Business Conference, World Conference, 22–25 June, Halifax, Nova Scotia, Canada,*
- Lebusa, Malefane J. 2011. "Does Entrepreneurial Education Enhance under-Graduate Students' Entrepreneurial Self-Efficacy? A Case at One University of Technology in South Africa." *China-USA Business Review* 10 (1): 53-64.
- Lee, Anne. 2007. "How Can a Mentor Support Experiential Learning?" *Clinical Child Psychology and Psychiatry* 12 (3): 333-340.
- Lee, Geoffrey, Robyn McGuiggan, and Barbara Holland. 2010. "Balancing Student Learning and Commercial Outcomes in the Workplace." *Higher Education Research & Development* 29 (5): 561-574.
- Lee, S.M., and S.J. Peterson. 2000. "Culture, Entrepreneurial Orientation, and Global Competitiveness." *Journal of World Business* 35 (4): 401-416.
- Lee, Sang M., Daesung Chang, and Seong-Bae Lim. 2005. "Impact of Entrepreneurship Education: A Comparative Study of the U.S. And Korea." *International Entrepreneurship Management Journal* 1: 27-43.
- Lee, Sang M., Seong-bae Lim, and Raghuvar D. Pathak. 2011. "Culture and Entrepreneurial Orientation: A Multi-Country Study." *International Entrepreneurship and Management Journal* 7 (1): 1-15.
<https://doi.org/10.1007/s11365-009-0117-4>.
- Leech, Beth L. 2002. "Asking Questions: Techniques for Semi-Structured Interviews." *PS: Political Science & Politics* 35 (4): 665-668.
- Lefebvre, Miruna-Radu, and Renaud Redien-Collot. 2013. "'How to Do Things with Words': The Discursive Dimension of Experiential Learning in Entrepreneurial Mentoring Dyads." *Journal of Small Business Management* 51 (3): 370–393. <https://doi.org/10.1111/jsbm.12022>.
- Lefebvre, Radu Miruna, and Christophe Loué. 2008. "Motivational Impact of Role Models as Moderated by 'Ideal' Vs. 'Ought Self-Guides' Identifications." *Journal of Enterprising Culture* 16 (4): 441–465.
- Leigh-Osroosh, Katheryne T. 2021. "The Phenomenological House: A Metaphoric Framework for Descriptive Phenomenological Psychological Design and Analysis." *The Qualitative Report* 26 (6): 1817-1829.
<https://doi.org/10.46743/2160-3715/2021.4815>.
- Leung, Doris Y.P. , and David Kember. 2003. "The Relationship between Approaches to Learning and Reflection Upon Practice." *Educational Psychology* 23 (1): 61-71.
- Levine, Ross, and Yona Rubinstein. 2013. "Smart and Illicit: Who Becomes an Entrepreneur and Does It Pay? (Nber Working Paper 19276)."
- Li, Cai, Majid Murad, Fakhar Shahzad, Muhammad Aamir Shafique Khan, Sheikh F. Ashraf, and Courage S. K. Dogbe. 2020. "Entrepreneurial Passion to Entrepreneurial Behaviour: Role of Entrepreneurial Alertness, Entrepreneurial Self-Efficacy and Proactive Personality." *Frontiers in Psychology* 11: Article 1611. <https://doi.org/10.3389/fpsyg.2020.01611>.
- Li, Weiming, Chunyan Li, and Xiaohua Du. 2016. "Ten Years of Entrepreneurship Education at Chinese Universities: Evolution, Problems, and System Building." *Chinese Education & Society* 49 (3): 198-216.
- Li, Wen, and Yurong Zhang. 2020. "Formation of University Scholars' Entrepreneurial Intentions: Interaction between Perceived Desirability and Perceived Feasibility." *Social Behaviour and Personality* 48 (1): 1-13. <https://doi.org/10.2224/sbp.8677>.

- Lichtenstein, Gregg A., and Thomas S. Lyons. 2001. "The Entrepreneurial Development System: Transforming Business Talent and Community Economies." *Economic Development Quarterly* 15 (1): 3-20.
- Liñán, Francisco, Francesco Ceresia, and Antonio Bernal. 2018. "Who Intends to Enroll in Entrepreneurship Education? Entrepreneurial Self-Identity as a Precursor." *Entrepreneurship Education and Pedagogy* 1 (3): 222-242. <https://doi.org/10.1177/2515127418780491>.
- Liñán, Francisco, Francisco J. Santos, and Jose Fernández. 2011. "The Influence of Perceptions on Potential Entrepreneurs." *International Entrepreneurship and Management Journal* 7 (3): 373–390.
- Liñán, Francisco, David Urbano, and Maribel Guerrero. 2011. "Regional Variations in Entrepreneurial Cognitions: Start-up Intentions of University Students in Spain." *Entrepreneurship & Regional Development* 23 (3-4): 187-215. <https://doi.org/10.1080/08985620903233929>
- Lindholm Dahlstrand, Asa, and Eva Berggren. 2010. "Chapter 4 Linking Innovation and Entrepreneurship in Higher Education: A Study of Swedish Schools of Entrepreneurship." In *New Technology-Based Firms in the New Millennium (Vol. 8)*, edited by R. Oakey, Groen, A., Cook, G. and Van Der Sijde, P., 35-50. Bingley, UK: Emerald Group Publishing Limited. [https://doi.org/10.1108/S1876-0228\(2010\)0000008006](https://doi.org/10.1108/S1876-0228(2010)0000008006).
- Litzky, Barrie, Doan Winkel, Jennifer Hance, and Ryan Howell. 2020. "Entrepreneurial Intentions: Personal and Cultural Variations." *Journal of Small Business and Enterprise Development* 27 (7): 1029-1047. <https://doi.org/10.1108/JSBED-07-2019-0241>.
- Liu, Xianyue, Chunpei Lin, Guanxi Zhao, and Dali Zhao. 2019. "Research on the Effects of Entrepreneurial Education and Entrepreneurial Self-Efficacy on College Students' Entrepreneurial Intention." *Frontiers in Psychology* 10: Article. 869. <https://doi.org/10.3389/fpsyg.2019.00869>.
- Lourenço, Fernando, and Oswald Jones. 2006. "Developing Entrepreneurship Education: Comparing Traditional and Alternative Teaching Approaches." *International Journal of Entrepreneurship Education* 4 (1): 111-140.
- Lourenço, Fernando, Tony G. Taylor, and David W. Taylor. 2013. "Integrating 'Education for Entrepreneurship' in Multiple Faculties in 'Half-the-Time' to Enhance Graduate Entrepreneurship." *Journal of Small Business and Enterprise Development* 20 (3): 503-525. <https://doi.org/10.1108/JSBED-04-2013-0052>.
- Lucas, William A., Sarah Y. Cooper, Tony Ward, and Frank Cave. 2009. "Industry Placement, Authentic Experience and the Development of Venturing and Technology Self-Efficacy." *Technovation* 29 (11): 738-752.
- Lundqvist, Mats A., and Karen L. Williams-Middleton. 2013. "Academic Entrepreneurship Revisited- University Scientists and Venture Creation." *Journal of Small Business and Enterprise Development* 20 (3): 603-617. <https://doi.org/10.1108/JSBED-04-2013-0059>.
- Luthans, Fred, and Elina S. Ibrayeva. 2006. "Entrepreneurial Self-Efficacy in Central Asian Transition Economies: Quantitative and Qualitative Analyses." *Journal of International Business Studies* 37 (1): 92-110. <https://doi.org/10.1057/palgrave.jibs.8400173>.
- Luthans, Fred, Michael J. Rubach, and Paul Marsnik. 1995. "Going Beyond Total Quality: The Characteristics, Techniques, and Measures of Learning Organizations." *The International Journal of Organizational Analysis* 3 (1): 24-44.
- Luthje, C. , and N. Franke. 2003. "The Making of an Entrepreneur: Testing a Model of Entrepreneurial Intent among Engineering Students at Mit." *R&D Management* 33 (2): 135-47.
- Malebana, M.J., and E. Swanepoel. 2014. "The Relationship between Exposure to Entrepreneurship Education and Entrepreneurial Self-Efficacy." *Southern African Business Review* 18 (1): 1-26.
- Mälkki, Kaisu. 2010. "Building on Mezirow's Theory of Transformative Learning: Theorizing the Challenges to Reflection." *Journal of Transformative Education* 8 (1): 42-62.
- Mälkki, Kaisu. 2012. "Rethinking Disorienting Dilemmas within Real-Life Crises: The Role of Reflection in Negotiating Emotionally Chaotic Experiences." *Adult Education Quarterly* 62 (3): 207-229.
- Man, Thomas Wing Yan. 2012. "Developing a Behaviour-Centred Model of Entrepreneurial Learning." *Journal of Small Business and Enterprise Development* 19 (3): 549-566.
- Mandel, Richard, and Erik Noyes. 2016. "Survey of Experiential Entrepreneurship Education Offerings among Top Undergraduate Entrepreneurship Programs." *Education + Training* 58 (2): 164-178.

- Manolis, Chris, David J. Burns, Rashmi Assudani, and Ravi Chinta. 2013. "Assessing Experiential Learning Styles: A Methodological Reconstruction and Validation of the Kolb Learning Style Inventory." *Learning and Individual Differences* 23: 44-52.
- Margolis, Howard, and Patrick P. McCabe. 2006. "Improving Self-Efficacy and Motivation: What to Do, What to Say." *Intervention in School and Clinic* 41 (4): 218-227.
- Maritz, Alex, and Christopher R. Brown. 2013. "Illuminating the Black Box of Entrepreneurship Education Programs." *Education + Training* 55 (3): 234-252. <https://doi.org/10.1108/00400911311309305>.
- Martin, Chris C. 2022. "Why Do College Counselors Perceive Anxiety as Increasing? A Semi-Structured Examination of Five Causes." *Journal of College Student Psychotherapy* 36 (1): 23-48. <https://doi.org/10.1080/87568225.2020.1753611>.
- Matthews, Charles H., and Susanne G. Scott. 1995. "Uncertainty and Planning in Small and Entrepreneurial Firms: An Empirical Assessment." *Journal of Small Business Management* 33 (4): 34.
- Mayer, Richard E. 2004. "Should There Be a Three-Strikes Rule against Pure Discovery Learning? The Case for Guided Methods of Instruction." *American Psychologist* 59 (1): 14-19. <https://doi.org/10.1037/0003-066X.59.1.14>.
- Mazzarol, Tim. 2014. *How Do Australia's Universities Engage with Entrepreneurship and Small Business? , Cemi Discussion Paper 1401*. Centre for Entrepreneurial Management and Innovation: www.cemi.com.au.
- McAdam, M., and S. Marlow. 2007. "Building Futures or Stealing Secrets?" *International Small Business Journal* 25 (4): 361-382.
- McGuigan, Patrick J. 2016. "Practicing What We Preach: Entrepreneurship in Entrepreneurship Education." *Journal of Entrepreneurship Education* 19 (1): 38-50.
- McLellan, Eleanor, Kathleen M. MacQueen, and Judith L. Neidig. 2003. "Beyond the Qualitative Interview: Data Preparation and Transcription." *Field Methods* 15 (1): 63-84. <https://doi.org/10.1177/1525822X02239573>.
- McMullan, W. Ed., and Karl Vesper. 1987. "New Ventures and Small Business Innovation for Economic Growth." *R and D Management* 17 (1): 3-13. <https://doi.org/10.1111/j.1467-9310.1987.tb00043.x>.
- McMullen, Jeffery S., and Dean A. Shepherd. 2006. "Entrepreneurial Action and the Role of Uncertainty in the Theory of the Entrepreneur." *Academy of Management Review* 31 (1): 132-152.
- McNamara, Carter. 2009. "General Guidelines for Conducting Research Interviews." Authenticity Consulting, LLC. Accessed January 23, 2019, <https://managementhelp.org/businessresearch/interviews.htm>.
- Mealer, Meredith , and Jacqueline Jones. 2014. "Methodological and Ethical Issues Related to Qualitative Telephone Interviews on Sensitive Topics." *Nurse Researcher* 21 (4): 32-37. <https://doi.org/10.7748/nr2014.03.21.4.32.e1229>.
- Mehra, Beloo. 2002. "Bias in Qualitative Research: Voices from an Online Classroom." *The Qualitative Report* 7 (1): 1-19.
- Mellahi, Kamel, and Lloyd C. Harris. 2016. "Response Rates in Business and Management Research: An Overview of Current Practice and Suggestions for Future Direction." *British Journal of Management* 27 (2): 426-437.
- Memar, Noushan, Angelina Sundström, and Toon Larsson. 2021. "Teaching Causation and Effectuation in the Large Classroom: A Production-Trade Game." *Journal of Management Education* 45 (3): 438-478. <https://doi.org/10.1177/1052562920951971>.
- Memon, Jamshed, M. Z. A. Rozan, Kamariah Ismail, Mueen Uddin, and Dzurlil K. Daud. 2015. "Mentoring an Entrepreneur: Guide for a Mentor." *Sage Open* 5 (1): 1-10. <https://doi.org/10.1177/2158244015569666>.
- Memon, Maqsood, Bahadur A. Soomro, and Naimatullah Shah. 2019. "Enablers of Entrepreneurial Self-Efficacy in a Developing Country." *Education+ Training* 61 (6): 684-699. <https://doi.org/10.1108/ET-10-2018-0226>.
- Menzies, Teresa V., and Joseph C. Paradi. 2003. "Entrepreneurship Education and Engineering Students: Career Path and Business Performance." *International Journal of Entrepreneurship and Innovation* 4 (2): 121-132.

- Merriam, Sharan B. 1998. *Qualitative Research and Case Study Applications in Education*. San Francisco, CA: Jossey-Bass.
- Merrill, M. David. 2002. "First Principles of Instruction." *Educational Technology Research and Development* 50 (3): 43-59.
- Merrill, M. David. 2007. "A Task-Centred Instructional Strategy." *Journal of Research on Technology in Education* 40 (1): 5-22.
- Mezirow, J. 1998b. "On Critical Reflection." *Adult Learning Quarterly* 48 (3): 185-198.
- Mezirow, Jack. 1990. "How Critical Reflection Triggers Transformative Learning." In *Fostering Critical Reflection in Adulthood*, edited by Mezirow and Associates, 1-20. Hoboken, NJ: Jossey Bass.
- Mezirow, Jack. 1997. "Transformative Learning: Theory to Practice." In *New Directions for Adult and Continuing Education No. 74*, edited 5-12. Jossey-Bass Publishers.
- Miles, Morgan P., Huibert de Vries, Geoff Harrison, Martin Bliemel, Saskia De Klerk, and Chick J. Kasouf. 2017. "Accelerators as Authentic Training Experiences for Nascent Entrepreneurs." *Education + Training* 59 (7/8): 811-824. <https://doi.org/10.1108/ET-01-2017-0007>.
- Miller, Kent D. , and Eric W.K. Tsang. 2011. "Testing Management Theories: Critical Realist Philosophy and Research Methods." *Strategic Management Journal* 32 (2): 139-158.
- Miner, John B. 2000. "Testing a Psychological Typology of Entrepreneurship Using Business Founders." *Journal of Applied Behavioral Science* 36 (1): 43-69.
- Miyazaki, Anthony D., and Kimberly A. Taylor. 2008. "Researcher Interaction Biases and Business Ethics Research: Respondent Reactions to Researcher Characteristics." *Journal of Business Ethics* 81: 779–795. <https://doi.org/10.1007/s10551-007-9547-5>.
- Morris, Michael H., and Minet Schindehutte. 2014. "Teaching Entrepreneurship Students How to Design a Business Model." In *Annals of Entrepreneurship Education and Pedagogy*, edited by Michael H. Morris, Cheltenham, UK: Edward Elgar
- Morris, Michael H., Galina Shirokova, and Tatyana Tsukanova. 2017. "Student Entrepreneurship and the University Ecosystem: A Multi-Country Empirical Exploration." *European Journal of International Management* 11 (1): 65-85. <https://doi.org/10.1504/EJIM.2017.081251>.
- Morris, Thomas Howard. 2020. "Experiential Learning—a Systematic Review and Revision of Kolb’s Model." *Interactive Learning Environments* 28 (8): 1064-1077. <https://doi.org/10.1080/10494820.2019.1570279>.
- Morse, Janice M. . 2008. "Confusing Categories and Themes (Editorial)." *Qualitative Health Research* 18 (6): 727-728. <https://doi.org/10.1177/1049732308314930>.
- Moustakas, C. 1994. *Phenomenological Research Methods*. Thousand Oaks, CA: Sage Publications.
- Mozahem, Najib A., and Rasha O. Adlouni. 2021. "Using Entrepreneurial Self-Efficacy as an Indirect Measure of Entrepreneurial Education." *The International Journal of Management Education* 19 (1): Article 100385. <https://doi.org/j.ijme.2020.100385>.
- Mueller, Jens, Robert Wyatt, Heinz Klandt, and Wee Liang Tan. 2006. "Can Entrepreneurship Be Taught in an Action-Learning Format?" *Journal of Asia Entrepreneurship and Sustainability* 1 (2): 1-28.
- Mueller, Stephen L., and Mary Conway Dato-On. 2008. "Gender-Role Orientation as a Determinant of Entrepreneurial Self-Efficacy." *Journal of Developmental Entrepreneurship* 13 (1): 3–20.
- Mueller, Stephen L., and Anisya S. Thomas. 2001. "Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness." *Journal of Business Venturing* 16 (1): 51-75.
- Mukesh, H.V., K.R. Pillai, and Jose Mamman. 2020. "Action-Embedded Pedagogy in Entrepreneurship Education: An Experimental Enquiry." *Studies in Higher Education* 45 (8): 1679-1693. <https://doi.org/10.1080/03075079.2019.1599848>.
- Mumford, A. 1994. "A Review of Action Learning Literature." *Management Bibliographies and Reviews* 20 (6/7): 2-16.
- Munro, Janette, and Roger Cook. 2008. "The Small Enterprise as the Authentic Learning Environment Opportunity (Sealeo)." *Aslib Proceedings (ed. Stephen A. Roberts)* 60 (6): 686-700. <https://doi.org/10.1108/00012530810924348>.
- Murad, Majid, Sheikh F. Ashraf, Nausheen Syed, Muhammad Munir, and Rehan S. Butt. 2022. "Entrepreneurial Social Identities and Nascent Entrepreneurial Behaviour: Mediating Role of

- Entrepreneurial Self-Efficacy." *Entrepreneurial Business and Economics Review* 10 (1): 129-143. <https://doi.org/10.15678/EBER.2022.100109>.
- Murnieks, Charles Y., Elaine Mosakowski, and Melissa S. Cardon. 2014. "Pathways of Passion: Identity Centrality, Passion, and Behavior among Entrepreneurs." *Journal of Management* 40 (6): 1583-1606.
- Mustar, Philippe. 2009. "Technology Management Education: Innovation and Entrepreneurship at Mines Paristech, a Leading French Engineering School." *Academy of Management Learning and Education* 8: 418-425.
- Mwasalwiba, Ernest Samwel. 2010. "Entrepreneurship Education: A Review of Its Objectives, Teaching Methods, and Impact Indicators." *Education + Training* 52 (1): 20-47. <https://doi.org/10.1108/00400911011017663>.
- Nabi, Ghulam, Rick Holden, and Andreas Walmsley. 2010a. "Entrepreneurial Intentions among Students: Towards a Re-Focused Research Agenda." *Journal of Small Business and Enterprise Development* 17 (4): 537-551.
- Nabi, Ghulam, Rick Holden, and Andreas Walmsley. 2010b. "From Student to Entrepreneur: Towards a Model of Graduate Entrepreneurial Career - Making." *Journal of Education and Work* 23 (5): 389-415.
- Nabi, Ghulam, Francisco Liñán, Alain Fayolle, Norris Krueger, and Andreas Walmsley. 2017. "The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda." *Academy of Management Learning and Education* 16 (2): 277-299. <https://doi.org/10.5465/amle.2015.0026>
- Nabil, Al-Qadasi, and Gongyi Zhang. 2020. "Entrepreneurship in Crisis Situations: Determinants of Entrepreneurial Intentions among University Students in Yemen." *African Journal of Business Management* 14 (7): 196-208. <https://doi.org/10.5897/AJBM2020.9017>.
- Nancarrow, Clive H., and Ian Brace. 2000. "Saying the 'Right Thing': Coping with Social Desirability Bias in Marketing Research." *Bristol Business School Teaching and Research Review* 3: 1-12.
- Ndou, Valentina, Gioconda Mele, and Pasquale Del Vecchio. 2019. "Entrepreneurship Education in Tourism: An Investigation among European Universities." *Journal of Hospitality, Leisure, Sport & Tourism Education* 25 Article 100175. <https://doi.org/10.1016/j.jhlste.2018.10.003>.
- Ndou, Valentina, Giustina Secundo, Giovanni Schiuma, and Giuseppina Passiante. 2018. "Insights for Shaping Entrepreneurship Education: Evidence from the European Entrepreneurship Centers." *Sustainability* 10 (11): Art. 4323. <https://doi.org/10.3390/su10114323>.
- Neck, H., and P.G. Greene. 2011. "Entrepreneurship Education: Known Worlds and New Frontiers." *Journal of Small Business Management* 49 (1): 55-70.
- Neck, Heidi M., and Andrew C. Corbett. 2018. "The Scholarship of Teaching and Learning Entrepreneurship." *Entrepreneurship Education and Pedagogy* 1 (1): 8-41.
- Nelson, T.O. 1996. "Consciousness and Meta-Cognition." *American Psychologist* 51 (2): 102-116.
- Neubauer, Brian E., Catherine T. Witkop, and Lara Varpio. 2019. "How Phenomenology Can Help Us Learn from the Experiences of Others." *Perspectives on Medical Education* 8 (2): 90-97. <https://doi.org/10.1007/s40037-019-0509-2>.
- Newman, Alexander , Martin Obschonka, Susan Schwarz, Michael Cohen, and Ingrid Nielsen. 2019. "Entrepreneurial Self-Efficacy: A Systematic Review of the Literature on Its Theoretical Foundations, Measurement, Antecedents, and Outcomes, and an Agenda for Future Research " *Journal of Vocational Behavior* 110: 403-419.
- Nguyen, Thu Thuy. 2020. "The Impact of Access to Finance and Environmental Factors on Entrepreneurial Intention: The Mediator Role of Entrepreneurial Behavioural Control." *Entrepreneurial Business and Economics Review* 8 (2): 127-140. <https://doi.org/10.15678/EBER.2020.080207>.
- Nichter, Simeon, and Lara Goldmark. 2009. "Small Firm Growth in Developing Countries." *World Development* 37 (9): 1453-64.
- Nicolaides, Angelo. 2011. "Entrepreneurship-the Role of Higher Education in South Africa." *Educational Research* 2 (4): 1043-1050.
- Nicolaou, Nicos, and Scott Shane. 2009. "Can Genetic Factors Influence the Likelihood of Engaging in Entrepreneurial Activity?" *Journal of Business Venturing* 24 1-22.

- Nisula, Anna-Maija, and Heidi Olander. 2020. "The Role of Motivations and Self-Concepts in University Graduate Entrepreneurs' Creativity and Resilience." *Journal of Small Business Management*: Article 10.1080/00472778.2020.1760030.
- Nowell, Lorelli S., Jill M. Norris, Deborah E. White, and Nancy J. Moules. 2017. "Thematic Analysis: Striving to Meet the Trustworthiness Criteria." *International Journal of Qualitative Methods* 16 (1): 1-13.
- Nowiński, Witold, Mohamed Yacine Haddoud, Drahoslav Lančarič, Dana Egerová, and Csilla Czeglédi. 2019. "The Impact of Entrepreneurship Education, Entrepreneurial Self-Efficacy and Gender on Entrepreneurial Intentions of University Students in the Visegrad Countries." *Studies in Higher Education* 44 (2): 361-379. <https://doi.org/10.1080/03075079.2017.1365359>.
- Obschonka, Martin, Rainer K. Silbereisen, Uwe Cantner, and Maximilian Goethner. 2015. "Entrepreneurial Self-Identity: Predictors and Effects within the Theory of Planned Behavior Framework." *Journal of Business and Psychology* 30 (4): 773-794. <https://doi.org/10.1007/s10869-014-9385-2>.
- Ojala, Arto, and Jukka Heikkilä. 2011. "Entrepreneurship Training for New Ventures." *International Entrepreneurship and Management Journal* 7 (3): 297-310.
- Okpara, Friday O. 2007. "The Value of Creativity and Innovation in Entrepreneurship." *Journal of Asia Entrepreneurship and Sustainability* 3 (2): 1.
- Olugbola, Seun Azeez. 2017. "Exploring Entrepreneurial Readiness of Youth and Startup Success Components: Entrepreneurship Training as a Moderator." *Journal of Innovation and Knowledge* 2 (3): 155-171. <https://doi.org/10.1016/j.jik.2016.12.004>.
- Orpen, C. 1999. "The Impact of Self-Efficacy on the Effectiveness of Employee Training." *Journal of Workplace Learning: Employee Counselling Today* 11 (4): 119-122.
- Osborne, John W. 1994. "Some Similarities and Differences among Phenomenological and Other Methods of Psychological Qualitative Research." *Canadian Psychology* 35 (2): 167-189.
- Osterwalder, A., and Y. Pigneur. 2010. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons.
- Ozgen, Eren, and Robert A. Baron. 2007. "Social Sources of Information in Opportunity Recognition: Effects of Mentors, Industry Networks, and Professional Forums." *Journal of Business Venturing* 22 (2): 174-192.
- Padilla-Díaz, Mariwilda. 2015. "Phenomenology in Educational Qualitative Research: Philosophy as Science or Philosophical Science." *International Journal Of Educational Excellence* 1 (2): 101-110.
- Parker, Sharon K., Uta K. Bindl, and Karoline Strauss. 2010. "Making Things Happen: A Model of Proactive Motivation." *Journal of Management* 36 (4): 827-856. <https://doi.org/10.1177/0149206310363732>.
- Patton, Michael Q. 2002. *Qualitative Research and Evaluation Methods (3ed.)*. Thousand Oaks, CA: Sage Publications.
- Patton, Michael Quinn. 1999. "Enhancing the Quality and Credibility of Qualitative Analysis." *Health Services Research* 34 (5 Part 2): 1189-1208.
- Paulhus, Delroy L. 1991. "Measurement and Control of Response Bias." In *Measures of Personality and Social Psychological Attitudes (Vol.1)*, edited by P. Shaver J. Robinson, L. Wrightsman, 17-59. New York, NY: Academic Press.
- Peltier, James W., Amanda Hay, and William Drago. 2005. "The Reflective Learning Continuum: Reflecting on Reflection." *Journal of Marketing Education* 27 (3): 250-263.
- Peterman, Nicole E., and Jessica Kennedy. 2003. "Enterprise Education: Influencing Students' Perceptions of Entrepreneurship." *Entrepreneurship Theory and Practice* 28 (2): 129-144.
- Pickernell, David, Gary Packham, Paul Jones, Christopher Miller, and Brychan Thomas. 2011. "Graduate Entrepreneurs Are Different: They Access More Resources?" *International Journal of Entrepreneurial Behavior & Research* 17 (2): 183-202.
- Pietkiewicz, Igor, and Jonathan A. Smith. 2014. "A Practical Guide to Using Interpretative Phenomenological Analysis in Qualitative Research Psychology." *Psychological Journal (Czasopismo Psychologiczne)* 20 (1): 7-14. <https://doi.org/10.14691/CPPJ.20.1.7>.
- Piperopoulos, Panagiotis, and Dimo Dimov. 2015. "Burst Bubbles or Build Steam? Entrepreneurship Education, Entrepreneurial Self - Efficacy, and Entrepreneurial Intentions." *Journal of Small Business Management* 53 (4): 970-985.

- Pittaway, Luke A. , Elena Rodriguez-Falcon, Olaojo Aiyegbayo, and Amanda King. 2011. "The Role of Entrepreneurship Clubs and Societies in Entrepreneurial Learning." *International Small Business Journal* 29 (1): 37-57.
- Pittaway, Luke Alan, Jim Gazzard, Adam Shore, and Tom Williamson. 2015. "Student Clubs: Experiences in Entrepreneurial Learning." *Entrepreneurship & Regional Development* 27 (3/4): 127-153. <https://doi.org/10.1080/08985626.2015.1014865>.
- Pittaway, Luke, and Jason Cope. 2007a. "Simulating Entrepreneurial Learning: Integrating Experiential and Collaborative Approaches to Learning." *Management Learning* 38 (2): 211-233. <https://doi.org/10.1177/1350507607075776>.
- Pittaway, Luke, and Jason Cope. 2007b. "Entrepreneurship Education: A Systematic Review of the Evidence." *International Small Business Journal* 25 (5): 479-510. <https://doi.org/10.1177/0266242607080656>.
- Pittaway, Luke, and Richard Thorpe. 2012. "A Framework for Entrepreneurial Learning: A Tribute to Jason Cope." *Entrepreneurship & Regional Development* 24 (9-10): 837-859.
- Podsakoff, Philip M., and Dennis W. Organ. 1986. "Self-Reports in Organizational Research: Problems and Prospects." *Journal of Management* 12 (4): 531-544.
- Poggenpoel, Marie, and Chris Myburgh. 2003. "The Researcher as Research Instrument in Educational Research: A Possible Threat to Trustworthiness?" *Education* 124 (2): 418-21.
- Politis, Diamanto. 2005. "The Process of Entrepreneurial Learning: A Conceptual Framework." *Entrepreneurship Theory And Practice* 29 (4): 399 - 424. <https://doi.org/10.1111/j.1540-6520.2005.00091.x>.
- Politis, Diamanto, and Jonas Gabrielsson. 2007. "Entrepreneurs' Attitudes Towards Failure: An Experiential Learning Approach." *Frontiers of Entrepreneurship Research* 27 (6): Art. 3. <http://digitalknowledge.babson.edu/fer/vol27/iss6/3>.
- Prabhu, Veena P., Stephen J. McGuire, Ellen A. Drost, and Kern K. Kwong. 2012. "Proactive Personality and Entrepreneurial Intent: Is Entrepreneurial Self-Efficacy a Mediator or Moderator? ." *International Journal of Entrepreneurial Behavior & Research* 18 (5): 559-586.
- Pratt, Michael G. 2008. "Fitting Oval Pegs into Round Holes: Tensions in Evaluating and Publishing Qualitative Research in Top-Tier North American Journals." *Organizational Research Methods* 11 (3): 481-509. <https://doi.org/10.1177/1094428107303349>.
- Pruett, M., R. Shinnar, B. Toney, F. Llopis, and J. Fox. 2009. "Explaining Entrepreneurial Intentions of University Students: A Cross-Cultural Study." *International Journal Of Entrepreneurial Behaviour & Research* 15: 571-594.
- Rae, David. 2005. "Entrepreneurial Learning: A Narrative-Based Conceptual Model." *Journal of Small Business and Enterprise Development* 12 (3): 323-335. <https://doi.org/10.1108/14626000510612259>.
- Rae, David. 2007b. *Entrepreneurship: From Opportunity to Action*. New York, NY: Palgrave Macmillan.
- Rampersad, Giselle Camille. 2015. "Developing University-Business Cooperation through Work-Integrated Learning." *International Journal of Technology Management* 68 (3-4): 203-227.
- Rasmussen, Einar A., and Roger Sørheim. 2006. "Action-Based Entrepreneurship Education." *Technovation* 26 (2): 185-194. <https://doi.org/10.1016/j.technovation.2005.06.012>.
- Ratten, Vanessa, and Petrus Usmanij. 2021. "Entrepreneurship Education: Time for a Change in Research Direction?" *International Journal of Management Education* 19 (1): Article 100367. <https://doi.org/10.1016/j.ijme.2020.100367>.
- Rauch, Andreas, and Michael Frese. 2007a. "Let's Put the Person Back into Entrepreneurship Research: A Meta-Analysis on the Relationship between Business Owners' Personality Traits, Business Creation, and Success." *European Journal of Work and Organizational Psychology* 16 (4): 353-385. <https://doi.org/10.1080/13594320701595438>.
- Rauch, Andreas, and Willem Hulsink. 2015. "Putting Entrepreneurship Education Where the Intention to Act Lies: An Investigation into the Impact of Entrepreneurship Education on Entrepreneurial Behavior." *Academy of Management Learning & Education* 14 (2): 187-204.
- Ravasi, Davide, and Carlo Turati. 2005. "Exploring Entrepreneurial Learning: A Comparative Study of Technology Development Projects." *Journal of Business Venturing* 20 (1): 137-164.

- Reinl, Leana, and Felicity Kelliher. 2010. "Cooperative Micro-Firm Strategies: Leveraging Resources through Learning Networks." *The International Journal of Entrepreneurship and Innovation* 11 (2): 141-150.
- Renko, Maija, Amanda Bullough, and Saadat Saeed. 2021. "How Do Resilience and Self-Efficacy Relate to Entrepreneurial Intentions in Countries with Varying Degrees of Fragility? A Six-Country Study." *International Small Business Journal* 39 (2): 130-156. <https://doi.org/10.1177/0266242620960456>.
- Reuber, A. Rebecca, and Ellen M. Fischer. 1999. "Understanding the Consequences of Founders' Experience." *Journal of Small Business Management* 37 (2): 30-45.
- Richter, Andreas W., Giles Hirst, Daan van Knippenberg, and Markus Baer. 2012. "Creative Self-Efficacy and Individual Creativity in Team Contexts: Cross-Level Interactions with Team Informational Resources." *Journal of Applied Psychology* 97 (6): 1282-90. <https://doi.org/10.1037/a0029359>.
- Roberts, Edward B., and Charles E. Eesley. 2011. "Entrepreneurial Impact: The Role of Mit- an Updated Report." *Foundations and Trends® in Entrepreneurship* 7 (1-2): 1-19.
- Robinson, Sarah, Helle Neergaard, Lene Tanggaard, and Norris F. Krueger. 2016. "New Horizons in Entrepreneurship Education: From Teacher-Led to Student-Centered Learning." *Education + Training* 58 (7/8): 661-683.
- Rodgers, Carol. 2002. "Defining Reflection: Another Look at John Dewey and Reflective Thinking." *Teachers College Record* 104 (4): 842-866.
- Ruohotie, Pekka, and Matti Koironen. 2000. "In the Pursuit of Conative Constructs into Entrepreneurship Education." *Journal of Entrepreneurship Education* 3: 9-22.
- Rushworth, Susan. 2013. "Entrepreneurship Education: The Case for Adopting the Team-Based Learning Approach." *Journal of Asia Entrepreneurship and Sustainability* IX (1): 14-38.
- Saeed, Saadat, Shumaila Yousafzai, Mirella Yani-De-Soriano, and Moreno Muffatto. 2015. "The Role of Perceived University Support in the Formation of Students' Entrepreneurial Intention." *Journal of Small Business Management* 53 (4): 1127-1145. <https://doi.org/10.1111/jsbm.12090>.
- Saldaña, Johnny. 2013. *The Coding Manual for Qualitative Researchers (2nd Ed.)*. Los Angeles, CA Sage.
- Santos, Filipe M. 2012. "A Positive Theory of Social Entrepreneurship." *Journal of Business Ethics* 111 (3): 335-351.
- Sarasvathy, Saras D. 2001. "Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency." *The Academy of Management Review* 26 (2): 234.
- Saunders, Mark, Philip Lewis, and Adrian Thornhill. 2009. *Research Methods for Business Students*. 5th ed. Harlow: FT/Prentice Hall.
- Saxenian, AnnaLee. 1994. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
- Schenkel, Mark T., Rodney R. D'Souza, and Frank C. Braun. 2014. "Entrepreneurial Self-Efficacy, Intent and Intensity: Does Experiential Training Enhance or Inhibit Predisposition?" *Journal of Developmental Entrepreneurship* 19 (1): Article 1450005. <https://doi.org/10.1142/S1084946714500058>.
- Schenkel, Mark T., Rodney R. D'Souza, Jeffery R. Cornwall, and Charles H. Matthews. 2015. "Early Influences and Entrepreneurial Intent: Examining the Roles of Education, Experience, and Advice Networks." *Journal of Small Business Strategy* 25 (2): 1-20.
- Scherer, Robert F., Janet S. Adams, Susan S. Carley, and Frank A. Wiebe. 1989. "Role Model Performance Effects on Development of Entrepreneurial Career Preference." *Entrepreneurship Theory and Practice* 13 (3): 53-71.
- Schmitt, Antje, Kathrin Rosing, Stephen X. Zhang, and Michael Leatherbee. 2018. "A Dynamic Model of Entrepreneurial Uncertainty and Business Opportunity Identification: Exploration as a Mediator and Entrepreneurial Self-Efficacy as a Moderator." *Entrepreneurship Theory and Practice* 42 (6): 835-859. <https://doi.org/10.1177/1042258717721482>.
- Schumpeter, J.A. 1934. *Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle (Translated from German by Redvers Opie; Updated in 1934, 2008)*. London, UK: Transaction Publishers.
- Schumpeter, Joseph A. 1947. "The Creative Response in Economic History." *The Journal Of Economic History* 7 (2): 149-159.
- Schunk, Dale H. 1989. "Self-Efficacy and Achievement Behaviours." *Educational Psychology Review* 1: 173-208.

- Schunk, Dale H. 1990. "Goal Setting and Self-Efficacy During Self-Regulated Learning." *Educational Psychologist* 25 (1): 71-86.
- Schunk, Dale H., and Carol A. Mullen. 2013. "Toward a Conceptual Model of Mentoring Research: Integration with Self-Regulated Learning." *Educational Psychology Review* 25 (3): 361-389.
- Schwarz, Norbert, and Daphna Oyserman. 2001. "Asking Questions About Behaviour: Cognition, Communication, and Questionnaire Construction." *American Journal of Evaluation* 22 (2): 127-160.
- Scott, Ginamarie, Lyle E. Leritz, and Michael D. Mumford. 2004. "The Effectiveness of Creativity Training: A Quantitative Review." *Creativity Research Journal* 16 (4): 361-388.
- Sedlan-Koenig, Ljerka 2016. "Integrating Entrepreneurial Self-Efficacy into Education at Universities." *Ekonomski vjesnik/Econviews-Review of Contemporary Business, Entrepreneurship and Economic Issues* 29 (2): 311-321.
- Segal, G., Dan Borgia, and Jerry Schoenfeld. 2005a. "The Motivation to Become an Entrepreneur." *Journal of Entrepreneurial Behavior and Research* 11 (1): 42-57.
<https://doi.org/10.1108/13552550510580834>.
- Segal, Gerry, Jerry Schoenfeld, and Dan Borgia. 2007. "Which Classroom-Related Activities Enhance Students' Entrepreneurial Interests and Goals? A Social Cognitive Career Theory Perspective." *Academy of Entrepreneurship Journal* 13 (2): 79-98.
- Seidman, Irving E. 2013. *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences*. 3 ed. New York, NY: Teachers College Press, Columbia University.
- Sekaran, Uma. 2003. *Research Methods for Business: A Skill-Building Approach (4th Ed.)*. New York, NY: John Wiley & Sons.
- Shahab, Yasir, Ye Chengang, Angel David Arbizu, and Muhammad Jamal Haider. 2019. "Entrepreneurial Self-Efficacy and Intention: Do Entrepreneurial Creativity and Education Matter?" *International Journal of Entrepreneurial Behavior & Research* 25 (2): 259-280. <https://doi.org/10.1108/IJEBR-12-2017-0522>.
- Shane, Scott, Lars Kolvereid, and P. Westhead. 1991. "An Exploratory Examination of the Reasons Leading to New Firm Formation across Country and Gender." *Journal of Business Venturing* 6: 431-446.
- Shane, Scott, Edwin A. Locke, and Christopher J. Collins. 2003. "Entrepreneurial Motivation." *Human Resource Management Review* 13 (2): 257-279.
- Shane, Scott, and S. Venkataraman. 2000. "The Promise of Entrepreneurship as a Field of Research." *Academy of Management Review* 25 (1): 217-226.
- Shaw, Eleanor, Susan Marlow, Wing Lam, and Sara Carter. 2009. "Gender and Entrepreneurial Capital: Implications for Firm Performance." *International Journal of Gender and Entrepreneurship* 1 (1): 25-41. <https://doi.org/10.1108/17566260910942327>.
- Shepherd, Dean A. 2003. "Learning from Business Failure: Propositions of Grief Recovery for the Self-Employed." *Academy of Management Review* 28 (2): 318-328.
- Shepherd, Dean A., Holger Patzelt, and Marcus Wolfe. 2011. "Moving Forward from Project Failure: Negative Emotions, Affective Commitment, and Learning from the Experience." *Academy of Management Journal* 54 (6): 1229-1259.
- Sherman, Peter S., Terry Sebor, and Lester A. Digman. 2008. "Experiential Entrepreneurship in the Classroom: Effects of Teaching Methods on Entrepreneurial Career Choice Intentions." *Journal of Entrepreneurship Education* 11: 29-42.
- Shinnar, Rachel, Mark Pruett, and Bryan Toney. 2009. "Entrepreneurship Education: Attitudes across Campus." *Journal Of Education For Business* 84 (3): 151-159.
- Shinnar, Rachel S., Dan K. Hsu, and Benjamin C. Powell. 2014. "Self-Efficacy, Entrepreneurial Intentions, and Gender: Assessing the Impact of Entrepreneurship Education Longitudinally." *The International Journal Of Management Education* 12 (3): 561-570.
- Shirokova, Galina, Tatyana Tsukanova, and Michael H. Morris. 2018. "The Moderating Role of National Culture in the Relationship between University Entrepreneurship Offerings and Student Start - up Activity: An Embeddedness Perspective." *Journal of Small Business Management* 56 (1): 103-130.
- Shwetzter, Claudia, Alex Maritz, and Quan Nguyen. 2019. "Entrepreneurial Ecosystems: A Holistic and Dynamic Approach" *Journal of Industry-University Collaboration*. 1 (2): 79-95.
<https://doi.org/10.1108/JIUC-03-2019-0007>.

- Sieger, P., U. Fueglistaller, and T. Zellweger. 2011. *Entrepreneurial Intentions and Activities of Students across the World. International Report of the Guesss Project 2011*. St.Gallen.
http://www.guesssurvey.org/PDF/2011/GUESSS_INT_2011_FINAL.pdf.
- Sieger, P., U. Fueglistaller, and T. Zellweger. 2014. *Student Entrepreneurship across the Globe: A Look at Intentions and Activities*. St. Gallen, Switzerland:
- Sijde, Peter van der, and Geertjan Weijman. 2013. "Benefits and Impact of Mentoring for Entrepreneurs: The Entrepreneur's Perspective." *International Journal of Human Resource Studies* 3 (4): 194-204.
- Simmons, Sharon A., Johan Wiklund, and Jonathan Levie. 2014. "Stigma and Business Failure: Implications for Entrepreneurs' Career Choices." *Small Business Economics* 42 (3): 485–505.
<https://doi.org/10.1007/s11187-013-9519-3>.
- Smith, Elizabeth. 2011. "Teaching Critical Reflection." *Teaching in Higher Education* 16 (2): 211-223.
- Smith, Kelly, and Martin Beasley. 2011. "Graduate Entrepreneurs: Intentions, Barriers and Solutions." *Education + Training* 53 (8/9): 722-740.
- Smith, Sara Anne, Steven J. Kass, Rob J. Rotunda, and Sherry K. Schneider. 2006. "If at First You Don't Succeed: Effects of Failure on General and Task-Specific Self-Efficacy and Performance." *North American Journal of Psychology* 8 (1): 171-182.
- Sobh, Rana, and Chad Perry. 2006. "Research Design and Data Analysis in Realism Research." *European Journal of Marketing* 40 (11/12): 1194-1209.
- Solvoll, Sølvi, and Dag H. Haneberg. 2022. "Student Challenges in Entrepreneurship Education: Planning for Uncertainty." In *Reframing the Case Method in Entrepreneurship Education*, edited by Karin Wigger Dag H. Haneberg, Lise Aaboen, 110-120. Cheltenham, UK: Edward Elgar Publishing.
- St-Jean, Etienne. 2011a. "Mentor Functions for Novice Entrepreneurs." *Academy of Entrepreneurship Journal* 17 (1): 65–84.
- St-Jean, Etienne, and Josée Audet. 2009a. "The Role of Mentoring in the Learning Development of the Novice Entrepreneur." *International Entrepreneurship and Management Journal* 8 (March): 139–160. <https://doi.org/10.1007/s11365-009-0130-7>.
- St-Jean, Etienne, and Josée Audet. 2012. "The Role of Mentoring in the Learning Development of the Novice Entrepreneur." *International Entrepreneurship and Management Journal* 8 (1): 119-140.
- St-Jean, Étienne, and Cynthia Mathieu. 2015. "Developing Attitudes toward an Entrepreneurial Career through Mentoring: The Mediating Role of Entrepreneurial Self-Efficacy." *Journal of Career Development* 42 (4): 325-338.
- St-Jean, Etienne, Miruna Radu-Lefebvre, and Cynthia Mathieu. 2018. "Can Less Be More? Mentoring Functions, Learning Goal Orientation, and Novice Entrepreneurs' Self-Efficacy." *International Journal of Entrepreneurial Behavior & Research* 24 (1): 2-21.
- St-Jean, Etienne, and Maripier Tremblay. 2011b. "Opportunity Recognition for Novice Entrepreneurs: The Benefits of Learning with a Mentor." *Academy of Entrepreneurship Journal* 17 (2): 37-48.
- St-Jean, Étienne, and Maripier Tremblay. 2020. "Mentoring for Entrepreneurs: A Boost or a Crutch? Long-Term Effect of Mentoring on Self-Efficacy." *International Small Business Journal* 38 (5): 424-448.
<https://doi.org/10.1177/0266242619901058>.
- Stajkovic, Alexander D., and Fred Luthans. 1998a. "Self-Efficacy and Work-Related Performance: A Meta-Analysis." *Psychological Bulletin* 124 (2): 240-261.
- Stein, Sarah J., Geoff Isaacs, and Trish Andrews. 2004. "Incorporating Authentic Learning Experiences within a University Course." *Studies in Higher Education* 29 (2): 239-258.
- Stenholm, Pekka, Zoltan J. Acs, and Robert Wuebker. 2013. "Exploring Country-Level Institutional Arrangements on the Rate and Type of Entrepreneurial Activity." *Journal of Business Venturing* 28 (1): 176-193.
- Stephan, Paula E. 2001. "Educational Implications of University-Industry Technology Transfer." *Journal of Technology Transfer* 26 (3): 199–205.
- Stephan, Ute, and Lorraine M. Uhlaner. 2010. "Performance-Based Vs Socially Supportive Culture: A Cross-National Study of Descriptive Norms and Entrepreneurship." *Journal of International Business Studies* 41 (8): 1347-1364.
- Sullivan, Robert. 2000. "Entrepreneurial Learning and Mentoring." *International Journal of Entrepreneurial Behavior & Research* 6 (3): 160-175.

- Sweida, Gloria L., and Rebecca J. Reichard. 2013. "Gender Stereotyping Effects on Entrepreneurial Self-Efficacy and High-Growth Entrepreneurial Intention." *Journal of Small Business and Enterprise Development* 20 (2): 296-313.
- Sweida, Gloria L., and Jeremy Alan Woods. 2015. "Comparing the Development of Entrepreneurial Self-Efficacy of Female Entrepreneurs in Male-and Female-Dominated Industries." *Journal of Developmental Entrepreneurship* 20 (3): 155. <https://doi.org/10.1142/S1084946715500181>.
- Szymanska, Izabela, Tom Sesti, Hali Motley, and George Puia. 2020. "The Effects of Hackathons on the Entrepreneurial Skillset and Perceived Self-Efficacy as Factors Shaping Entrepreneurial Intentions." *Administrative Sciences* 10 (3): Art. 73. <https://doi.org/10.3390/admsci10030073>.
- Taatila, Vesa P. 2010. "Learning Entrepreneurship in Higher Education." *Education + Training* 52 (1): 48-61. <https://doi.org/10.1108/00400911011017672>.
- Tang, Jintong, K. Michele Micki Kacmar, and Lowell Busenitz. 2012. "Entrepreneurial Alertness in the Pursuit of New Opportunities." *Journal of Business Venturing* 27 (1): 77-94.
- Taylor, David W., and Richard Thorpe. 2004. "Entrepreneurial Learning: A Process of Co-Participation." *Journal of Small Business and Enterprise Development* 11 (2): 203-211. <https://doi.org/10.1108/14626000410537146>.
- Tennant, Mike G. 2015. "Values-Led Entrepreneurship: Developing Business Models through the Exercise of Reflexivity." *Local Economy* 30 (5): 520-533.
- Thompson, J.L., J.M. Scott, and D.A. Gibson. 2010. "Experiential Learning, New Venture Creation, Strategic Entrepreneurship, Knowledge and Competency in the University Context." *presented at the Innovation and Entrepreneurship in Universities, The 3rd international FINPIN 2010 Conference (April 25-27), Joensuu, Finland,*
- Tierney, Pamela, and Steven M. Farmer. 2002. "Creative Self-Efficacy: Its Potential Antecedents and Relationship to Creative Performance." *Academy of Management Journal* 45 (6): 1137-1148.
- Tobin, Gerard A., and Cecily M. Begley. 2004. "Methodological Rigour within a Qualitative Framework." *Journal of Advanced Nursing* 48 (4): 388-396.
- Torres van Grinsven, V. 2015. "Motivation in Business Survey Response Behavior: Influencing Motivation to Improve Survey Outcome (Doctoral Dissertation)." Utrecht University.
- Townsend, David M., Lowell W. Busenitz, and Jonathan D. Arthurs. 2010. "To Start or Not to Start: Outcome and Ability Expectations in the Decision to Start a New Venture." *Journal of Business Venturing* 25 (2): 192-202. <https://doi.org/10.1016/j.jbusvent.2008.05.003>.
- Tracy, Sarah J. 2010. "Qualitative Quality: Eight 'Big-Tent' Criteria for Excellent Qualitative Research." *Qualitative Inquiry* 16 (10): 837-851.
- Trevelyan, R. 2011. "Self-Efficacy and Effort in New Venture Development." *Journal of Management and Organization* 17 (1): 2-.
- Trimi, Silvana, and Jasmina Berbegal-Mirabent. 2012. "Business Model Innovation in Entrepreneurship." *International Entrepreneurship and Management Journal* 8 (4): 449-465.
- Ucbasaran, Deniz, Dean A. Shepherd, Andy Lockett, and S. John Lyon. 2013. "Life after Business Failure: The Process and Consequences of Business Failure for Entrepreneurs." *Journal of Management* 39 (1): 163-202. <https://doi.org/10.1177/0149206312457823>.
- Usher, E. L., and F. Pajares. 2008. "Sources of Self-Efficacy in School: Critical Review of the Literature and Future Directions." *Review of Educational Research* 78 (4): 751-796. <https://doi.org/10.3102/0034654308321456>.
- Usher, Ellen L., and Frank Pajares. 2006b. "Sources of Academic and Self-Regulatory Efficacy Beliefs of Entering Middle School Students." *Contemporary Educational Psychology* 31 (2): 125-141.
- Usher, Ellen L., and Frank Pajares. 2009. "Sources of Self-Efficacy in Mathematics: A Validation Study." *Contemporary Educational Psychology* 34 (1): 89-101. <https://doi.org/10.1016/j.cedpsych.2008.09.002>.
- Valenzuela, Alvarado, Juan Francisco, Ingrid Wakkee, Jeanne Martens, and Paul Grijsbach. 2020a. "Lessons from Entrepreneurial Failure through Vicarious Learning." *Journal of Small Business & Entrepreneurship*. <https://doi.org/10.1080/08276331.2020.1831839>.

- Valenzuela, Alvarado, Juan Francisco, Ingrid Wakkee, Jeanne Martens, and Paul Grijsbach. 2020b. "Lessons from Entrepreneurial Failure through Vicarious Learning." *Journal of Small Business & Entrepreneurship*: 1-25. <https://doi.org/10.1080/08276331.2020.1831839>.
- Valerio, Alexandria, Brent Parton, and Alicia Robb. 2014. *Entrepreneurship Education and Training Programs around the World: Dimensions for Success*. Washington D.C.: <https://doi.org/10.1596/978-1-4648-0202-7>.
- Van Burg, Elco, A. Georges L. Romme, Victor A. Gilsing, and Isabelle MMJ Reymen. 2008. "Creating University Spin - Offs: A Science - Based Design Perspective." *Journal of Product Innovation Management* 25 (2): 114-128.
- van der Zwan, Peter, Roy Thurik, Ingrid Verheul, and Jolanda Hessels. 2016. "Factors Influencing the Entrepreneurial Engagement of Opportunity and Necessity Entrepreneurs." *Eurasian Business Review* 6 (3): 273-295. <https://doi.org/10.1007/s40821-016-0065-1>.
- Van Dinther, Mart, Filip Dochy, Mien Segers, and Johan Braeken. 2014. "Student Perceptions of Assessment and Student Self-Efficacy in Competence-Based Education." *Educational Studies* 40 (3): 330-351.
- Van Gelderen, Marco, Teemu Kautonen, and Matthias Fink. 2015. "From Entrepreneurial Intentions to Actions: Self-Control and Action-Related Doubt, Fear, and Aversion." *Journal of Business Venturing* 30 (5): 655-673.
- Varghese, Mary E., Loran C. Parker, Omolola Adedokun, Monica Shively, Wilella Burgess, Amy Childress, and Ann Bessenbacher. 2012. "Experiential Internships: Understanding the Process of Student Learning in Small Business Internships." *Industry & Higher Education* 26 (5): 357-367. <https://doi.org/10.5367/ihe.2012.0114>.
- Verheul, Ingrid, Lorraine Uhlaner, and Roy Thurik. 2005. "Business Accomplishments, Gender and Entrepreneurial Self-Image." *Journal of Business Venturing* 20 (4): 483-518. <https://doi.org/10.1016/j.jbusvent.2004.03.002>.
- Vij, Vijay, and Steve Ball. 2010. "Exploring the Impact of Entrepreneurship Education on University Non-Business Undergraduates." *International Journal Entrepreneurship and Small Business* 9 (1): 86-109.
- Vincett, Paul S., and Steve Farlow. 2008. "'Start-a-Business': An Experiment in Education through Entrepreneurship." *Journal of Small Business and Enterprise Development* 15 (2): 274-288 <https://doi.org/10.1108/14626000810871673>.
- Volery, Thierry, Noelle Doss, Tim Mazzarol, and Vicki Thein. 1997. "Triggers and Barriers Affecting Entrepreneurial Intentionality: The Case of Western Australian Nascent Entrepreneurs." *Journal Of Enterprising Culture* 5 (3): 273-291.
- von Graevenitz, Georg, Dietmar Harhoff, and Richard Weber. 2010. "The Effects of Entrepreneurship Education." *Journal of Economic Behavior & Organization* 76 (1): 90-112. <https://doi.org/10.1016/j.jebo.2010.02.015>.
- Vygotsky, Lew S. 1978. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: MIT Press.
- Wadee, Ahmed V., and Anshu Padayachee. 2017. "Higher Education: Catalysts for the Development of an Entrepreneurial Ecosystem, or... Are We the Weakest Link?" *Science, Technology and Society* 22 (2): 284-309. <https://doi.org/10.1177/0971721817702290>.
- Wang, Jiatong, Majid Murad, Fu Bajun, Muhammad S. Tufail, Farhan Mirza, and Muhammad Rafiq. 2021. "Impact of Entrepreneurial Education, Mindset, and Creativity on Entrepreneurial Intention: Mediating Role of Entrepreneurial Self-Efficacy." *Frontiers in Psychology* 12: Article 724440. <https://doi.org/10.3389/fpsyg.2021.724440>.
- Warhuus, Jan P., Lene Tanggaard, Sarah Robinson, and Steffen M. Ernø. 2017. "From I to We: Collaboration in Entrepreneurship Education and Learning?" *Education + Training* 59 (3): 234-249. <https://doi.org/10.1108/ET-08-2015-0077>.
- Waters, Lea, Marita McCabe, Denis Kiellerup, and Steven Kiellerup. 2002. "The Role of Formal Mentoring on Business Success and Self-Esteem in Participants of a New Business Start-up Program." *Journal of Business and Psychology* 17 (1): 107-121.

- Welter, Friederike. 2011. "Contextualizing Entrepreneurship- Conceptual Challenges and Ways Forward." *Entrepreneurship Theory and Practice* 35 (1): 165-184. <https://doi.org/10.1111/j.1540-6520.2010.00427.x>.
- Wennekers, S., R. Thurik, A. van Stel, and Noorderhaven N. 2007. "Uncertainty Avoidance and the Rate of Business Ownership across 21 Oecd Countries, 1976–2004." *Journal of Evolutionary Economics* 17 (2): 133-160.
- Wennekers, S., A. van Stel, R. Thurik, and P. Reynolds. 2005. "Nascent Entrepreneurship and the Level of Economic Development." *Small Business Economics* 24 (3): 293–309.
- Wennekers, Sander, Lorraine Uhlaner, and Roy Thurik. 2002. "Entrepreneurship and Its Conditions: A Macro Perspective." *International Journal of Entrepreneurship Education* 1 (1): 25-64.
- Werthes, Daniela, René Mauer, and Malte Brettel. 2017. "Cultural and Creative Entrepreneurs: Understanding the Role of Entrepreneurial Identity." *International Journal of Entrepreneurial Behavior & Research* 24 (1): 290-314. <https://doi.org/10.1108/IJEBR-07-2016-0215>.
- Wertz, Frederick J. 2005. "Phenomenological Research Methods for Counselling Psychology." *Journal of Counselling Psychology* 52 (2): 167-177. <https://doi.org/10.1037/0022-0167.52.2.167>.
- Wheadon, Jacob Dean, and Nathalie Duval-Couetil. 2014. "Business Plan Development Activities as a Pedagogical Tool in Entrepreneurship Education." *Journal of Engineering Entrepreneurship* 5 (1): 31-48. <https://doi.org/10.7814./jeen5v5p3wd>.
- Wilbanks, James E. 2015. "Mentoring and Entrepreneurship: Examining the Potential for Entrepreneurship Education and for Aspiring New Entrepreneurs." *Journal of Small Business Strategy* 23 (1): 93-101.
- Wilson, Fiona, Jill Kickul, and Deborah Marlino. 2007. "Gender, Entrepreneurial Self-Efficacy, and Entrepreneurial Career Intentions: Implications for Entrepreneurship Education." *Entrepreneurship Theory and Practice* 31 (3): 387-406.
- Wilson, Fiona, Jill Kickul, Deborah Marlino, Saulo D. Barbosa, and Mark D. Griffiths. 2009. "An Analysis of the Role of Gender and Self-Efficacy in Developing Female Entrepreneurial Interest and Behavior." *Journal of Developmental Entrepreneurship* 14 (2): 105-119.
- Wiltshier, Fiona. 2011. "Researching with Nvivo." *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* 12 (1): Art. 32.
- Wood, R., and A. Bandura. 1989. "Social Cognitive Theory of Organizational Management." *Academy of Management Review* 14 (3): 361-384.
- Wraae, Birgitte, Candida Brush, and Shahrokh Nikou. 2022. "The Entrepreneurship Educator: Understanding Role Identity." *Entrepreneurship Education and Pedagogy* 5 (1): 3-35. <https://doi.org/10.1177/2515127420979662>.
- Wrigley, Cara, and Kara Straker. 2017. "Design Thinking Pedagogy: The Educational Design Ladder." *Innovations in Education and Teaching International* 54 (4): 374-385. <https://doi.org/10.1080/14703297.2015.1108214>.
- Wu, Lei-Yu. 2007. "Entrepreneurial Resources, Dynamic Capabilities and Start-up Performance of Taiwan's High-Tech Firms." *Journal of Business Research* 60 (5): 549-555. <https://doi.org/10.1016/j.jbusres.2007.01.007>.
- Wu, Yen-Chun J., and Tienhua Wu. 2017. "A Decade of Entrepreneurship Education in the Asia Pacific for Future Directions in Theory and Practice." *Management Decision* 55 (7): 1333-1350. <https://doi.org/10.1108/MD-05-2017-0518>.
- Yamakawa, Yasu, Kate McKone-Sweet, James Hunt, and Danna Greenberg. 2016. "Expanding the Focus of Entrepreneurship Education: A Pedagogy for Teaching the Entrepreneurial Method." *Journal of Business and Entrepreneurship* 27 (2): 19-46.
- Yu, Christina W. M., and Thomas W. Y. Man. 2009. "Social Interaction and the Formation of Entrepreneurial Characteristics: A Case Study in Authentic Enterprise Activity." *Journal of Workplace Learning* 21 (8): 595-613. <https://doi.org/10.1108/13665620910996160>.
- Yu, Jiarong, and Shouming Chen. 2016. "Gender Moderates Firms' Innovation Performance and Entrepreneurs' Self-Efficacy and Risk Propensity." *Social Behavior and Personality: An International Journal* 44 (4): 679-691.

- Yüksel, Pelin, and Soner Yıldırım. 2015. "Theoretical Frameworks, Methods, and Procedures for Conducting Phenomenological Studies in Educational Settings." *Turkish Online Journal Of Qualitative Inquiry* 6 (1): 1-20.
- Zachariadis, Markos, Susan Scott, and Michael Barrett. 2013. "Methodological Implications of Critical Realism for Mixed-Methods Research." *MIS Quarterly* 7 (3): 855-879.
- Zahra, Shaker A., Eric Gedajlovic, Donald O. Neubaum, and Joel M. Shulman. 2009. "A Typology of Social Entrepreneurs: Motives, Search Processes and Ethical Challenges." *Journal Of Business Venturing* 24 (5): 519-532.
- Zamfir, Ana-Maria, Cristina Mocanu, and Adriana Grigorescu. 2018. "Resilient Entrepreneurship among European Higher Education Graduates." *Sustainability* 10 (8): Article 2594. <https://doi.org/10.3390/su10082594>.
- Zhao, H., S. E. Seibert, and G. E. Hills. 2005. "The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions." *Journal of Applied Psychology* 90 (6): 1265-72. <https://doi.org/10.1037/0021-9010.90.6.1265>.
- Zhou, Mansheng, and Haixia Xu. 2012. "A Review of Entrepreneurship Education for College Students in China." *Administrative Sciences* 2 (4): 82-98. <https://doi.org/10.3390/admsci2010082>.
- Zieba, Krzysztof, and Jakub Golik. 2018. "Testing Students' Entrepreneurial Self-Efficacy as an Early Predictor of Entrepreneurial Activities: Evidence from the Seas Project." *Journal of Entrepreneurship, Management and Innovation* 14 (1): 91-107. <https://doi.org/10.7341/20181415>.
- Zotov, Vladimir B., Mariia N. Koniagina, Elena A. Shapkina, Elena A. Pikalova, and Diana I. Stepanova. 2019. "Experience in Implementing Student Business Incubator in Entrepreneurship Education." *Journal of Entrepreneurship Education* 22 (4): 1-13.
- Zozimo, R., S. Jack, and E. Hamilton. 2017. "Entrepreneurial Learning from Observing Role Models." *Entrepreneurship & Regional Development* 29 (9-10): 889-911.

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Appendix 1: Example of Coding with Metadata within a Transcript

		<p>opportunity to engage with entrepreneurs [repeated; <u>ldr+cognpeg refjour: invez evln sythe narat.</u>]</p> <p>In the second year, they develop something for businesses. Again, they get to interact with <u>people</u> and they reflect on these experiences in the assessments throughout the program. For example, in my creativity and innovation class (with implementation, 2nd year). From the 1st week, they start reflecting on their activities with their final assessment requiring significant reflection- on the innovation (performed) for a company.</p> <p>On reflection being a crucial part of their year3 learning journey and several questions students are <u>asked</u>: e.g., what did you learn, what would you do differently), J: it's a very simple frame: what, so what, now what? [x2] Designed in that way. What did you do; what did you learn? [x2] Whether you are successful or not, (tell us) how would you apply this learning yourself in the future? [Coach2.] What were you going to create (next), your future initiatives, in your general life or career? [Said 3x in slightly ways]. ~59:40 on comments of the reflections being more 'pedestrian' in the first year, J: <u>yes it is</u> slightly descriptive and 'normal'. On being more or very nuanced, rich (at a 'thematic analysis' level) by the time students are in 2nd and 3rd year, J: yes. When they get to the final year, they become very unique in their own ways.</p> <p>J planned to perform the analysis on students' reflection but prevented to do so due to restrictions; not obtaining their consent before the module started. AT thanked J for his sharing, encouraged him to review the EPG namely the cognitive learning actions (listen, read, analyse, etc.) J: yes, of course [x2]. We organised an activity last year: 'make a space @~~~~~' but it occurred in different place 1:01:40. Student make a video of people using equipment like 3D printers to create 'a space' and then reflect on their experience: what did you learn and apply the learning. J confirmed (emphatically) that his students observed these creative people in action, not in his creativity+ innovation module where they create solutions for companies.</p>
8	1:02:32.0 - 1:10:06.0	<p>J: they listen to an 3D printing expert [spsource1, vlsorce2.] They listen to entrepreneurs (who explain things themselves) through networking events. They have opportunities to analyse, assess and make decisions [<u>ldr+cognpeg+execpeg+ldr QnA or vizit+frplan: obsez invez evln. then propoz provv solutions, deciz deviz v-log content; same as live case study.</u>] In creating their videos. Whatever they observe, they decide what to present to us; present (selected) observations in groups or individually. They propose and create video content. J confirmed: yes, it is a 'live' case, students interact with the aforementioned. They come across (analyse) the case: these are the issues. They create solutions for actual middle or senior managers who weigh in, on this level2 innovation module assessment. We kept this module 'open' (repeated later) so they can do beyond the issues that the business is presenting to them. They might find a different issue that 'the business' has not relayed to them 1:04:19 ...that is unspoken, or they have not thought about.</p> <p>They may take this business to a completely different world. They can focus on the issues present to them or they can choose their own path, a more exploratory, a non 'normative' path ...or they focus on, create a completely different business or solution. J confirmed that no student is at all penalised (no higher or lower marks) by the innovation related recommendations presented. Rather, J and his team focus on the quality of their reflection. 1:05:34 J: yes, they (after their actions) reflect <u>on</u>: how did they perform as a group [coach2,] how they make their decisions, their observations, what they heard from the business</p>

Appendix 2: The Researcher's NVivo Code Library

The screenshot displays the NVivo software interface. On the left is a navigation pane with sections for 'Quick Access', 'IMPORT', 'Data', 'ORGANIZE', 'Coding', 'Cases', 'Notes', and 'Sets'. The main area shows a 'Codes' table with the following data:

Name	Files	References	Created on	Created by	Modified on	Modified by
Academics' views on student performance (bracketed)	92	520	23/04/2021 9:17 PM	ALUT	16/12/2022 12:51 PM	ALUT
Academics' views, prefs, EE course details	102	507	14/05/2021 8:00 PM	ALUT	16/12/2022 12:51 PM	ALUT
researcher's own views	71	218	29/04/2020 12:09 PM	ALUT	16/12/2022 12:52 PM	ALUT
Cognitive Actions + Outcomes	105	557	28/01/2022 2:11 PM	ALUT	16/10/2022 8:16 PM	ALUT
Context- Theoretical learning	41	74	28/01/2022 2:12 PM	ALUT	16/12/2022 1:06 PM	ALUT
Contexts- Moderated to authentic learning	112	954	28/01/2022 2:13 PM	ALUT	16/12/2022 1:15 PM	ALUT
Entrepreneurial Creativity	73	191	18/04/2021 6:21 PM	ALUT	16/12/2022 12:58 PM	ALUT
Creative Problem-Solving, Design Thinking	55	124	24/06/2021 12:32 AM	ALUT	16/10/2022 7:41 PM	ALUT
ESE subdomain- Adapt, managing ambiguity, failure	42	75	4/06/2021 12:13 AM	ALUT	16/12/2022 12:56 PM	ALUT
ESE subdomain- Entrepr. selling, customer validation	52	120	26/06/2021 8:43 PM	ALUT	16/12/2022 12:57 PM	ALUT
ESE subdomain- New Product Development	22	31	26/06/2021 10:41 PM	ALUT	16/12/2022 12:57 PM	ALUT
ESE subdomain- Opportunity id., Idea Generation	49	108	4/06/2021 12:11 AM	ALUT	16/12/2022 12:57 PM	ALUT
ESE subdomain- Planning to start-up	51	109	4/06/2021 12:11 AM	ALUT	16/12/2022 12:57 PM	ALUT
ESE development (erosion)	89	238	9/07/2021 5:43 PM	ALUT	16/10/2022 7:41 PM	ALUT
ESE source- Mastery (learn, apply, acknowledge, practice)	102	455	22/04/2021 7:38 PM	ALUT	16/12/2022 1:18 PM	ALUT
ESE source- Mentoring (sharing industry experiences)	64	184	28/01/2022 2:04 PM	ALUT	16/12/2022 1:19 PM	ALUT
ESE source- Vicarious Learning	86	278	28/01/2022 1:57 PM	ALUT	16/12/2022 1:06 PM	ALUT
ESE source, role- Coach1 Instruction, Social Persuasion Type1	107	584	28/01/2022 1:56 PM	ALUT	16/12/2022 1:11 PM	ALUT
ESE source, role- Coach2 Inquiry	87	469	28/01/2022 1:59 PM	ALUT	16/12/2022 1:04 PM	ALUT

NVIVO
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Name	Files	References	Created on	Created by	Modified on	Modified by
ESE source, role- Coach3 Advisory, Social Persuasion Type2	84	276	3/11/2021 12:25 PM	ALUT	16/12/2022 1:04 PM	ALUT
ESE source, role- Curator, EED customiser	74	228	11/03/2021 1:44 PM	ALUT	16/12/2022 1:02 PM	ALUT
ESE source, role- Discussion Facilitator	52	167	27/10/2021 10:44 PM	ALUT	16/12/2022 12:59 PM	ALUT
ESE source, role- Lecturer	26	87	6/09/2021 7:57 PM	ALUT	16/12/2022 1:10 PM	ALUT
ESE sources- Positive + negative stimulated emotions	87	295	2/11/2021 5:44 PM	ALUT	16/12/2022 1:17 PM	ALUT
ESE sources, role- Peers	52	110	10/03/2022 4:10 PM	ALUT	16/12/2022 1:11 PM	ALUT
ESE sources, roles- Entrepreneurs, industry, other faculty	74	216	10/03/2022 4:10 PM	ALUT	16/12/2022 1:12 PM	ALUT
ESE subdomain- Communications	64	141	6/03/2022 4:18 PM	ALUT	16/12/2022 12:54 PM	ALUT
ESE subdomain- Entre. Collaboration	47	78	25/02/2022 3:18 PM	ALUT	16/12/2022 12:56 PM	ALUT
ESE subdomain- Financial Mgmt.	21	30	6/03/2022 4:18 PM	ALUT	16/12/2022 12:54 PM	ALUT
ESE subdomain- Infomation Alertness	32	55	6/03/2022 4:19 PM	ALUT	16/12/2022 12:56 PM	ALUT
ESE subdomain- Marshalling Resources	24	40	6/03/2022 4:20 PM	ALUT	16/12/2022 12:55 PM	ALUT
ESE subdomain- Mobilise, inspirer role	59	158	15/02/2022 7:10 PM	ALUT	16/12/2022 1:09 PM	ALUT
ESE subdomain- others, mindset	26	32	19/07/2021 2:26 AM	ALUT	16/12/2022 12:55 PM	ALUT
ESE subdomain- Self management, self-determined learning	30	60	6/03/2022 4:20 PM	ALUT	16/12/2022 1:12 PM	ALUT
Experiences + decisions from execution	101	401	24/10/2021 11:18 PM	ALUT	16/12/2022 1:14 PM	ALUT
Extra-Curricula Learning, Electives	52	139	11/03/2021 2:17 PM	ALUT	16/10/2022 8:16 PM	ALUT
Learning Action- Executional	105	458	28/01/2022 2:13 PM	ALUT	16/12/2022 1:13 PM	ALUT
Learning Action- Reflection on emotions	89	277	25/02/2022 3:14 PM	ALUT	16/12/2022 1:15 PM	ALUT
Learning Action- Reflection on Qs, fdbk, data, theory, self	115	706	28/01/2022 1:55 PM	ALUT	16/12/2022 1:15 PM	ALUT

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Name	Files	References	Created on	Created by	Modified on	Modified by
Learning Actions- Cognitive + Executional, EPG	95	524	28/04/2020 10:07 PM	ALUT	16/12/2022 1:14 PM	ALUT
Discussion- EED, EPG, 'Charts' (agg)	103	502	29/05/2021 10:41 PM	ALUT	16/10/2022 8:16 PM	ALUT
Learning resources- Cases, feedback, reflections	106	509	10/03/2022 4:11 PM	ALUT	16/12/2022 1:16 PM	ALUT
Learning resources- Methods, questions, theories	112	585	10/03/2022 4:16 PM	ALUT	16/12/2022 1:16 PM	ALUT
Possible new meaning units	69	229	14/05/2021 8:16 PM	ALUT	16/10/2022 7:42 PM	ALUT
Researcher's Field Notes, Reflexivity	92	424	10/07/2021 11:41 PM	ALUT	16/12/2022 1:08 PM	ALUT
Role Switching Combination, Outsourcing	41	83	28/04/2020 11:03 PM	ALUT	30/04/2022 6:38 PM	ALUT
Self-Awareness, self-discover, entrepr. potential	60	151	25/02/2022 3:17 PM	ALUT	16/12/2022 12:58 PM	ALUT

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ORGANIZE

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Codes

Name	Files	References	Created on	Created by	Modified on	Modified by
Triangulation by GREs	4	4	10/06/2021 3:32 PM	ALUT	16/12/2022 1:07 PM	ALUT
Contexts- moderated to self-authentic Lifelikeness	10	32	30/05/2022 1:41 PM	ALUT	16/12/2022 1:34 PM	ALUT
CSE, structured creativity	12	39	30/05/2022 2:05 PM	ALUT	16/12/2022 1:30 PM	ALUT
ECA (self-curated, networks)+ Academic curated ESE sourc	16	50	25/05/2022 12:47 PM	ALUT	16/12/2022 1:36 PM	ALUT
EEDs + academics perceived by GREs	17	62	30/05/2022 2:04 PM	ALUT	16/12/2022 1:35 PM	ALUT
ESE perceptions, enhancements	16	87	24/05/2022 5:15 PM	ALUT	22/06/2022 9:54 PM	ALUT
ESE source- mastery experiences, action + reflection	16	60	24/05/2022 11:14 PM	ALUT	16/12/2022 1:33 PM	ALUT
ESE source- Mentoring	5	16	30/05/2022 3:42 PM	ALUT	16/12/2022 1:29 PM	ALUT
ESE sources- Advisory from Coach, industry, peers	13	44	24/05/2022 11:23 PM	ALUT	16/12/2022 1:32 PM	ALUT
ESE sources- Inquiry by coach or from reflexivity	16	95	24/05/2022 11:21 PM	ALUT	16/12/2022 1:32 PM	ALUT
ESE sources- Instruction from coach, peers, self	10	21	24/05/2022 11:22 PM	ALUT	16/12/2022 1:29 PM	ALUT
ESE sources- peer enhanced ESE, support	7	20	30/05/2022 11:11 PM	ALUT	16/12/2022 1:32 PM	ALUT
ESE sources- positive + negative emotions + reflection	14	35	30/05/2022 3:15 PM	ALUT	16/12/2022 1:36 PM	ALUT
ESE sources- Vicarious Learning + reflection	14	45	24/05/2022 11:12 PM	ALUT	16/12/2022 1:37 PM	ALUT
External Entrepreneurial Awareness via action + reflection	14	57	24/05/2022 11:41 PM	ALUT	16/12/2022 1:27 PM	ALUT
GRE background, intentions, progress	15	60	24/05/2022 5:14 PM	ALUT	16/12/2022 1:28 PM	ALUT
GRE views, potential new meaning units	16	70	30/05/2022 2:16 PM	ALUT	16/12/2022 1:28 PM	ALUT
Internal Entrepreneurial Awareness via Reflexivity	10	33	24/05/2022 11:41 PM	ALUT	16/12/2022 1:27 PM	ALUT
Learning resources- Methods, 'structure,' theories	13	44	30/05/2022 5:04 PM	ALUT	16/12/2022 1:34 PM	ALUT

Appendix 3: Pre-interview Qualtrics Questionnaire for Course Designers



Curtin University

English

Welcome to the Global Entrepreneurship Education Pedagogy Study!

Your expertise and experience in teaching entrepreneurship is important to this global study to understand how action learning and entrepreneurship-specific content and learning contexts, develop Entrepreneurial Self-Efficacy (ESE, a person's enduring self-belief to capably perform entrepreneurship tasks).

We will classify teaching methods using an instrument that measures the level of action and real-world learning. The goal is to discover pedagogical combinations that maximise ESE development. The findings of this research will inform unit/ module/ course and program design to develop individual entrepreneurial competencies and self-belief. You will receive summaries of a findings summary of this global study, should you request for it.

Participation in this research is voluntary. As determined by Curtin University's ethics committee, the study will have negligible risk. If you change your mind, simply tell us that you wish to stop. Please click the consent button below if you agree to participate and understand what you have read.

Subsequently, you will complete a short pre-interview survey to optimise time during our interview. Interviews are digitally recorded so we can concentrate on responses without distract ourselves with taking notes. Time duration varies on the amount of information discussed relating to the survey questions.

You can request for an interview transcript. You have the right to access and request correction of your information in accordance with relevant privacy laws. The only other person with access to this information is the researcher's supervisors or only if you instruct that someone else needs it, or if the law says we need to.

Any information collected is confidential. All digital information will be securely stored. Results from this study will not be individualised but based on all the information we collect and analyzed. You will not be identified in any published or presented results. Please inform us if you would like to know results of this study.

Research is being conducted by: Mr Alfred Tseng, as part for his Doctor of Philosophy degree at Curtin University, under the supervision of Dr Paull Weber and Dr Louis Geneste. If you have any queries or concerns about any part of the research study, please do not hesitate to contact my supervisor, Dr Paull Weber - details below, or myself.

Thank you very much for your participation and interest in this study.

Kind regards,
Alfred

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Facsimile +61 8 9266 7897
Email P.Weber@curtin.edu.au

HREC Project Number:	HRE2019-0776
Project Title:	Building Entrepreneurial and Creative Self-Efficacy through Entrepreneurship Education: Which Approaches and Pedagogies work
Principal/ Student Researcher:	Mr. Alfred Tseng, PhD candidate

By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

- I consent, begin the study
- I do not consent, I do not wish to participate

Please confirm that it was you who consented by keying in your name and most preferred email. Alternatively, provide us with your name and either:

- 1) A mobile number (usable on WhatsApp or Botim),
- 2) Your Facebook name (we can talk using Facebook Messenger), or
- 3) Your Skype ID.

Thank you very much.

Click next to begin the survey.

Next

State an creativity, innovation or entrepreneurship unit (module or course, code and number) that you have designed (or have facilitated learning on for a relatively long time), followed by the institution it is delivered at:

Unit, module or course is:

- Compulsory
- Elective

Question One:

Identify the skills developed in this unit, module or course. Select all relevant skills:

Note: the creative problem solving skill set can encompass creative/ opportunity identification, marketing and entrepreneurial selling, new product development, information alertness, being adaptable and flexible, and critical thinking.

- S1. Creativity/ Opportunity Identification**
Identify opportunities for new ways to conduct activities.
Brainstorm or come up with new or different ideas or solutions.
'Think outside the box'.
- S2. Marketing and Entrepreneurial Selling**
Come up with new ideas for satisfying customer needs.
Generate and evaluate multiple alternatives for novel customer problems.
Have fresh perspectives on old problems.
Improvise methods for solving a problem when an answer is not apparent.
Negotiating.
- S3. Planning to start-up**
Estimate customer demand for for a new product or service.
Determine a competitive price for a new product or service.
Design an effective marketing/advertising campaign for a new product or service.
Estimate start-up funding and working capital amounts to start new business.
Create a project plan.
- S4. New Product Development**
Translate functional requirements for a product into prototype.
Convert a useful scientific or technology advancement into a practical application.
Grasp the concept and limits of a technology well enough to see the best ways to use it.
Design and build something new that performs very close to your design specifications.

S5. Information Alertness

Be alert to proactively discover new information of value.
Identify, select, and process information from a variety of sources.
Implement successful information seeking and research strategies.

S6. Being Adaptable and Flexible

Read, listen and understand complex issues.
Deal with sudden changes and surprises.
Work under stress and pressure.
Continue work despite problems.
Manage uncertainty in projects and processes.

S7. Communication and Presentation

Apply active listening skills to communicate with others.
Write clear and effective reports.
Communicate effectively with and persuade others.
Document and communicate information clearly, logically, and accurately.

S8. Self-Management

When working toward something, it gets all their attention.
Keep focused on tasks they need to do even if they do not like them.
Become very aware of what they are doing when they work toward a goal.
Track their progress regularly when they work on a goal.
Pay close attention to their thoughts when they work on something hard.
Know how to track behaviour when they work toward a goal.

S9. Critical Thinking

Make correct inferences- assumptions, conclusions, judgements, implications, reasoning from data.
Deduce- determine, reason conclusions from information or data provided.
Interpret- explain, understand whether conclusions are warranted, reasonable or justified on the basis of data given.

S10. Financial Management

Organize and maintain financial records of their ventures.
Manage financial assets of their venture.
Estimate a budget for a new project.
Valuation of a business.

S11. Marshaling or Obtaining Resources

Establish new contacts.
Network or make contact with and exchange information with others.
Bootstrap or get a lot done with few resources.

S12. Mobilise People

Supervise employees or team members.
Recruit and hire employees or team members.
Delegate tasks and responsibilities to employees or team members.
Train one's employees or team members.

S13. Collaboration/ Teamwork

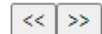
Coordination: the integration of team members' roles and activities.
Cooperation: the willful contribution of personal effort to the completion of interdependent jobs.
Information exchange: the assigning and directing of tasks and information.
Team adjustment behavior: the teams' activities to face unforeseeable performance demands.



Rank the top three skills, most essential for entrepreneurship, with the number one position being the most effective. Key in 1, 2, 3, ... 12 or 13, below each ranking. You may key in more than one serial number in each ranking. Click the back << button to refer to list of skills.

- Ranked Number One: S
- Ranked Number Two: S
- Ranked Number Three: S

Any other skills and knowledge developed, that were not listed. Please specify below:



Question Two:

There are four ways to develop Entrepreneurial Self-Efficacy (ESE) or one's persistent self-belief towards starting and managing a new business capably namely,

A. Mastery (of skills and knowledge): consistent efforts and trying with realistic but challenging goals achieve mastery; one acknowledges and experiences the results of self-efficacy first hand.

B. Social Persuasion: Having others directly influencing or strengthening one's self-belief and providing opportunities for mastery experiences in a safe manner.

C. Vicarious Learning: Social modelling, observation of role models.

D. Emotional states: Positive (Determined, Inspired, Active, Excited) or negative moods (Upset, Nervous, Afraid, Overwhelmed), created during learning.

Identify the teaching methods used in your unit (module or course) that facilitate the four determinants of ESE.

State the serial number (1 to 27 from Table A below) beside each self-belief determinant, A, B, C and D. Key in a comma between each serial number. Thank you. Refer to Table A below.

- A. Mastery of skills and knowledge:
- B. Social Persuasion:
- C. Vicarious Learning:
- D. Stimulate emotional states:

Table A: Teaching Methods (Pedagogies) used in Entrepreneurship Education Units, Modules or Courses.

Reflective-Theoretical Pedagogies

1. Content-oriented exams
2. Learning software: concepts
3. Required readings, handouts, videos, online content, papers
4. Theory/ concept lectures, short examples & cases (teach the basics)

Active-Theoretical Pedagogies

5. Analysis papers
6. Focused Learning Group: Argumentative discussions (cases or concepts)
7. Conceptual research & experiments

Active-Applied Pedagogies

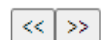
8. Apprenticeship, internship or industry attachment
9. Business Planning, Feasibility Study, Lean Canvas
10. Field research, surveys, interviews
11. Field projects: consultancy, 'mini' business, start a real business, services, volunteering
12. Field-researched plan (Business, Go-to-Market, Product, Strategic)
13. Focused Learning Group: debate, discourse, processing discussions
14. In-depth or 'live' case study
15. Presentation, pitch, proposal
16. Simulation, Serious Game, Role-play
17. Training/ encounter group

Reflective-Applied Pedagogies

18. Case or problem-oriented exams
19. Dialogue, Q and A with entrepreneurs and educators
20. Entrepreneurship Club
21. Educator/ practitioner Applied Lecture (teach real-world theory application)
22. Guest entrepreneur/ Educator facilitated reflective case discussions, critiques, exercises
23. Learning software: skills
24. Learning journal, diary, log, portfolio
25. Real-life entrepreneurship cases, movies, videos
26. Site visits, study tours
27. Suggested readings

Rank the top four teaching methods, with the number one position being most effective in developing entrepreneurial competencies and entrepreneurial self-belief. You may key in more than one serial number (1, 2, 3, ... 25 or 26) below each ranking.

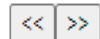
- Ranked Number One:
- Ranked Number Two:
- Ranked Number Three:
- Ranked Number four:



During our conversation, we will classify teaching methods used in your unit using the Entrepreneurship Education Pedagogy Grid (EPG). We assign X values (learning actions) and Y 0 to 100 percentages % (time/ focus on real-world entrepreneurship-specific content, context), to each teaching method.

A 2-page EPG brochure PDF will be in your inbox before our conversation.

The aim is to identify specific pedagogical combinations that develop entrepreneurial competencies and entrepreneurial self-belief (ESE).



Question Three:

Select the roles (R.1 to R.4) you perform when developing Entrepreneurial Self-Efficacy in your students or learners, in the below table.

Notes: various educator roles namely, coach, facilitator, lecturer/ expert, and mentor, also enhance students' learning.
- a coach develops and hones a specific skill in trainees. Coaching (not industry specific) evaluates performance, identifies, resolves and monitors specific weaknesses in individuals.

- A mentor possesses strengths in specific areas where the mentee is weak in. Mentoring provides specific industry knowledge and experience to support, counsel and guide a mentee holistically, for future success, namely entrepreneurial efforts in that specific industry.

A. Mastery (of skills and knowledge): consistent efforts and trying with realistic but challenging goals achieve mastery; one acknowledges and experiences the results of self-efficacy first hand.

B. Social Persuasion: Having others directly influencing or strengthening one's self-belief and providing opportunities for mastery experiences in a safe manner.

C. Vicarious Learning: Social modelling, observation of role models.

D. Emotional states: Positive (Determined, Inspired, Active, Excited) or negative moods (Upset, Nervous, Afraid, Overwhelmed), created during learning.

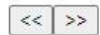
	R.1 Coaching (improve performance)	R.2 Facilitating (discussions)	R.3 Lecturing (sharing expertise and knowledge)	R.4 Mentoring (guiding towards entrepreneurial success)
A. Develop mastery of skills and knowledge:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Impart Social Persuasion:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Encourage Vicarious Learning:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Stimulating emotional states:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rank the roles you assume, with the number one position being the most effective in developing entrepreneurial competencies and entrepreneurial self-belief.

Key in 1 (coaching), 2 (facilitating), 3 (lecturing) or 4 (mentoring) below each ranking.

- Ranked Number One: R
- Ranked Number Two: R
- Ranked Number Three: R
- Ranked Number Four: R

Please share how these roles develop entrepreneurial self-efficacy (ESE) in our coming conversation. Share your Initial thoughts below:



English v

Question Four (discussed during our conversation):

Explain how the roles you assume, develop or enhanced student creativity and Creative Self-Efficacy (CSE or one's enduring self-belief to produce creative outcomes). Share your Initial thoughts below:

Question Five (discussed during our conversation): Explain how the teaching methods you identified, develop or enhanced student creativity and Creative self-efficacy (CSE) or one's enduring self-belief to produce creative outcomes. Share your Initial thoughts below:



Appendix 4: Research Activities and Timeline

<i>Year and Quarters</i>	2018				2019				2020				2021				2022				2023				
Activities	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1				
Pre-Pilot Study: Develop and face-validate EPG	x	x																							
Pilot Study: Obtain ethics approval, recruit, interview Australian CDs, analyse pilot data.		x	x	x																					
Modify and finalising EPG design, update main study interview protocol, literature and methods.				x	x	x	x	x																	
Main Study: Obtain ethics approval, recruit and interview English-speaking CDs, analyse main data, familiarise with NVivo software.									x	x	x	x				x									
Generate themes from horizons by CDs, perform interpretative analysis.													x	x	x	x	x	x	x	x					
Validation study: Recruit and interview Entrepreneurship graduates																x				x					
Generate themes from horizons by GREs, perform interpretative analysis.																	x	x	x	x					
IPA write-up: Developed findings based on interpretative analysis.																					x	x	x	x	x
Revised thesis draft with implications and contributions, submitted for examination Feb 2023.																							x	x	x

Appendix 5: The EntreComp Progression Framework Developed by European Commission Joint Research Centre

Foundation		Intermediate		Advanced		Expert	
Relying on support ⁶ from others		Building independence		Taking responsibility		Driving transformation, innovation and growth	
Under direct supervision.	With reduced support from others, some autonomy and together with my peers.	On my own and together with my peers.	Taking and sharing some responsibilities.	With some guidance and together with others.	Taking responsibility for making decisions and working with others.	Taking responsibility for contributing to complex developments in a specific field.	Contributing substantially to the development of a specific field.
Discover	Explore	Experiment	Dare	Improve	Reinforce	Expand	Transform
Level 1 focuses mainly on discovering your qualities, potential, interests and wishes. It also focuses on recognising different types of problems and needs that can be solved creatively, and on developing individual skills and attitudes.	Level 2 focuses on exploring different approaches to problems, concentrating on diversity and developing social skills and attitudes.	Level 3 focuses on critical thinking and on experimenting with creating value, for instance through practical entrepreneurial experiences.	Level 4 focuses on turning ideas into action in 'real life' and on taking responsibility for this.	Level 5 focuses on improving your skills for turning ideas into action, taking increasing responsibility for creating value, and developing knowledge about entrepreneurship.	Level 6 focuses on working with others, using the knowledge you have to generate value, dealing with increasingly complex challenges.	Level 7 focuses on the competences needed to deal with complex challenges, handling a constantly changing environment where the degree of uncertainty is high.	Level 8 focuses on emerging challenges by developing new knowledge, through research and development and innovation capabilities to achieve excellence and transform the ways things are done.

Appendix 6: Pre-Interview Qualtrics Data Pattern

n	Type	Informant	g-sp1	ind.ex	g-vl	g-adv	INQ	RFX	EA	self.m	adapt	marshl	info.a	NPD	fin.mgt	mob.p	crit.tk	Opp.C	comm	sell	plan	coll.
1	Prac	AZM1	1	1	1		1											1	1	1	1	1
6	Prac	AZM3			1		1			1			1	1	1			1	1	1	1	1
2	Prac	AZM5	1		1	1	1	1	1	1		1			1	1	1	1	1	1	1	1
3	Pure	AZM6							1				1	1				1		1	1	1
4	Prac	AZM7	1	1	1		1								1			1	1	1	1	1
5	Prac	AZM9					1	1	1		1		1					1	1	1	1	1
7	Prac	AZM22					traditional' EED to start				1	1	1		1			1	1	1	1	1
8	Prac	AZM35			1		1			1	1	1	1	1				1	1	1	1	1
9	Pure	AZM34	1		1		traditional' EED			1	1	1	1		1			1	1			1
10	Pure	OCM1				1	1	1	1	1	1		1	1				1	1	1	1	
11	Prac	OCM8			1	1		1	1	1					1			1	1	1	1	1
12	Pure	OCM17	1				1	1	1	1		1	1		1			1	1	1	1	1
13	Pure	OCM25			1	1		presentation-driven				1	1		1	1		1	1	1	1	1
14	Prac	OCM33			1			1			1	1	1	1	1	1		1	1	1	1	1
15	Pure	OCM49					1						1	1				1		1	1	1
16	Pure	OCM47	1		1		1	1	1			1	1	1	1			1	1	1	1	1
17	Pure	EUM4	1				1	1	1	1								1	1	1		1
18	Pure	EUM23	1		1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	Pure	EUM24	1		1				1	1					1				1	1	1	1
20	Pure	EUM31	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	Prac	EUM27	1	1	1	1	1							1				1	1	1	1	1
22	Prac	EUM38	1		1		1	1	1	1	1		1	1				1	1	1	1	1
23	Pure	EUM42	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	Prac	EUM44	1	1	1	1	traditional' EED			1		1		1				1	1			1
25	Prac	NAM2			1		1	1	1	1	1		1					1		1	1	
26	Pure	NAM16			1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1
27	Prac	NAM26	1		1			1	1	1		1	1	1	1	1	1	1	1	1	1	1
28	Prac	NAM28	1		1		1	1	1	1	1			1				1	1	1	1	1
29	Prac	NAM30			1		Apply the c			1			1					1	1			
30	Pure	NAM32	1		1	1	intensive r			1	1	1		1	1	1	1	1	1	1	1	1
31	Prac	NAM45	1	1	1		1	1	1	1	1			1				1	1	1	1	1
32	Prac	NAM43			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
33	Pure	NAM41			1			1	1	1	1		1	1				1	1	1	1	1
34	Prac	NAM48	1	1	1		1	1			1	1			1			1	1	1	1	1
35	Prac	NAM37	1	1	1	1	1		1		1	1			1	1	1	1	1	1	1	1
36	Prac	NAM36			1	1	1			1	1	1	1	1				1	1	1	1	1
37	Pure	NAM51					peer-driven ESE			1	1	1	1	1	1			1	1	1	1	1
38	Pure	SAM29	1		1				1	1	1	1		1					1	1	1	1
39	Pure	SAM40	1		1		1			1									1	1	1	1
40	Prac	AfM46	1	1	1		1	1	1	1	1	1		1		1		1	1	1	1	1
41	Pure	AfM50					develop master			1			1		1	1	1	1	1	1	1	1
42	Prac	AfM39	1		1			1					1		1			1	1	1	1	1

Legend: pure = pure academic, Prac = practitioner academic, INQ = inquiry, g-sp1 = guest social persuasion, ind.ex = industry expert, g-vl = guest vicarious learning, g-adv = guest feedback.
 ESE sources: self-m = self-management, adapt = adaptability, marshl = marshalling resources, info.a = information alertness, NPD = new product development, fin.mgt = financial management, mob.p = mobilise people, crit.tk = critical thinking, Opp.C = Opportunity Identification/Creativity, comm = communications, sell = entrepreneurial marketing, coll. = collaboration