

School of Psychology

**Psychopathic Personality Traits and Empathy in Business and Psychology: An Examination of
the Attraction, Selection and Attrition Cycle in Higher Education.**

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**This thesis is presented for the degree of
Doctor of Philosophy
of
Curtin University**

December 2019

Author's Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement 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: HRE2016-0024.

Signature:

Verity E. Litten

December 2019

Abstract

Person-Environment fit has become a prominent concept in the organizational literature which seeks to explain how well one's attributes fit within their organisational role (Kristof, 1996). Many levels of person-environment fit have been recognised in the literature, however theories of Person-Organisation fit such as the Attraction, Selection, Attrition model (ASA; Schneider, 1987) have primarily focused on understanding person-environment transactions in the context of organizational and vocational group membership (King et al., 2017; Kristof-Brown, Zimmerman, & Johnson, 2005). The ASA model suggests that similar types of people will be attracted and selected into similar types of organisational and vocational environments, with those individuals proving to be dissimilar over time (e.g. poor fit) eventually leaving the organisation (Schneider, 1987). According to the ASA framework, through this attraction-selection-attrition cycle, organisational environments become increasingly homogeneous over time (Schneider, 1987).

There is empirical evidence to support this notion, with organisational membership suggested to account for nearly a quarter of personality variance and even greater when considering homogeneity within occupational membership (Bradley-Geist & Landis, 2011; King et al., 2017). Despite considerable support for the homogeneity hypothesis, identifying the mechanisms responsible for such an effect remains unclear, with some advocating for the role of selection effects (Schneider, Smith, & Goldstein, 2000), others for socialisation processes occurring within an environment (Elegido, 2014) and others suggesting a combination of the two (De Cooman et al., 2009).

As a tertiary field of study often acts as a pre-cursor to a future vocational pathway, it is not unreasonable to hypothesise that the ASA framework could prove applicable in higher education settings when considering student personality and choice of academic discipline. Attracting and selecting students that are well suited to their academic discipline is considered beneficial for educational stakeholders as good student-discipline fit is associated with higher rates of retention and improved student outcomes (Vedel, 2016). Good fit between student personality and academic discipline is also desirable at an individual level due to its positive associations with self-esteem, student satisfaction, and wellbeing (Gilbreath, Kim, & Nichols, 2011). Therefore, the present research sought to test the utility of the ASA framework in explaining empathy and psychopathic personality trait variation between business and psychology undergraduate students, to explore how these

differences influenced initial attraction toward a particular vocational pathway and to examine the influence of educational experience on student personality development.

Overarching Methodology

The present research was theoretically framed within the Attraction, Selection, Attrition (ASA) model of organisational behaviour (Schneider, 1987). The studies included in this thesis sought to determine the applicability of the ASA framework to an educational context in explaining personality variation between business and psychology students. The role of selection and socialisation effects were also examined as possible mechanisms responsible for personality homogenisation within these disciplines, using both cross-sectional and longitudinal methodology.

Data was collected in two phases using a random stratified sampling scheme. The first phase included collecting mixed method data from Australian undergraduate business and psychology students via an online questionnaire. The questionnaire included quantitative measurements of the big-five personality traits (TIPI; Gosling, Rentflow & Swann, 2003), cognitive and affective empathy (BES; Jolliffe & Farrington, 2006), psychopathic personality traits (SRP-4SF; Paulhus, Neumann & Hare, 2016) as well as demographic variables. Further, as personality factors are just one source of known influence on academic discipline choice, several qualitative questions pertaining to student motivation for discipline selection and perceptions of self-reported personality were also included. This mixed methods approach provides an in-depth examination of how external influences interact with student personality variables to influence academic decision-making and educational experience. The second phase involved collecting mixed method data from a sub-sample of participants from Study One, who consented to participation in the follow-up survey component of the research. There are five separate studies in the present thesis, however, samples were not completely independent of each other, with sub-sets of participant data from Study One also being used in consecutive studies.

The recently published Self-Report Psychopathy Scale, short version (SRP-4:SF; Paulhus, Neumann & Hare, 2016) represents the latest iteration of Hare's (1985) psychopathy measure and closely aligns with the development of the Psychopathy Checklist (PCL; PCL-R). A handful of research has provided promising evidence that the SRP-4:SF can be used as a reliable and valid measure of psychopathic traits in community samples. However, the tool itself and the majority of subsequent studies examining its psychometric properties have been conducted with North American or European samples, suggesting a need for further cross-cultural

validation. Further, there are only two previously published Australian studies using the SRP family of measures. Therefore, the first study aimed to contribute to the scarce literature in this area by examining the underlying factor structure of the SRP-4:SF and assessing the cross-cultural validity of a four-factor model of psychopathy among a large Australian undergraduate student population ($N = 602$). Using confirmatory factor analysis, a four-correlated factor model demonstrated superior fit to the data compared to a one- and two-correlated factor model. Findings provide support for the universality of the underlying four-factor structure of the SRP-4:SF in an Australian student sample and contribute to the emerging body of literature promoting the SRP-4:SF as a brief, reliable and valid assessment of psychopathic traits in student populations.

The second study was designed to examine the influence of selection effects within the attraction and selection components of the ASA framework. In order to examine whether pre-existing personality trait differences predicted academic discipline attraction and selection, self-report empathy and psychopathic trait participant data from a sub-sample of 252 first year business students and 128 psychology students from Study One was analysed in SPSS (v. 24) using binary logistic regression. Business students reported significantly higher levels of psychopathic traits, and significantly lower levels of cognitive empathy than psychology students. Results of the logistic regression partially supported our hypotheses, as cognitive empathy was predictive of attraction and selection into a psychology rather than business discipline. After controlling for other variables, psychopathic traits were not found to be predictive of academic discipline selection. Overall, the findings provided evidence to support selection effects in the attraction and selection stages of the ASA framework, highlighting the complex nature of academic discipline selection and stressing the importance of considering both personality and external factors when examining influences on students' motivation for their academic discipline selection.

The third study adopted a mixed-methods approach in order to determine the predictive value of the big-five personality factors in relation to being attracted and selected into either a business or psychology degree and explore factors which influence students' initial academic discipline attraction. A total of 352 first year students enrolled in either a business or psychology undergraduate degree across four Australian universities completed an online survey containing a quantitative measure of the big-five factors and open-ended qualitative questions pertaining to influences on their choice of academic discipline and personality traits perceived to be important for success in their respective fields. Controlling for gender, logistic

regression indicated that conscientiousness and agreeableness were predictive of attraction and selection into a business and psychology degree, respectively ($R^2=0.12$). Qualitative content analysis highlighted students' perceived importance of agreeableness and conscientiousness as the most important big-five personality traits for success in both psychology and business fields. Business students reported being motivated largely by future career opportunities whilst psychology students were more likely to be motivated by holding an interest in human behaviour and emotion, highlighting the multifaceted nature of academic discipline selection. Results support the attraction and selection components of the ASA framework and suggest that attraction toward a business or psychology discipline is influenced by a combination of personality, gender, interest in the field, perceptions of the profession, family influences and self-efficacy. Findings contribute insight into the complex interplay between personality, student perceptions and external influencing factors on attraction to business and psychology vocational pathways. This may have applied implications for vocational and career counsellors when guiding prospective students towards academic disciplines thought to be of good 'fit' as they highlight the need for multiple sources of good perceived student-discipline fit to be considered in combination with personality factors.

Building on the findings of the second study, the fourth study adopted a cross-sectional methodology to examine the development of empathy and psychopathic traits over the course of study for business and psychology students. The sample consisted of 259 business and psychology students who completed online self-report measures of empathy (cognitive and affective) and psychopathic traits (interpersonal, affective, lifestyle, and antisocial). Generalized linear mixed modelling was used to determine the existence of group-level variation in empathy and psychopathic traits across years of study and disciplines. Findings supported a significant year of study x discipline interaction effect for the lifestyle facet of psychopathy, suggesting that these traits decrease across the course of study for psychology students, but remain stable for business students. Additionally, significant discipline effects were observed, with psychology students reporting significantly higher levels of cognitive ($d = 0.77$) and total empathy ($d = 0.74$) than business students, who reported significantly higher levels of interpersonal, antisocial, affective psychopathic traits ($d = 0.36 - 0.45$). Despite being subject to possible cohort bias, findings suggest support for the attraction and selection components of the ASA model and provide a solid foundation for future longitudinal research examining selection and socialisation processes underlying personality homogeneity in business and psychology student cohorts.

Finally, the fifth study longitudinally examined the role of educational experience on the development of psychology and business students' empathy and psychopathic personality traits. Participants were a sub-sample from Study One who consented to participation in follow-up ($N = 159$). Participants completed two online questionnaires, one year apart, consisting of quantitative measures of cognitive and affective empathy, and interpersonal, affective, lifestyle and antisocial psychopathic traits. As students' perception of their environment associated with their subsequent behaviour and personality development, this study also included two open-ended qualitative questions to explore shifts in students' perceptions of themselves and their discipline as a result of their educational experience and explore discipline variation in the nature of these changes. Findings indicated significant baseline discipline effects, with psychology students reporting significantly higher levels of cognitive empathy than business students ($d = 0.63$), who reported significantly higher levels of affective psychopathy ($d = 0.53$). Generalized linear mixed modelling did not support the hypothesised length of enrolment x discipline interaction effect; levels of empathy and psychopathic personality traits were not significantly influenced by the educational environment. Quantitative findings support the role of attraction and selection in explaining personality variation across academic disciplines, however socialisation processes occurring after enrolment appear to have little impact on student empathy and psychopathic trait development. Comparatively, qualitative analysis revealed the impact of discipline-specific contextual factors on students' educational experience, with 79% of business students and 93% of psychology students reporting perceived self-changes as a result of engagement with their studies. Additionally, 46% of business and 55% of psychology students reported changes in their perception of their respective disciplines. Results indicate that students are more likely to change their perception of themselves to better align with their discipline than they are to change their perception of the discipline, providing theoretical support for the existence of socialisation processes occurring within the unique educational environments of business and psychology schools.

The studies included in this thesis sought to determine the applicability of the Attraction, Selection and Attrition framework to a higher educational context in explaining personality variation between business and psychology students. To the best of the author's knowledge, this is the first time the ASA framework and the possible mechanisms responsible for its implied homogeneity have been examined in an educational context. Previous research in this area has yet to examine the utility of organisational models to higher educational settings. Further, this research

has predominantly stemmed from either person- or process-centric theories of personality which tend to focus on selection or socialisation processes, rather than examining both processes within one framework. Examining personality differences and other social-cognitive and external influences on academic discipline choice within a singular theoretical framework allows for a more comprehensive understanding of person-environment transactions within the educational context. It is anticipated that the findings of this research can be used to inform processes related to student selection, retention and socialisation, as well as hold practical application for career and vocational guidance when considering factors contributing to good student-discipline fit.

Acknowledgements

This research would not have been possible without the aid and guidance of my incredible supervisory team. First and foremost, I would like to acknowledge my primary supervisors; Associate Professor Lynne Roberts and Professor Richard Ladyshevsky. My heartfelt thanks go to each of you for your unwavering support, wealth of knowledge, patience, and belief in me, especially when I (frequently!) doubted myself. I have gained so much from this experience that has challenged me to grow and develop both personally and professionally and I am so grateful for all of your encouragement and support throughout my research journey.

I'd also like to thank my co-supervisors, Dr. Emily Castell and Dr. Robert Kane. In particular thanks to Emily for your support and guidance in the qualitative analyses, and to Bob, for your instrumental role in advising and assisting me make sense of complex statistical procedures. I would also like to give my sincere thanks to Dr. Lorraine Sheridan for taking the time to be my internal reader. Her immense knowledge and feedback on the final draft of this thesis was invaluable.

Additionally, I would not have been able to successfully navigate the emotional rollercoaster that has been the last four years if it were not for my personal support crew. To my friends who have become my family, thank you for riding out the highs and lows with me, always reminding me there is a life outside of study and a light at the end of even the darkest tunnel.

Finally, I am eternally grateful to my parents, Jane and Barry, for always encouraging me to ask 'why?' and for giving me the gift of education. The opportunities you provided have sparked a passionate love affair with curiosity which is sure to be lifelong. Thank you.

List of Publications Included as Part of the Thesis

Study Two (Chapter Four) and Study Four (Chapter Six) of this thesis have been published. Copies of the published articles are included in Appendix B and Appendix C respectively. I warrant that I have obtained, where necessary, permission from the copyright owners to use any of my own published work (e.g. journal articles) in which the copyright is held by another party (e.g. publisher, co-author). Copies of these permissions can be found in Appendix A.

Litten, V., Roberts, L. D., Ladyshevsky, R. K., Castell E., & Kane, R. (2019).

Empathy and psychopathic traits as predictors of selection into business or psychology disciplines. *Australian Journal of Psychology*, 1, 1-13.

doi:10.1111/ajpy.12263

Litten, V., Roberts, L. D., Ladyshevsky, R. K., Castell, E., & Kane, R. (2018). The influence of academic discipline on empathy and psychopathic personality traits in undergraduate students. *Personality and Individual Differences*, 123, 145-150. doi:10.1016/j.paid.2017.11.025

Statement of Contribution of Others

See Appendix A for co-author attribution tables of the published articles included as part of this thesis. As indicated in the Appendices, Verity Litten was the lead author on both published papers. Verity Litten, Lynne Roberts, Richard Ladyshevsky, Emily Castell and Robert Kane conceptualised the research design and methodology. Verity Litten recruited participants and analysed data with input from Robert Kane. Verity Litten drafted the manuscripts. All authors edited drafts of the manuscript and approved the final versions.

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Chapter 1: Introduction/Overview

1.1 Overview of the Thesis

Within the literature on Person-Environment fit (P-E fit), The Attraction, Selection and Attrition (ASA) framework as proposed by Schneider (1987) presents a novel approach to understanding group processes. The ASA framework posits that person-centred processes of an attraction-selection-attrition cycle are responsible for increased personality homogeneity within organisations. In contrast with much of the P-E fit literature, which suggests increased fit between the individual and their environment is beneficial as it is associated with positive outcomes for both the individual and organisation, Schneider (1987) argued that increased homogeneity is undesirable as it limits opportunities for innovation and versatility. Despite its proven utility in the organisational literature, the ASA framework has yet to be applied to a higher educational context to examine the attraction, selection, attrition and separate socialisation processes, which may all contribute to increased student personality homogeneity within disciplines.

The present research was, therefore, the first to apply the ASA framework of organisational behaviour to a higher educational context. Traditionally, this framework posits that people will be attracted to organisations which embody similar personality traits, values and goals as their own. People's personalities will be shaped by the organisation's culture, which in turn is shaped by the people within it, ultimately creating a homogenous workforce (Schneider, 1987; Schneider, Smith, & Paul, 2001). As choice of academic discipline at university acts as a pre-cursor to future vocational pathways, it is a small inferential leap to apply this framework to higher educational settings when considering students' choice of academic discipline and the potential for educational environments to influence student personality development. The studies included in this thesis sought to determine the applicability of the ASA framework to an educational context in explaining empathy, psychopathic trait and big-five personality variation between business and psychology students. Additionally, the role of selection and socialisation effects were examined as possible mechanisms responsible for personality homogenisation

within disciplines. Business and psychology disciplines were chosen as the focus of this research because they represent two of the most popular degrees for undergraduate students. For example, in 2017, almost half of all new Australian undergraduate students chose to study within the management and commerce or society and culture educational streams (Department of Education and Training [DET], 2018).

Traditionally, psychopathy has been conceptualised as a taxonomic construct confined to presentations within forensic and clinical settings. However, psychopathy is being increasingly recognised as a dimensional construct, consisting of a number of personality traits existing in varying levels of severity within the general population (Hare & Neumann, 2008). Forensic literature has traditionally considered a deficit or lack of empathy to be a core component of the psychopathic personality. However, research examining the multifaceted nature of empathy and psychopathy has indicated that the relationship between the two constructs may be more complex in the general community. As research in this area is in its infancy, further investigation into the unique relationships between facet level empathy and psychopathic traits was warranted to determine the emotional deficits associated with sub-clinical psychopathy.

Previous research has suggested that the prevalence of psychopathy is significantly more elevated within the corporate world (4%) compared to the general population (1-2%), raising questions about the potential adaptive value of such traits within a corporate business environment (Boddy, 2015). However, comparatively little research has explored psychopathic personality traits in business students, the future of corporate leadership, resulting in limited knowledge of the manifestation and implications these traits may have within educational environments.

Conversely, previous literature has suggested that elevated levels of empathy are predictive of selecting into a psychology profession. However, research on the presence of empathy within health professions such as psychology has yielded mixed results, with some findings suggestive of empathic decline in students throughout the course of their studies (Bellini & Shea, 2005), whilst others have advocated for the importance of developing empathic skills in psychology students in order to achieve beneficial therapeutic outcomes (Camarano, 2010; Toto, Man, Blatt, Simmens, & Greenberg, 2015). Despite the perceived importance of empathy in psychology, limited literature has examined factors associated with educational training that contribute to the development of student empathy.

Although a recently developed tool, empirical evidence suggests that the latest version of the Self-Report Psychopathy Scale short version (SRP-4:SF; Paulhus,

Neumann & Hare, 2016) is a reliable and valid measure of psychopathic traits suitable for use across forensic, community and student samples. The brevity of the SRP-4:SF makes it an attractive alternative to the full version, especially in research involving a number of measures and as such, this version was adopted in the present research. However, the tool itself was developed on a North American sample and the handful of subsequent validation studies have also been limited to North American and European samples. The psychometric properties and underlying factor structure of the SRP-4:SF have yet to be validated on an Australian population.

Therefore, the first aim of the present research (in the form of study 1) was to provide cross-cultural validation of the four-facet model of psychopathy by examining the psychometric properties of the SRP-4:SF, including underlying factor structure, gender differences and unique associations with empathy and the big-five personality traits in a large Australian undergraduate student sample.

The second aim of the present research (in the form of studies 2 and 3) was to examine the attraction and selection processes of the ASA by exploring differences in empathy, psychopathic traits and motivation for discipline selection between newly enrolled business and psychology students.

The third aim of the present research was to examine attrition and socialisation effects by investigating the influence of business and psychology educational environments on the development of student self-perceptions, empathy and psychopathic personality traits (in the form of studies 4 and 5). This aim was addressed using both cross-sectional and longitudinal methodology.

Addressing the aforementioned aims through the program of research outlined above will contribute to the growing body of literature surrounding the stable vs. fluid nature of personality traits and the role of environmental influences on shaping personality. The results from this research provide insight into the impact university courses have on the development of particular personality traits. The findings may have implications for teaching and early intervention approaches within these disciplines in order to help minimise the potential negative impacts to the wider workforce such as increases in psychopathic traits and empathic decline.

1.2 Structure of the Thesis

In this thesis, the research aims will be explored through a series of five studies. Chapter Two presents a review of the relevant literature, including an overview of the theoretical underpinnings of the research and critique of pertinent empathy and

psychopathy literature as it relates to the research aims. This chapter will lead to a rationale for the present research and overview of the studies included as part of the Thesis.

Study One is presented in Chapter Three. This study examined the factor structure and construct validity of the SRP-4:SF as well as explored associations with empathy and general personality traits (as measured by the big-five factors) in a large sample of Australian undergraduate students ($N = 602$). Confirmatory factor analysis was used to compare model fit for a one-factor, two-factor and four-factor fit for the SRP-4:SF items in the total sample as well as for male and female samples separately. Findings supported a cross-culturally validated latent four-facet structure underlying the SRP-4:SF conceptualisation of psychopathy.

Study Two is presented in Chapter Four and examines the role of attraction and selection processes in explaining business and psychology student personality homogeneity within disciplines. In order to determine whether pre-existing personality trait differences were predictive of attraction and selection into either a business or psychology degree, a quantitative comparison of empathy and psychopathic personality trait differences between newly enrolled first year business and psychology students was undertaken and analysed using binary logistic regression. Elevated levels of cognitive empathy were found to be predictive of entry into a psychology rather than business discipline. Overall findings highlighted the complex nature of academic discipline selection and underscore the importance of considering both personality and external influencing factors on academic discipline choice. Implications of the findings in relation to the attraction and selection processes of the ASA framework are discussed.

Study Three is presented in Chapter Five. This chapter adopted a mixed-methods approach in order to determine the predictive value of the big-five personality traits in relation to being attracted and selected into either a business or psychology discipline and qualitatively explore student motivations for selecting into their respective disciplines. Findings contribute insight into the complex interplay between personality, student perceptions and external influencing factors on attraction towards pursuing a business and psychology vocational pathway.

Study Four is presented in Chapter Six. Generalised linear mixed modelling was used to cross-sectionally examine group-level differences in empathy and psychopathic traits between business and psychology students over the course of their studies. Despite the potential for cohort bias, findings provide theoretical support for the attraction and selection components of the ASA framework and lay

empirical foundations for future longitudinal research examining individual-level change.

Study Five is presented in Chapter Seven. This one-year longitudinal study examined the role of educational experience on business and psychology students' empathy and psychopathic personality trait development. Generalised linear mixed modelling findings supported the role of attraction and selection in explaining personality variation across business and psychology disciplines. Findings suggest that socialisation processes occurring after enrolment have minimal impact on the development of student empathy and psychopathic traits. As students' perception of their environment is associated with their subsequent behaviour and personality development, this study also included two open-ended qualitative questions to explore shifts in students' perceptions of themselves and their discipline as a result of their educational experience and explore discipline variation in the nature of these changes. Qualitative content analysis indicates students are more likely to change their perception of themselves to better align with their discipline than they are to change their perception of the discipline, theoretically supporting the existence of unique socialisation processes within business and psychology schools.

Finally, Chapter Eight provides a general discussion which includes a summary of the key findings from each of the studies. An evaluation of the levels and distribution of empathy and psychopathic traits across the studies is included and compared to those presented in previously published literature. General strengths and limitations of the research discussed, followed by suggestions and implications for future research.

1.2.1 Data Collection

Phase one of the research included adopting a random stratified sampling scheme to collect mixed-method questionnaire data from undergraduate students enrolled in either a business or psychology degree at Australian universities. The mixed method survey consisted of quantitative multiple-choice items and demographic questions, as well as open-ended qualitative questions¹. Study One (Chapter 3) involved quantitative analysis of empathy, psychopathy and big-five personality trait measures. It should be noted that despite the present research consisting of five separate studies, the samples were not all independent of one another. For example, of the 602 students who participated in Study One, a random

¹ *The presentation of measures and questions in the questionnaire was randomised to control for ordering effects and participant fatigue.*

sub-sample of 252 first year business students and 128 first year psychology students were included in the quantitative analysis for Study Two (Chapter 4), as well as the mixed method analysis in Study Three (Chapter 5). Study Two analysed participant data on measures of empathy and psychopathic traits, whilst Study Three explored big-five personality traits and qualitative motivations for academic discipline selection. Further, the sample used in Study Four (Chapter 6) consisted of a random sub-sample of 259 participants drawn from Study One. Phase two of the research involved collection and analysis of follow-up mixed method questionnaire data from a sub-sample of students used in Study One (i.e., those who agreed to follow-up participation at T2), with 156 completing matched questionnaires for both phase one and phase two (i.e., T1 and T2). A visual representation of the method of data collection and research design procedure is presented in Figure 1.1.

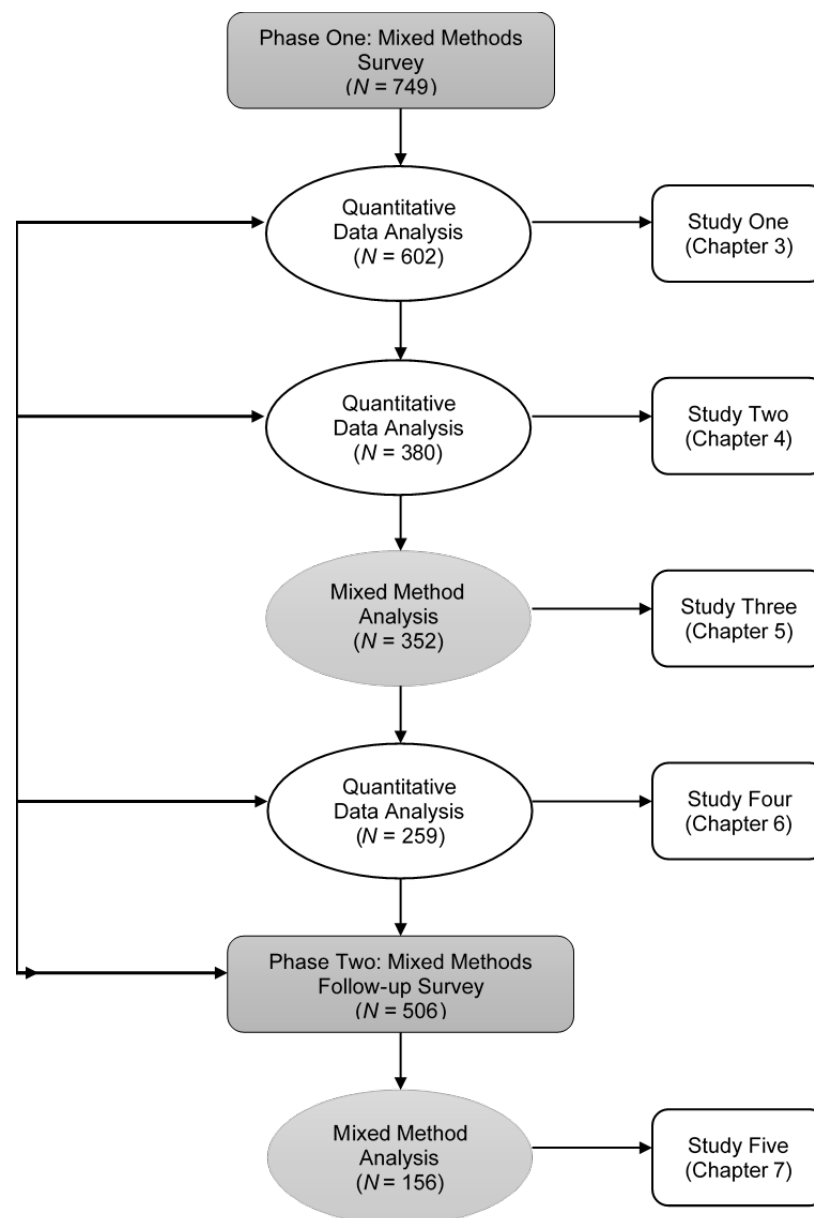


Figure 1.1 *Visual Model of Mixed Method Data Collection and Design Procedures*

Chapter 2: Literature Review

2.1 Overview of Chapter Two

Chapter Two provides a narrative review of relevant literature pertaining to the overarching aims of the thesis. Firstly, a comprehensive and critical review of Person-Environment fit theory is provided, with a focus on Schneider's (1987; 2001) Attraction, Selection and Attrition framework and the underlying processes of selection and socialisation as a possible lens with which to examine personality differences and development in higher educational contexts. This is then followed by a review of the approaches to personality development adopted in the present research; specifically, a critique of both structural and process-based theories is provided. Next, the role of personality in vocational and educational choice is examined, with an emphasis on empirical evidence outlining the ambiguity of big-five factor personality differences between business and psychology students. A brief history of empathy as a construct is then provided, including the role it plays in both business and psychology disciplines, and its associations with psychopathy. Following this, psychopathy as a construct is discussed and a review of relevant conceptualisations and measures of psychopathic traits in forensic and community contexts is provided, with a focus on prevalence rates in business and psychology disciplines. For the purpose of this research, the term 'psychopathic traits' has been adopted as it is congruent with current empirical research acknowledging the role of both genetic makeup and environmental influence on personality trait development as well accurately reflecting the multidimensional nature of the construct. Lastly, additional personal and social influences on students' choice of academic discipline are briefly outlined before reviewing the literature examining unique factors contributing to students' choice of either a business or psychology discipline and their association with student-discipline fit. Chapter two concludes by providing a summary of the reviewed literature and outlines the rationale for the five studies included as part of the present thesis.

2.2 Theoretical Underpinnings

Current theoretical approaches to personality development have stressed the importance of understanding the complex interplay between the person and their environment in the expression of personality characteristics and behaviour. For example, social psychology emphasises the role that environmental demands play in shaping personality (socialisation processes), whilst personality and evolutionary psychologists stress the importance of individual agency and argue that people are biologically driven to actively seek out or avoid particular situations through the processes of selection, evocation and manipulation (selection processes; Chan, 2005). More recently, integrated approaches to explaining personality development have emerged. For example, within research on person-environment fit, the corresponive principle suggests that individuals are naturally drawn to environments or life experiences based on their perceived similarity to one's personality and that these life experiences and associated environmental pressures will in turn influence and shape the development of these personality characteristics (Harms, 2019).

Applied to a vocational context, research supports a view that individuals with similar personality characteristics are likely to share similar interests, which results in attraction toward similar occupations that are well suited to their personality and subsequently this results in similar people occupying particular vocations (King et al., 2017; Schneider et al., 2000). Further, socialisation processes occurring within vocational environments have been found to influence personality development of the people within them, resulting in increased homogeneity within vocations (Denissen, Ulferts, Lüdtke, Muck, & Gerstorf, 2014; King et al., 2017). Several theoretical approaches in the organisational literature have attempted to understand the interplay of person and work environment transactions and the resulting impact on personality development and workplace homogenisation. A summary of the most applicable theories to the current research are explored below.

2.2.1 Person-Environment Fit

A prominent concept within the literature on person-environment transactions is Person-Environment fit. Theories of Person-Environment (P-E) fit have primarily focused on understanding group membership processes at vocational and organisational levels (King et al., 2017; Schneider et al., 2000). Person-Environment fit highlights the extent to which one's attributes match that of their environment (Roberts & Wood, 2006). Underlying this model is the idea that personality will

influence the organisational culture and in turn the organisational experiences will also influence personality (Schulenberg, Sameroff, & Cicchetti, 2004; Wille, Beyers, & De Fruyt, 2012). Ultimately this results in the creation of organised relationships between organisational factors and personality (Roberts & Wood, 2006). The two main assumptions that underpin P-E fit theory are that; (1) people have an innate drive to actively seek out environments that are similar to their personal characteristics (i.e. selection) and; (2) how well someone fits with their environment is positively associated with important individual outcomes such as vocational choice and is significantly influenced by experiences that take place within the environment (i.e. socialisation; King et al., 2017). Selectionist views tend to favour the individual as the active agent whose characteristics shape their passive social conditions whereas socialisation approaches adopt the view that the individual is much more passive and easily shaped by their external social conditions and life experiences (Denissen et al., 2014; King et al., 2017).

Good P-E fit occurs when both the person and the organisation fulfil the needs of the other and/or share similar characteristics with one another (Kristof, 1996). For example, Hudson and colleagues (2012) found that employees' personality traits adapted and developed to meet the needs of the workplace as they became committed and emotionally invested in their chosen vocation. However, if the employee is not psychologically committed to their vocation or engaged in an environment where there is good 'fit' then they tend to avoid or limit the time spent in these environments, subsequently minimising the environmental impact on personality development (Hudson et al., 2012; Roberts, Caspi, & Moffitt, 2003).

Socio-analytic theories of P-E fit (e.g., Social Investment Theory) posit that good fit between the person and their external work environment or career choice results in the individual becoming socially invested in their work (Hudson et al., 2012; Lodi-Smith & Roberts, 2007). Individuals who are socially invested in their work roles are more likely to contribute positively to the organisational environment and tend to embody goals consistent with that of the organisation (Lodi-Smith & Roberts, 2007). Increased social investment in work roles has also been found to result in higher job performance and satisfaction as well as lower levels of stress for the individual (Chan, 2005; King et al., 2017). Additionally, Bleidorn (2012) found that students who invested more in their educational achievement demonstrated the largest increases in conscientiousness, providing support for SIT in higher educational settings.

Although originally stemming from organisational psychology, the concepts underlying P-E fit have also been found to have utility in the context of higher

education. Holland and Nichols (1964) provided early evidence to support P-E fit in educational contexts when they found that students who were dissimilar to a typical student in their particular academic discipline were more likely to change disciplines. Harms, Roberts, and Winter (2006) investigated the stability and change of P-E fit in college students over a four-year period by examining student perceptions of their college environment and self-reported needs. Findings suggested that P-E fit was relatively stable over the four-year period and that students were more likely to change their perception of the environment than their self-reported needs from the environment (Harms et al., 2006). It is possible these results could represent previously unidentified processes within some socialisation-based P-E fit frameworks such as individuals possessing the ability to alter their thinking and subsequent experiences of their environment in order to meet both their own needs and those of the organisation (Harms et al., 2006). Indeed, this is not a new concept, as more person-based socio-analytic P-E fit theories such as the Attraction, Selection, Attrition model have also received considerable attention in the organisational literature (Schneider, 1987, 2001). These theoretical perspectives tend to stress the importance of individual agency rather than situational pressures on explaining person-environment transactions.

2.2.2 Attraction, Selection and Attrition

The Attraction, Selection and Attrition model (ASA) is a framework of P-E fit which focuses on explaining fit at the person-organisational level. Originally proposed by Schneider (1987), the ASA model is strongly influenced by social-cognitive psychology and developmental theorists such as Jean Piaget. In this model organisations are depicted as functions of the kinds of people within them, with people themselves functions of an attraction, selection, attrition cycle (Schneider et al., 2000). The ASA model suggests that people are the situation or setting because it is them who make the setting in the first place (Schneider, 1987). That is, employees' personality traits and attributes determine organisational culture, rather than the external environment, organisational structure, or technology. Consistent with P-E fit, Schneider (1987) suggested that people prefer environments which have a similar personality profile as their own. The ASA framework sits in contrast to most contemporary theories of organisational behaviour which tend to place emphasis on situational rather than personal conditions (Schneider, Goldstiein, & Smith, 1995). Whilst the ASA model does not deny the existence of situational attributes, it simply proposes that they are the results of the personality attributes of the workers within an organisation.

The idea that people will be attracted to organisations that best suit their own personality underpins the attraction component of the ASA model (Schneider et al., 1995; Slaughter, Stanton, Mohr, & Schoel, 2005). Organisations conduct both formal and informal selection processes in order to ensure they hire workers most similar to the current staff. This process makes up the selection component of the model (Slaughter et al., 2005). It is important to note here that selection processes are based on the requirements of the organisation and the skills and attributes of the individual needed to perform the role (Roberts & Wood, 2006). Finally, over time employees whose personalities do not fit well with the organisational culture will eventually leave, either through resignation or dismissal; the attrition component (Slaughter et al., 2005).

Central to the ASA model is the hypothesis that organisational culture will become increasingly homogenous over time through the attraction, selection and attrition cycle (De Cooman et al., 2009; Schneider, 1987; Schneider et al., 2000). Organisational membership has been found to account for nearly a quarter of variance in personality characteristics (Schneider, Smith, Taylor, & Fleener, 1998), providing support for the homogeneity hypothesis at an organisational level. Evidence of occupational homogeneity has also been established, with findings suggesting homogeneity at an occupational level is stronger than homogeneity at the organisational level due to vocational choice preceding choice of organisation (Bradley-Geist & Landis, 2011; King et al., 2017; Schaubroeck, Ganster, & Jones, 1998; Schneider et al., 1998). Although there seems to be considerable evidence to support homogeneity at a vocational and organisational level, the mechanisms underlying the source of this homogeneity remains an open debate (King et al., 2017).

Slaughter et al. (2005) examined which processes within the ASA framework were responsible for the homogeneity within a particular organisation. Their findings indicated that homogenisation of personality traits within organisations primarily occurs after the initial attraction and selection stages. Although the nature of this lab-controlled study limits the generalisation of findings, results broadly suggest that increased homogenisation within an organisation is caused primarily by selection effects and attrition of employees over time due to poor 'fit' with their environment (Slaughter et al., 2005).

Recently, King et al. (2017) also sought to identify mechanisms underlying homogeneity at both an organisational and occupational level in a large sample of over 40 organisations and 115 specific job titles. Applying both the ASA framework and Holland's (1985) theory of vocational interests, findings suggest that

homogenisation was greater within occupations than within organisations. However, some personality traits (e.g. conscientiousness and neuroticism) were not found to differ between occupational and organisational levels, suggesting that some organisational cultures significantly influence whether these traits are expressed, regardless of specific occupation. Additionally, findings suggested that vocational interest in an occupation was predictive of personality at the occupational level. This study provides evidence for the utility of exploring occupational factors such as interests which influence personality homogeneity at the occupational and organisational level. The authors call for further research exploring the complexity of homogenisation processes within groups with a specific focus on the role of particular environmental factors.

The ASA framework traditionally adopts a selectionist view in that it emphasises the role of the person rather than the environment as the primary driving force behind homogenisation (Schneider et al., 2000). However, it is also possible that increased homogeneity within organisations is influenced by selection-based ASA processes in combination with socialisation processes designed to increase new employees' 'fit' within the organisational culture (De Cooman et al., 2009; Schneider, 2001; Slaughter et al., 2005).

In an attempt to understand the interplay of socialisation and selection effects within the ASA framework, Denissen et al. (2014) longitudinally examined a large sample of German job starters, job changers and job stayers. In this study, personality role demands in an occupational context were considered environmental factors which were transactionally related to personality change via the processes of selection, socialisation and attrition. The study found that when fit between role demands and personality was poor, the individual was more likely to change jobs (attrition) and that their new job was more likely to have more congruence with their personality (increased fit), supporting elements of the ASA cycle. Findings supported the existence of selection effects for job starters and changers and socialisation effects for job stayers (Denissen et al., 2014). Specifically, for job starters, initial levels of extraversion, agreeableness and openness were associated with personality role demands of first jobs. Comparatively, for job changers, people in occupations with role demands of high extraversion and openness were found to exhibit these traits more strongly over time.

In another study, De Cooman et al. (2009) also integrated socialisation theory with the ASA framework in order to examine how well employees' values fit with those of their organisation over a two-year period. Their findings supported the existence of socialisation processes as noted by increased homogeneity amongst

employees' work values and their perception of 'fit' with the organisation over time. De Cooman and colleagues (2009) concluded that after attraction to and selection into an organisation, individuals enter the workforce with a certain perception of their fit; socialisation processes in the environment then serve to enhance fit, however if employees' initial fit was low, post-hire attrition was more likely (De Cooman et al., 2009). Therefore, it is possible that a combination of selection and socialisation processes operating within the ASA framework are responsible for increased personality homogeneity within groups over time.

Organisational and personality psychologists tend to support a view that variation in personality traits is adaptive both for work and other types of organisations (King et al., 2017; Schneider, 2001; Slaughter et al., 2005). Homogeneity of personality characteristics within organisations is thought to be undesirable as it limits opportunities for innovation and growth and tends to breed rigidity (Schneider et al., 1998). Therefore, a clear understanding of the processes responsible for homogenisation within vocations is required.

2.2.3 The Corresponsive Principle and Socialisation

The corresponsive principle of personality development is a useful integrated method of understanding possible mechanisms underlying the ASA framework. Grounded in socio-analytic theory, the corresponsive principle acknowledges both selection and socialisation processes in the role of personality development (Roberts & Wood, 2006). It posits that people will seek out life experiences or engage in social roles which ultimately strengthen the individual personality traits which influenced attraction to the experience or role initially (Specht et al., 2014). The corresponsive principle is based on the idea that these attractive life experiences or social roles are internalised as rewarding and validating for the individual, subsequently leading to further elaboration of these characteristics (Roberts & Wood, 2006).

Support for the corresponsive principle has begun to emerge in the literature. For example, Le, Donnellan, and Conger (2014) found that specific personality traits associated with a particular workplace were heightened by the workplace environment over time. Findings indicated that components of the workplace environment such as organisational fit, material benefit, job security and level of autonomy were associated with relative changes in personality traits (Le et al., 2014). The authors concluded that personality characteristics influence an individual's work-related circumstances and other contextual conditions that in turn perpetuate continued personality development in young adulthood (Le et al., 2014).

These findings support the principles of socialisation and selection, as well as being consistent with the processes underpinning the ASA model. The role of higher education institutions is to adequately prepare students to enter the workforce associated with their chosen field of study following graduation. Therefore, it is not unreasonable to suggest that similar processes of selection and socialisation might occur prior to organisational entry, increasing student personality homogeneity within academic disciplines.

2.2.4 Selection and Socialisation in Higher Education

Insight into the nature of people's attitudes and behaviour, both how they are formed and modified, allows us to better understand how people shape and are shaped by social institutions. Previous research exploring how people's attitudes have been influenced by university study, and particularly the academic discipline they study has provided evidence of socialisation in higher education. For example, changes in student attitudes about the cause of violence (Brand & Anastasio, 2005), support for the death penalty (Sandys, 1995), and women's roles (Macalister, 1999) have been observed as a result of exposure to specific course content. Further, Feldman and Newcomb (1969) and Pascarella and Terenzini (1991) both conducted major reviews on the effects of higher education on student's socio-political orientation. Their findings indicate that most research (cross-sectional and longitudinal) suggested that students become more socially liberal during university (e.g., greater tolerance for minority groups and attitudes, low authoritarianism, and low dogmatism). Of note, findings highlighted considerable evidence of discipline-based differences in liberalism, especially between social science and business students. Students studying social sciences were observed to score the highest in liberalism, whilst business students consistently scored among the lowest (Pascarella & Terenzini, 1991).

These differences have generally been attributed to a combination of self-selection and socialisation effects (Hastie, 2007). For example, self-selection into a particular academic discipline implies the formation of views about the nature of the world which are then further shaped through student's continued exposure to the distinctive academic subculture of that discipline (Halsey & Trow, 1971; Ladd Jr & Lipset, 1975). It has been argued that the combination of a particular academic discipline's subject matter, characteristic style, interests, and associations with other groups results in the creation of a unique subculture which students are selectively recruited into (Hastie, 2007). This suggests that after initial attraction and selection,

students would be exposed to socialisation processes unique to their respective academic discipline.

The process of socialisation is thought to be underpinned by both normative and informational influences. Normative influence is a social process, where an individual's behaviour is influenced by others around them who convey the socially expected norms within a particular situation. Comparatively, informational influence is considered to be a cognitive process where the provision of specific knowledge results in changes to internalised attitudes (Eagly & Chaiken, 1993). While both normative and informational influences are distinct processes, they can both occur at the same time, and this is likely the case with students (Hastie, 2007). Therefore, the observed impacts of higher education on students' attitudes could be the result of the information presented, where new discipline-specific knowledge and multiple perspectives are considered (informational) or the normative environment, where students begin to identify with their peer group (Guimond, 1999), and teaching staff may favour or reward students who express discipline-appropriate sentiments or behaviour (e.g., Gamson, 1967). These findings all suggest that when it comes to examining the impact of higher education on students, different groups and mechanisms may be working simultaneously to produce the same outcome. However, distinguishing between the type of influence and its source is difficult, especially given the vast array of influences students are exposed to outside of the university context.

2.3 Personality Development

The study of personality has a long history within psychological research. This research has yielded a number of conceptualisations of personality and its development, from many theoretical approaches (Millon, Millon, Meagher, Grossman, & Ramnath, 2012). These conceptualisations have been debated and updated over the years with a variety of differing approaches continuing to be used in current research. A central point of contention between researchers in the past has been over the relative importance of genetic and environmental influences on personality development. Findings from a meta-analysis of 92 longitudinal studies provides strong evidence that normative changes in personality occur throughout the lifespan, most noticeably between the ages of 20 – 40, with people tending to become more extraverted, conscientious and emotionally stable with age (Roberts, Walton, & Viechtbauer, 2006). Over two decades of behavioural-genetic, cross-cultural, and prospective-longitudinal research has since concluded that whilst genetic factors undoubtedly play an important role, their relative influence on this

personality trait development peaks during early adulthood. It is also during this time when environmental influences on personality development become more important and increasingly stable (Bleidorn, Kandler, & Caspi, 2014; Briley & Tucker-Drob, 2014; Kandler, 2012). For example, during young adulthood, most individuals undergo personality development in the direction of increased emotional stability, conscientiousness, and to a lesser degree, agreeableness. This phenomenon has been referred to in the literature as the 'maturity principle' of personality development as these three Big-Five traits are thought to represent increases in social maturity – or the capacity to become a productive contributor to society (Bleidorn, 2015; Kandler, 2012; Roberts & Mroczek, 2008).

More recently, a central focus of this research has been examining the mechanisms associated with personality development across the lifespan (Specht et al., 2014). For example, social investment theory suggests that people across different cultures will change in similar ways because the majority of people in a majority of cultures go through similar life transitions at approximately the same ages (Roberts et al., 2005). Subsequent empirical findings indicate that personality development is influenced by life experiences, including career and study pathways (Wille et al., 2012). Additionally, the suggestion that environmental influence on personality development increases during early adulthood provides indirect support for the hypothesis that normative life transitions can trigger personality change in early adulthood (Bleidorn et al., 2014).

This body of literature has traditionally been dominated by two competing theoretical approaches. Trait approaches to personality such as the Five-Factor model advocate for a structural approach to understanding personality as a set of genetically based basic tendencies which are largely fixed and stable across time and situations (Johnson, 2018; McCrae & Costa Jr, 2008). Comparatively, process approaches such as social-cognitive theories integrate the roles of both personal attributes and environmental factors on personality development and centre around understanding behavioural expressions as functions of personality within situational contexts (Perugini, Costantini, Hughes, & De Houwer, 2016).

Whilst structural approaches to personality have proven useful when one is interested in examining inter-individual and inter-group differences, process approaches are thought to be more appropriate in understanding individual personality process and variation (Giordano, 2017). As the present research involved both comparative analyses of between group differences and exploration of intra-individual differences over time, a brief overview of relevant structural and process-based approaches for understanding personality development is provided,

followed by a summary of relevant literature pertaining to personality in the context of academic discipline and vocational choice.

2.3.1 The Trait Approach and Big-Five Model

The trait approach provides a promising method for understanding the impact of the individual in moderating environment-behaviour relations and has been a dominant perspective in personality psychology research (Perugini et al., 2016). Within such perspectives, adult personality traits have traditionally been conceptualised as innate, genetically based broad constructs encompassing thoughts, feelings and behaviours which are largely stable across time and situations (McCrae & Costa Jr, 2008; Millon et al., 2012).

The five-factor model of personality is the most well-established trait model in adult personality and has been replicated numerous times over the past 50 years in research across various fields (Digman, 1990; Wille, De Fruyt, & Feys, 2010). The big-five traits (Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Openness to Experience) are considered to be dispositional in that they are the most basic and fundamental units of individual differences which can be easily observed in trait-relevant behaviour (Digman, 1990; Goldberg, 1992; McAdams & Olson, 2010). Within each of the big-five factors are six related sub-facets, totalling 30 facets of general personality traits. For example, McCrae and Costa Jr (2008) suggest that agreeableness is associated with trust, modesty, altruism, cooperation, sympathy and morality. Individuals scoring low on agreeableness tend to be antagonistic towards others and competitive. Neuroticism (the opposite pole of emotional stability) includes facets such as vulnerability to experience and strong negative emotional states such as anger and anxiety (Collison, Miller, Gaughan, Widiger, & Lynam, 2016; Costa Jr, Terracciano, & McCrae, 2001). Extraversion encapsulates the extent to which someone is talkative, social, assertive, daring, confident and optimistic (Goldberg, 1992). Conscientiousness is the factor associated with being organised, careful, thorough, self-disciplined, practical and having strong time-management skills (Digman, 1990). Lastly, openness to experience encompasses the extent to which one is intellectually curious, creative, analytical, and innovative (Caspi, Roberts, & Shiner, 2005). These five factors are inter-related, for example neuroticism is thought to be negatively associated with conscientiousness and agreeableness, whilst agreeableness is positively associated with openness and conscientiousness, which are negatively correlated with each other (Rubinstein, 2005).

Trait approaches have typically focused on describing broad personality traits and a useful product of research from this perspective has been the development of structural taxonomies (e.g. the big-five) as a way of understanding how individual behaviours cluster together based on co-occurrences (Caspi et al., 2005; Hampson, 2012). However, subsequent developments in the literature have challenged this perspective, suggesting that traits are only one of a multitude of factors, such as motives and situational context, which influence whether behaviours are expressed (Giordano, 2017; Wood & Denissen, 2014, pp. 97-111).

2.3.2 Social-Cognitive and Functionalist Perspectives

The social-cognitive approach to personality has proven to be a popular process-centric perspective adopted for the first half of the 20th Century, with many theorists emphasising the interplay of social learning, cognitive schemas, developmental patterns and behaviour on an individual's ability to adapt to their surroundings (McAdams & Olson, 2010; Wrzus & Roberts, 2017). Social-cognitive approaches focus on understanding personality as consistency in behavioural expressions within situational contexts and suggests that a series of affective and cognitive sub-systems are responsible for mediating the external influences on behaviour (Hampson, 2012; Perugini et al., 2016). In other words, genes and environmental effects differentially contribute to how a person typically acts (i.e., his or her temperament or narrow-sense personality) and how capable a person is (i.e., his/her abilities or skills). This perspective differs from traditional trait approaches in that it seeks to provide an explanation for personality variables (Giordano, 2017). Further, social-cognitive theories of personality tend to invoke constructs consistent with characteristic adaptations (e.g., goals, beliefs, expectancies, evaluations), but do not typically encompass explanations of traits (Cervone, 2004).

Structural approaches such as the big-five model have provided a good foundation for identifying what personality variables change, whilst process-centric approaches have sought to explain the various social-cognitive mechanisms through which these changes occur. However, in order to provide a comprehensive understanding of individual personality development, recent research has advocated for an integrated approach to developing models which include both descriptive accounts of personality variables (structure) as well as an understanding of the causal nature (process) involved in these changes (Jayawickreme, Zachry, & Fleeson, 2019). McAdams and Pals (2006) proposed a set of five principles which eloquently reflects the integrative scope of personality development. These principles state that – *“Personality is conceived as (1) an individual's unique*

variation on the general evolutionary design for human nature, expressed as a developing pattern of (2) dispositional traits, (3) characteristic adaptations, and (4) self-defining life narratives, complexly and differentially situated (5) in culture and social context.” (p. 204).

A functionalist perspective has emerged as a promising approach for understanding the role of both the person and situation on personality development. Broadly, functionalist theories suggest that personality development is driven by the functionality of particular trait-relevant behaviour within environments in the context of attaining particular needs or goals (Prentice, Jayawickreme, & Fleeson, 2019). Within this approach, the principle of functional mediation suggests the influence of situations, roles and environments on personality is mediated by altering the functionality of the trait-relevant behaviour within the contextual environment (Wood & Denissen, 2014). Theoretically, personality change occurs when the functionality of trait-relevant behaviour changes. For example, individuals will increase the performance of particular trait-relevant behaviours when it is considered functional to goal attainment within a given contextual environment (Branscombe & Reynolds, 2014).

Consistent with this approach, Whole Trait Theory (WTT; Fleeson, 2012; McCabe & Fleeson, 2012) suggests that behaviour is an expression of personality and whilst it may vary significantly across situations, typical behavioural patterns of individuals tend to remain relatively consistent over time (Fleeson, 2004; Mischel, Shoda, & Mendoza-Denton, 2002). Subsequently, this approach operationalises personality traits as being the average expression level of the trait-relevant behaviour (Fleeson, 2004; Prentice et al., 2019). When considering a single behaviour, personality and situational factors are considered equally influential, however when examining behavioural patterns across time, personality traits have proven to be powerful predictors, supporting WTT (Jayawickreme et al., 2019). From this perspective, personality is both stable; as demonstrated by between-person variation over time; and fluid in the sense that there is significant within-person variation in individual behaviour which is dependent on external situational factors (Jayawickreme et al., 2019).

Another example of an integrated theory which adopts a functionalist approach to personality is Cybernetic Big Five Theory (CB5T; DeYoung, 2015). CB5T was recently developed based on McAdams and Pals' (2006) principles and is grounded in cybernetics – the study of goal-directed, self-regulating systems (Austin & Vancouver, 1996; Van Egeren, 2009). CB5T makes the distinction between personality traits (i.e., variation in the parameters of evolved cybernetic

mechanisms) and characteristic adaptations (i.e., goals, interpretations and strategies defined in relation to an individual's life circumstances). According to this theory, personality traits will vary in their relevance across situations, and, in situations where people are minimally exposed to some trait-relevant class of stimuli, individual differences in the corresponding trait will not be apparent (DeYoung, 2015). Comparatively, characteristic adaptations are both interpersonal constructs, that is, they can be assessed as variables across people (e.g., people can have the goal of becoming a psychologist or not); and intrapersonal constructs which describe information in memory that plays a causal role in the functioning of the individual (e.g., the goal of becoming a psychologist will guide the interpretation of subsequent situations and strategies selected to move toward this goal). Whilst CB5T does not offer a well-elaborated theory of selection or decision-making, it is useful for attempting to understand the influence of personality constructs on decision-making. Broadly, CB5T indicates that one's action selection is influenced by both personality traits and characteristic adaptations (DeYoung, 2015). According to CB5T, the highest levels of individual well-being are achieved only when one's characteristic adaptations are well adapted and also well-integrated with one's life circumstances. In other words, good 'fit' is considered to be when one's characteristic adaptations are minimally conflicting with each other, one's traits and with innate needs.

Some researchers have suggested that changes in personality can be attributed to environmental sources such as individual requirements in social roles, normative life transitions and individual life events that result in major changes to individuals' circumstances (Kandler, 2012; Roberts & Wood, 2006; Roberts, Wood, & Caspi, 2008). For example, Bleidorn (2012) conducted some of the first cross-cultural research which supported the notion that social-role transitions were associated with personality maturation. Specifically, results indicated that cultures with an earlier normative timing of job-role transitions were marked by an earlier onset of personality maturation. These findings are consistent with social investment theory and provide evidence that normative life transitions in the vocational domain are important catalysts for personality development.

Social investment theory (Roberts, Wood, & Smith, 2005) suggests that behaviour is a function of an individual's personality in that the social roles and expectations people adopt within environments have a significant influence over behavioural expression and subsequently impact on personality (Harms, 2019). According to this theory, age-graded life transitions such as graduating tertiary education, entering the workforce, or becoming a parent stimulate personality

development because they force young adults to invest in new social roles. Therefore, according to this approach, personality development is brought about by via socialisation processes occurring in the environment which form a reward structure designed to increase individual's identification with and investment in particular social roles within that environment (Kandler, 2012; Lodi-Smith & Roberts, 2007; Roberts & Wood, 2006; Roberts et al., 2008).

Further, an individual's personality trait levels are positively associated with how desirable they perceive the traits to be in their environment (Wortman, Wood, Furr, Fanciullo, & Harms, 2014). It should be noted however, that individuals will differ in their perception of how functional particular trait-relevant behaviours are in a given environment via social-cognitive mechanisms. Therefore, it could be said that a person's perception of trait functionality in any given context is equally influential on their personality development as the trait's actual functionality. In this way, a functionalist approach suggests that personality change is the result of both self-directed efforts and environmental pressures (Wood & Denissen, 2014).

Personality continuity and change may be the result of environmentally mediated processes of identity development due to age-graded social roles and individual life experiences in combination with biological maturation. Individuals will actively select, create and change their environments (e.g., by changing academic discipline or career pathway) or evoke social reactions which match their genetically predisposed traits (Bleidorn, 2015). In turn, environmental and social reactions as well as interindividual differences in experiences of life events and experiences may affect personality traits and thus contribute to personality development. For example, people who are genetically predisposed to be more extraverted may perceive life events as more controllable and positive. Alternatively, experiencing life events as controllable and positive may subsequently increase an individual's level of extraversion (Kandler, Bleidorn, Riemann, Angleitner, & Spinath, 2012). In other words, genetic influences may partly drive environmental effects accounting for increased heritability (Kandler, 2012). However, as one's unique events, experiences and memories accumulate across the life span, so too does the effect of these life experiences, resulting in increased environmental variance. This cumulation also leads to a decline in the contribution to variance in personality traits with age, a pattern pointing to lifelong changes in personality due to environmental influences. Consequently, genetic and environmental effects do not act separately; rather, they interact in complex ways that account for changes in personality, and the contribution of life experiences to personality development cumulates with age (Kandler, 2012).

Promising integrative theories of personality development have begun to emerge in the literature. However, it is clear from the literature reviewed that evidence for the timing, process, and mechanisms of personality change is still in the preliminary stages. Further research is required to examine when, why, and how personality development occurs in the context of social-role transitions, such as the transition to tertiary education and choice of vocational pathway.

2.4 Personality and Vocational Choice

An individual's personality characteristics influence how external environments and events are perceived and subsequently responded to as they encompass the personal resources which one can draw from in order to solve adaptive problems throughout their lifespan (Logue, Lounsbury, Gupta, & Leong, 2007). Many of the choices people make throughout their lives can be conceptualised as expressions of their personality, including choice of academic discipline (Larson et al., 2010). For example, personality has previously been found to be associated with student satisfaction with their academic discipline choice (Logue et al., 2007). Which academic discipline one chooses to pursue in tertiary education acts as a pre-cursor to future vocational pathways and research suggests that the outcomes of this decision continue to influence individuals' lives long after graduation, affecting occupational choice, income, job stability, earning potential, work productivity and overall work satisfaction (Humburg, 2017; Porter & Umbach, 2006; Wiswall & Zafar, 2014).

In Australia, business and psychology courses have traditionally represented some of the most popular choices of academic discipline amongst undergraduate students (Green, Hood, & Neumann, 2015). However, the past two decades have seen an increasing trend of Australian students becoming more likely to enrol in a health-related discipline and less likely to enrol in a business discipline. Specifically, between 2017 – 2018, commencing student enrolments in health-related disciplines, including psychology, increased by 2.5%, whilst management and commerce enrolments decreased -0.6% (Australian Government Department of Education and Training [DET], 2018). In order to explain these trends, it is important for educational stakeholders to develop an understanding of the relevant factors that influence students' choice of academic discipline.

Previous research has suggested that personality traits are significant predictors of choice of academic discipline, and subsequent vocational trajectories, theoretically supporting the processes of attraction and selection (Lounsbury, Smith, Levy, Leong, & Gibson, 2009; Porter & Umbach, 2006; Vedel, 2016). Specifically, a

large body of research has emerged over the last decade suggesting the existence of significant personality trait differences in students across various fields of study, indicating that pre-existing big-five personality traits are significant predictors for attraction and selection into particular academic disciplines (Lounsbury et al., 2009; Porter & Umbach, 2006). For example, findings from a systematic review indicated, with medium to large effect sizes, that psychology students are significantly more agreeable, neurotic and open than business students, who tend to be more extraverted (Vedel, 2016). Recently, Humburg (2017) also examined how the big five personality traits related to selection into different academic disciplines. Their findings largely echoed the findings from Vedel's (2016) review in that extraversion and openness were most strongly associated with academic discipline choice, with highly extraverted students being more likely to select into a law or business and economics field of study. Humburg (2017) suggested that this may be due to business vocational pathways offering the opportunity for frequent social interaction, being the centre of attention and persuading others, which would be attractive for highly extraverted individuals. Extraversion has also previously been associated with increased work performance within sales and management domains (Humburg, 2017). However, prior research on differences in extraversion between psychology and non-psychology students has yielded mixed findings. For example, contrary to Humburg's (2017) findings, Larson, Wei, Wu, Borgen, and Bailey (2007) found no significant differences in extraversion amongst business, counselling, pharmacy and engineering students.

The majority of research on personality and academic discipline choice has focused on broad, higher-level traits (i.e., the big five); however, it is likely that narrower, lower-level facets associated with the five-factors may offer more specific behavioural predictions associated with academic discipline selection (Caspi et al., 2005). For example, empathy is a lower-level personality trait most strongly associated with agreeableness (Barrio, Aluja, & García, 2004), and has previously been associated with the choice of studying a health profession, such as psychology (Marsh, 1988; Toto et al., 2015). Comparatively, a lack of empathy is commonly considered a core feature of the psychopathic personality, with previous research observing elevated levels of psychopathic traits within corporate business populations (Smith & Lilienfeld, 2013). Despite psychology and business representing some of the most popular undergraduate disciplines in Australia, comparatively little research has examined the presence and development of these traits in higher education.

2.4.1 Empathy as a Construct

Although a unified conceptualisation of empathy remains a debated topic, (see Camarano, 2010 for a review), a common theme in the literature is understanding empathy as consisting of both an affective and cognitive component (Camarano, 2010; Seara-Cardoso, Neumann, Roiser, McCrory, & Viding, 2012; Toto et al., 2015). This is largely based on the assumption that the display of empathy is two-fold; it first involves affect recognition and emotional contagion, followed by understanding another's emotional needs (Seara-Cardoso et al., 2012).

Cognitive empathy (also known as state empathy) encompasses many interpersonal communication skills such as reflective listening, empathic questioning and perspective-taking (Camarano, 2010; Toto et al., 2015). Additionally, cognitive empathy encompasses empathic accuracy, or the ability to accurately understand another's emotional state and respond appropriately (Mast & Ickes, 2007) and has been found to be positively associated with social awareness and emotional intelligence (Toto et al., 2015). However, empathic accuracy is dependent on a number of variables such as the relationship with the other person and the motivation underlying one's desire to accurately understand the emotional experiences of another (Marangoni, Garcia, Ickes, & Teng, 1995; Mast & Ickes, 2007). For example, previous literature indicates that the relationship between empathic accuracy and positive social interactions is only maintained when one's motivation to interpret another's emotional state is driven by a genuinely altruistic desire to understand and connect with the other person's internal emotional experience (Ickes & Hodges, 2013, p. 360). Additionally, empirical evidence suggests that the ability to accurately adopt another's perspective is inversely related to one's sense of power (Toto et al., 2015). Cognitive empathy can be conceptualised as a cluster of behaviours occurring within particular situational contexts that could, therefore, theoretically be taught or improved upon through training.

Affective empathy is considered to be a stable, innate personality trait which is less likely to be influenced by external pressures (Camarano, 2010). Although varying definitions of the affective component of empathy exist in the literature, affective empathy (also known as trait empathy) generally involves one's ability to share or co-experience another's emotional state, encompassing an individual's ability to experience compassion, empathic concern and warmth for others (Toto et al., 2015). However, affective empathy does not necessarily mean that someone needs to experience the same emotional state of another. It can also mean that an

internal emotive state is more reflective of another's situation than their own (Cassels, Chan, & Chung, 2010).

Previous research suggests that both cognitive and affective empathy are positively related to emotional intelligence, open-mindedness and compliance with others which are thought to play a vital role in moral reasoning and prosocial behaviour (Toto et al., 2015). In social contexts, empathy is thought to promote interpersonal cooperation and harmony, whilst a lack of empathy results in increased conflict and interpersonal isolation (Konrath, O'Brien, & Hsing, 2011). Additionally, empathy is positively associated with altruism, with highly empathic individuals being more likely to help others and volunteer (Davis, 1983; O'Brien, Konrath, Grühn, & Hagen, 2013).

The limited research available regarding cultural differences in empathy has yielded mixed results, with some findings suggesting that higher levels of empathy tend to be present in collectivist cultures compared to individualistic cultures (e.g., Chopik, O'Brien, & Konrath, 2017), and others reporting the opposite effect (Cassels, Chan, Chung, 2010). Individualistic cultures place emphasis on personal sense of agency, promoting a sense of well-being separate from others. As a result, people from individualistic cultures may be less responsive to the emotional states of others, resulting in lower levels of empathy (Chopik et al., 2017). Comparatively, collectivism values connection with others by focusing on the collective group well-being over the individual. Theoretically this could result in higher levels of empathy as people's emotional states are more sensitive to that of those around them. This theoretical view was supported by findings from a recent study which examined cultural variations in empathy in a large world sample ($N > 100,000$) of adults from 63 countries, with the authors concluding that people from collectivist cultures tend to display higher levels of affective empathy ($r = .33$) than people from individualistic cultures (Chopik et al., 2017). With an increase of Asian students migrating to Western cultures, it is possible that various socialization processes may be involved which assist with assimilating different cultural norms and behaviours. However, the specific implications of these processes are largely unknown (Cassels et al., 2010). Alternatively, individuals low in empathy who originate from collective cultural backgrounds may migrate to individualistic Western cultures which more closely align with their personal values of independence and self-interest (i.e., selective migration). This conclusion is in line with the ASA model's (Schneider, 1987) processes of attraction and also attrition as people will move away from cultures which they believe do not embody their own characteristics and values.

University students from individualistic Western cultures have been referred to as being one of the most self-interested, competitive and individualistic cohorts of recent times, with previous research indicating significant declines in empathy across student cohorts over the past two decades (Konrath et al., 2011). Specifically, the findings from a meta-analysis of studies examining empathy in American student populations indicated that on average, cognitive and affective empathy declined 34% and 48% respectively between 1979 – 2009 (Konrath et al., 2011). Other evidence has suggested that empathic tendencies may increase over time. For example, Howe and Strauss (2007) suggest that American millennials are significantly more outer-fixated, cooperative and group focused than the generation before them. However, this suggestion is lacking in empirical support.

As empathy is considered to play an important role in both business and psychology, the suggestion of student empathic decline is disconcerting for the future of these professions. Kelm, Womer, Walter, and Feudtner (2014) suggest that declines in student empathy over the duration of their tertiary study may be a result of experiencing increased psychological distress in the context of environmental stressors and the competitive nature of universities in general. It is, therefore, important for business and psychology schools to develop an understanding of contextual factors within the educational environment which may contribute to the development and decline of student empathy.

2.4.1.1 Empathy in Psychology

In the applied psychology literature, empathy is the most widely researched construct in relation to positive therapeutic outcomes (Camarano, 2010; Toto et al., 2015). This is unsurprising given that empathy is considered to be more important in clinical practice for successful counselling and achieving positive client outcomes than any particular type of therapeutic intervention (Camarano, 2010). When therapists display empathy, clients report feeling more understood and are more likely to disclose difficult or vulnerable areas of their lives (Bohart, Elliott, Greenberg, & Watson, 2002). Therapist empathy has also been associated with the length of time clients choose to remain in therapy rather than terminating sessions due to dissatisfaction or therapeutic rupture with the therapist (Bohart et al., 2002). An empathic psychologist is able to accurately track emotional responses in their clients and reach a deeper more emotive level of exploration rather than staying with surface level situational discussion in session (Bohart et al., 2002). Further, it is not only the client who is thought to benefit from therapist empathy, with prior research suggesting that empathy is associated with lower levels of personal distress and

burnout, as well as increased work satisfaction and clinical competence in health professionals (Hall, Davis, & Connelly, 2000; Kelm et al., 2014).

Previous research has suggested that individuals who display naturally higher levels of empathy are more likely to be attracted to a profession which focuses on assisting others, such as psychology or social work, theoretically supporting the attraction component of the ASA framework (Marsh, 1988; Schneider, 1987; Toto et al., 2015). As empathy is considered such a core counselling skill, it could be expected that a large focus of many counselling and training programs might be on emphasising the importance of empathy in their teachings and on improving the interpersonal communication skills and empathic understanding of student cohorts (Marangoni et al., 1995). Supporting this view, Lyons and Hazier (2002) found significant increases in cognitive empathy between first- and second-year counselling students, suggesting that the educational environment of counselling schools is likely to have a significant influence on student empathy development. However, due to the cross-sectional nature of previous research, longitudinal replication is required to support this conclusion.

Consistent with the responsive principle and socialisation theory, repeated exposure to a learning environment that promotes care and compassion for others' needs will theoretically serve to enhance student empathy over time. However, some research has indicated an empathic decline in students of varying health professions including medicine and dentistry, over the duration of their studies (Bellini & Shea, 2005). Other research has suggested that this decline is overstated in research and not considered significant enough to translate into any negative impacts on client outcomes (Colliver, Conlee, Verhulst, & Dorsey, 2010). A decline in empathy throughout the course of a career in a helping profession could be viewed as the beginning development of self-preservation mechanisms. For example, high levels of affective empathy could be counterproductive for practicing health professionals due to the potential for over involvement and subsequent emotional distress to the clinician, as well as inaccurate interpretations of clients' situations due to projection of the clinician's own perspective or experiences (Pedersen, 2008). To avoid this, clinicians such as psychologists may deliberately emotionally distance themselves to some degree from their clients in order to remain objective and avoid over-involvement in their clients' experiences. However, most of the previous research on empathy decline in health professionals has focused on the medical field. As psychology students are not exposed to the level of disease, death and traumatic injury that medical students are, it could also be said that they would experience less emotional distress and, therefore, not have a need for such

drastic self-preservation methods which manifest as a decline in empathy (Camarano, 2010).

In the wake of findings on empathy decline, a recent area of interest emerging in the literature is the concept of empathy training and interventions aimed at improving student empathy (Kelm et al., 2014). For example, findings from a recent systematic review on interventions designed to improve medical student empathy provides promising support for a view that empathy can be enhanced via communication skills training and role play interventions integrated into educational curriculums (Kelm et al., 2014). These findings provide insight into the influence of socialisation processes on personality development.

2.4.1.2 *Empathy in Business*

The importance of empathy within the organisational world has also been an emerging topic of interest in recent literature. Previous research has suggested that empathy plays an important role in ethical decision-making, effective leadership and other prosocial organisational behaviours (Brown, Sautter, Littvay, Sautter, & Bearnese, 2010; Elegido, 2014; Konrath et al., 2011). However, it is possible that the cognitive and affective components of empathy hold unique utility within a business context. For example, cognitive empathy encompasses perspective-taking skills, which are considered crucial to mediating competitive vs. cooperative behaviour in business negotiations (Galinsky, Maddux, Gilin, & White, 2008). However, emotionally connecting with another (affective empathy) in the context of business negotiations may compromise the ability to objectively make decisions without compromising self-interested goals. Further research of the presence and role of both cognitive and affective empathy in a business setting is, therefore, warranted.

Despite the important role of empathy in business negotiations, business education has been heavily criticised in previous literature for disregarding the role of emotion in ethical decision-making (Giacalone & Promislo, 2013; Marques, 2019). For example, it has been suggested that instead of teaching students how to morally and ethically conduct themselves, business education tends to focus more on how to avoid legal trouble (Marques, 2019). This can result in students adopting the belief that it is rational to act in self-interested ways even at the expense of others (Friedman & Friedman, 2009). Subsequently, some have raised concerns regarding business students' lack of empathy (Petersen & Ford, 2018). Supporting this concern, an accumulating body of research has suggested that business students tend to be less empathic, less cooperative and more likely to engage in unethical

behaviour such as academic misconduct or cheating, than students in other academic disciplines (Brown et al., 2010; Frank, 2004).

Previous research has suggested that socialisation processes within business educational environments have an influence on unethical student behaviour, theoretically supporting the impact of socialisation processes on personality development (Frank, 2004). For example, Frank (2004) found evidence of increased co-operation and decreased unethical behaviour in non-finance disciplines over the course of their studies, however the same effect was not noted for finance students, indicating that unethical behaviour was influenced by students' educational experience. Business schools are designed to equip students with the necessary skills for success in a traditionally competitive field. Subsequently, business education has typically promoted an economics-based model of human behaviour which emphasises self-interest, achievement, success and financial gain (Elegido, 2014; Gudmundsson & Southey, 2011; Marques, 2019). Whilst this approach may be logical, it is possible that it also instils a view in students that empathy has little relevance to rational decision-making in the corporate world and may possibly serve to decrease levels of student empathy as a result of socialisation processes within the discipline (Brown et al., 2010; Elegido, 2014; Marques, 2019).

Given the perceived importance of empathy in both business and psychology disciplines, it is recommended that curriculums be designed in such a way that they are able to create an educational climate which fosters and supports the development of this characteristic in their graduates. Despite this importance however, there is currently limited literature examining factors that contribute to the development of empathy in business and psychology students (Lyons & Hazier, 2002; Marques, 2019).

2.4.1.3 Associations between Empathy and Psychopathy

Empathy in both its affective and cognitive forms is thought to be crucial to the development of positive moral reasoning and prosocial behaviour (Jolliffe & Farrington, 2006). For example, an individual who is able to identify and comprehend another's distress or negative emotional state caused by their own antisocial behaviour is less likely to continue said behaviour (Jolliffe & Farrington, 2006). Subsequently, a deficit or lack of empathy is strongly associated with antisocial behaviour and is traditionally considered a core feature of the psychopathic personality (Hare & Neumann, 2008; Jolliffe & Farrington, 2006; Smith & Lilienfeld, 2013). However, research examining the relationship between empathy and psychopathy has produced some mixed findings. Traditionally, psychopathy has

been conceptualised as a dyadic and fixed personality disorder, occurring primarily within forensic and clinical populations. More recently however, in line with current personality research development, psychopathy is being increasingly conceptualised as a multi-dimensional construct, evaluated as a cluster of personality traits, existing on a spectrum which can be displayed in varying levels of severity within the general population (Babiak, Neumann, & Hare, 2010; Boddy, Miles, Sanyal, & Hartog, 2015; Seara-Cardoso et al., 2012).

Whilst much of the forensic literature supports an inverse relationship between psychopathy and empathy more broadly (Neumann, Hare, & Pardini, 2015), research examining the multifaceted nature of the constructs has suggested that the relationship between empathy and psychopathic traits may be more complex in the general population. For example, it has been suggested that the superficial charm displayed by psychopathic individuals in the community is the result of possessing adequate levels of cognitive empathy, however the ability to act in self-interested ways without consideration for others' wellbeing is driven primarily by deficits in affective empathy (Jolliffe & Farrington, 2006; Lockwood, Bird, Bridge, & Viding, 2013). Supporting this notion, empirical evidence is emerging in the literature which supports a view that individuals with elevated psychopathic traits in the community are able to cognitively comprehend the emotional states of others but do not tend to exhibit the affective empathy required to share in those emotional states. Recently, Gong, Brazil, Chang, and Sanfey (2019) examined how psychopathic personality traits were associated with the capacity to acquire knowledge about social expectations and to what extent this knowledge impacted on their social decision-making. Findings suggest that individuals with high levels of psychopathic traits do not have an impaired ability to understand others' expectations in social contexts, however, they do demonstrate an inability or unwillingness to utilise this knowledge in their decision-making process, suggesting deficits in affective but not cognitive empathy.

Findings from an Australian study suggest that deficits in both affective and cognitive empathy are significantly associated with psychopathic traits during childhood (Dadds et al., 2009). However, findings indicated that cognitive empathy increased throughout puberty, whilst deficits in affective empathy remained unchanged (Dadds et al., 2009). Additionally, Brouns et al. (2013) tracked adolescents' empathy and psychopathic trait development over three years, with results indicating that cognitive empathy increased over time in individuals displaying moderate and low levels of psychopathic traits. These findings are consistent with the view that psychopathic individuals are capable of learning skills

associated with cognitive empathy (e.g., perspective taking), allowing them to exhibit adequate social skills required to mask antisocial behaviour and evade detection from the judicial system. In contrast, some research has indicated that elevated levels of psychopathic traits in both children and adults are associated with marked impairment in recognising others' emotions, particularly fear and sadness, suggestive of cognitive empathy deficits (Seara-Cardoso et al., 2012). Mullins-Nelson, Salekin, and Leistico (2006) found that whilst psychopathy was moderately negatively associated with empathy overall, individuals with elevated interpersonal/affective psychopathic traits (e.g. lack of remorse and manipulative) exhibited deficits in affective empathy but normative levels of cognitive empathy. Comparatively, individuals with elevated behavioural psychopathic traits (e.g. impulsive and antisocial) exhibited deficits in both cognitive and affective empathy (Mullins-Nelson et al., 2006).

Taken together, there is increasing evidence to suggest that when conceptualising psychopathy as it manifests in the general population, it may be more appropriate to conceptualise deficits in cognitive empathy as correlates or behavioural outcomes, rather than as a core feature of the construct (Međedović, Bulut, Savić, & Đuričić, 2018). However, as research in this area is in its infancy, with mixed findings, further investigation into the unique relationships between facet level empathy and psychopathic traits is required before conclusions can be drawn regarding the emotional deficits associated with sub-clinical psychopathy.

2.4.2 Psychopathy as a Construct

The most widely accepted conceptualisation of psychopathy by clinicians and researchers alike is the one proposed by Cleckley (1964). Cleckley (1964) described psychopaths as impulsive, irresponsible, superficially charming but affectively cold, manipulative and generally dissocial individuals. More specifically, according to Cleckley's (1964) initial conceptualisation, the psychopathic personality predominantly existed in forensic and clinical populations and could be characterised by 16 key features, including;

1. Considerable superficial charm
2. Absence of delusions and other signs of irrational thinking.
3. Absence of anxiety and other neurotic symptoms.
4. Unreliability, disregard for obligations, no sense of responsibility.
5. Untruthfulness and insincerity.
6. Poorly planned antisocial behaviour stemming from impulsiveness.
7. Inadequately motivated antisocial behaviour.

8. Poor judgement and failure to learn from experience.
9. Pathological egocentricity
10. General poverty of deep and lasting emotions.
11. Lack of any true insight; inability to see oneself as others do.
12. Ingratitude for any special considerations, kindness and trust.
13. Fantastic and objectionable behaviour (e.g., vulgarity, sudden mood shifts).
14. No history of genuine suicide attempts.
15. An impersonal, trivial, and poorly integrated sex life.
16. Failure to have a life plan and to live in any ordered way. (Cleckley, 1964, p. 223 – 224).

Hare (1980) built upon the initial findings of Cleckley (1964) to rework the aforementioned clinical descriptions into the first assessment measure of psychopathy – The Psychopathy Checklist (PCL) and its revised version (PCL-R; Hare, 2003). The development of the PCL and PCL-R represented a pivotal influence on the conceptualisation of psychopathy as a construct (Hare, 2003). Specifically, this approach conceives psychopathy as being a unitary construct, encompassing four interrelated but distinct facets of psychopathic traits (interpersonal, affective, lifestyle and antisocial), which map onto two higher-order factors representing the interpersonal/affective (e.g., manipulateness and lack of empathy) and behavioural (e.g., impulsivity and antisociality) features of the construct (Hare, 2003; Hare & Neumann, 2008). According to Hare's (2003) conceptualisation, psychopathy is characterised by interpersonal manipulation (e.g., deception, grandiosity and superficial charm), callous affect (e.g., lack of empathy, remorse and guilt), erratic lifestyle (e.g., impulsivity and the need for constant stimulation) and antisocial behaviour (e.g., social deviance and criminality). Empirical evidence has consistently provided strong support for the existence of the four-facet model with the use of the PCL-R in forensic populations (Hare et al., 1990; Williams, Paulhus, & Hare, 2007).

To date, the PCL and PCL-R continue to set the gold standard for psychopathy assessment in forensic settings. The assessment requires administration by a trained clinician and involves a 20-item clinical interview and review of relevant clinical file information. Scores on the PCL-R range from 0 – 40, with a proposed cut-off score of 30 indicative of a psychopathy diagnosis (Hare et al., 1990; Hare & Neumann, 2008). However, subsequent literature has provided empirical evidence that psychopathy is not monolithic in nature but rather represents a constellation of

multiple traits existing on a spectrum of severity. Therefore, the practice of relying solely on PCL-R cut-off scores to definitively determine whether an individual is a psychopath or not is outdated and inaccurate (Skeem, Polaschek, Patrick, & Lilienfeld, 2011). Instead, the PCL-R is now often used in combination with other tools such as brain imaging to assess levels of psychopathy or psychopathic traits (Anderson & Kiehl, 2012). Additionally, recent research suggests that non-shared environmental factors such as parental characteristics, harsh discipline, physical and emotional childhood neglect; as well as genetic factors influence the development of psychopathic traits (Beaver, Vaughn, DeLisi, Barnes, & Boutwell, 2012; Tuvblad, Wang, Bezdjian, Raine, & Baker, 2016). For example, it has been estimated that genetic factors account for 37% of the variance in psychopathic trait development, with 67% of variance resulting from non-shared environmental factors (Beaver et al., 2012). These findings are consistent with trait and socio-cognitive approaches to personality development, acknowledging the role of both genetics and environment on the development, stability and change of personality traits (Tuvblad et al., 2016).

There is now an accumulating body of empirical evidence to support a view that psychopathy is a unitary, multifaceted construct which encompasses a number of personality traits, existing on a spectrum in varying levels of severity (Babiak et al., 2010; Hare & Neumann, 2008). Subsequently, an increasing body of research has emerged over the past two decades focused on exploring the prevalence and manifestation of psychopathic traits within the general population (Babiak et al., 2010; Boddy, 2015; Falkenbach, Balash, Tsoukalas, Stern, & Lilienfeld, 2018; Jones & Hare, 2016; Mullins-Nelson et al., 2006; Wilson, Miller, Zeichner, Lynam, & Widiger, 2011).

2.4.2.1 Psychopathic Traits in the General Population

The term 'sub-clinical' psychopathy has been used to describe the existence of psychopathic traits in the general population, usually manifesting at lower levels of severity than within forensic and clinical settings (Mahmut, Homewood, & Stevenson, 2008; Paulhus & Williams, 2002). However, there appears to be significant disagreement amongst researchers when it comes to how psychopathy is conceptualised and therefore how psychopathic traits are best assessed in the general population.

More recently, contemporary alternative approaches to Hare's conceptualisation of psychopathy have been proposed, such as the Triarchic theory (C. J. Patrick, Fowles, & Krueger, 2009). The triarchic theory was developed in an attempt to

combine historical and more present-day perspectives (e.g., neuro-etiological perspectives) in understanding psychopathy (Evans & Tully, 2016). The triarchic model was developed as a means of organising and clarifying constructs related to psychopathy. This was outlined in a framework by C. J. Patrick et al. (2009) who proposed that psychopathy is comprised of three core constructs – ‘meanness’, ‘boldness’, and ‘disinhibition’. The concept of ‘boldness’ draws from the initial key features identified by Cleckley (1964) and includes high dominance as well as positive adjustment traits (e.g., absence of delusions, anxiety and suicidal intent). Patrick (2010) described ‘meanness’ as “*reflecting tendencies toward callousness, cruelty, predatory aggression and excitement seeking*” (p. 2), whilst ‘disinhibition’ reflects “*tendencies toward impulsiveness, irresponsibility, oppositionality and anger/hostility*” (p. 2). Rather than being a new or replacement theory for understanding psychopathy, the triarchic conceptualisation instead suggests that current measures of psychopathy do capture the three proposed constructs, to varying degrees. However, current measures such as the PCL-R have been criticised for not adequately capturing distinct constructs. For example, C. Patrick, Drislane, and Strickland (2012) argue that the PCL-R items predominantly capture the construct of ‘meanness’ rather than ‘boldness’. Therefore, it is possible that the PCL-R and derivatives from it may fail to capture some important elements of the psychopathy construct. In response to this, C. J. Patrick et al. (2009) developed the Triarchic Psychopathy Measure (TriPM) – a 58-item self-report measure of psychopathy based on the triarchic theory which incorporates a distinct equal focus on each of the three components. However, empirical evidence for the TriPM remains in its infancy and sound theoretical and validation peer-reviewed published studies are required before it can be considered a valid and reliable self-report measure of psychopathy comparable to that of the SRP.

In contrast to the PCL-R and SRP literature which adopts more of a clinical approach to psychopathy, other research (Lynam & Widiger, 2007; Miller & Lynam, 2015) has argued for an alternative conceptualisation of psychopathy which integrates the construct into the empirically based five-factor model of personality. According to this perspective, psychopathic traits are correlated with extreme variants of the big-five factors of personality. Specifically, it is suggested that the interpersonal and affective facets (Factor 1 psychopathy) are characterised by low levels of agreeableness, whilst the lifestyle and antisocial facets (Factor 2 psychopathy) are characterised by a combination of low agreeableness and conscientiousness (Lynam, Miller, & Derefinko, 2018). One of the benefits to understanding psychopathy within a five-factor framework is that it offers an

easily translatable understanding of a complex personality construct, grounded in empirically based personality research which can be understood across various fields of research. However, as this conceptualisation is a relatively recent addition to the psychopathy literature, further empirical evidence is required to provide support for this approach and examine its validity with Hare's (2003) original construct.

More recently, debate has emerged in the literature over the inclusion of overtly antisocial behaviour as a core feature of the sub-clinical construct (see Boduszek & Debowska, 2016 for a review). A number of authors have argued in support of the view that overtly antisocial elements of sub-clinical psychopathy are better understood as a behavioural consequence of the construct, rather than a defining feature of it (Boduszek & Debowska, 2016; Boduszek, Debowska, & Willmott, 2017; Debowska et al., 2017; Sharratt, Boduszek, & Retzler, 2019). For example, Skeem and Cooke (2010) argue that antisocial items of psychopathy measures can be omitted as they are not a fundamental component of the sub-clinical psychopathy construct. The authors provide evidence to suggest that when these items are excluded, the underlying factor structure of the PCL was best explained by a three-factor model (Skeem & Cooke, 2010). In rebuttal, Hare and Neumann (2010) have provided a comprehensive overview of genetic (Baker, Jacobson, Raine, Lozano, & Bezdjian, 2007; Larson et al., 2007; Viding, Blair, Moffitt, & Plomin, 2005) longitudinal (Frick, Kimonis, Dandreaux, & Farell, 2003) and structural (Hare & Neumann, 2008) empirical evidence which refutes the assertions made by Skeem and Cooke and clarifies the core role of antisociality in understanding the psychopathic personality. The authors argue that Skeem and Cooke (2010) misconstrue the terms 'criminality' and 'antisociality' to be interchangeable and therefore central to Hare and Neumann's conceptualisation of psychopathy. However, antisociality does not necessarily need to be unlawful or overt. Indeed, many of interpersonal and affective psychopathic traits as measured by the SRP-4:SF (e.g., callous use of others and interpersonal deception) are in essence fundamentally antisocial behaviours which could easily be expressed in more covert ways, without being unlawful (Hare & Neumann, 2010). This distinction highlights the importance of examining psychopathy as a multifaceted construct and the utility of exploring facet level differences between populations.

Based on the PCL-R model, the prevalence of psychopathy in the general population has been estimated to be between 0.3 – 2% (C. J. Patrick, 2018). Comparatively, the prevalence of psychopathy in forensic populations has been estimated to be significantly higher at between 15 – 25% (Lilienfeld & Arkowitz,

2007). Subsequently, research has increasingly suggested that the PCL-R method of assessment has likely contributed to overestimation of the prevalence of psychopathy within forensic samples due to the reliance on items relating to criminal and antisocial behaviour (Boduszek & Debowska, 2016). Consistent with this approach, the Psychopathic Personality Traits Scale (PPTS) was recently developed by Boduszek, Debowska, Dhingra, and DeLisi (2016) as a self-report measure of psychopathy and posits that the core features of subclinical psychopathy can be represented by traits associated primarily with the interpersonal and affective facets. Specifically, the PPTS measures four traits associated with emotional coldness, manipulativeness and grandiosity (affective and cognitive responsiveness, interpersonal manipulation and egocentricity). A recent study used the PPTS to examine psychopathic traits as they presented across large forensic, community and student samples (Boduszek et al., 2019). Results indicated that cognitive responsiveness was better for community and university student samples than in the forensic sample. University students were found to exhibit significantly elevated levels of interpersonal manipulation and egocentricity compared to that of adult offenders (Boduszek et al., 2019). Additionally, using the PPTS measure of psychopathic traits, 7% of the forensic and university student samples were found to exhibit elevated levels of psychopathic traits. The authors conclude that inclusion of the criminal and antisocial behaviour dimensions of psychopathy as measured by the PCL-R has resulted in significant overestimation of the prevalence within forensic populations (Boduszek et al., 2019). The PPTS appears to be a promising new conceptualisation of sub-clinical psychopathy, however contrary to previous empirical evidence, this approach assumes that lack of cognitive empathy is a fundamental characteristic of the construct.

In contrast, Neumann et al. (2015) examined the strength and pattern of the associations between overt antisocial behaviour and other psychopathic traits in a large community sample ($N = 36,267$). Their findings indicated that the antisocial facet was more strongly correlated with the other psychopathy facets in the community sample than in adult forensic populations, suggesting that antisocial behaviour is likely a key determinant between manifestations of psychopathy in community and offender populations (Neumann et al., 2015). Additionally, the antisocial facet was more closely associated with the interpersonal and affective facets in the community, youth, corporate and violent offending samples compared to the general forensic sample. Further, findings from another study indicated that each of the four SRP psychopathy facets were unique predictors of physical aggression (Watt & Brooks, 2012). Taken together, empirical findings have provided

strong support for anti-sociality as a core component of the four-facet model of psychopathy as captured by the SRP and caution against understanding anti-sociality as being limited to criminal behaviour. For example, many psychopathic traits such as deception, interpersonal manipulation and callousness are indicative of more covert antisocial behaviours, making antisocial behaviour a clear feature of the psychopathic personality (Lynam & Miller, 2012; Neumann et al., 2015).

Regarding unique correlates with each of the four facets of psychopathy, intelligence has previously been positively associated with the interpersonal domain and negatively associated with the affective domain (Vitacco, Neumann, & Woduschek, 2008). The lifestyle and antisocial facets have also been found to be positively associated with substance use and violent behaviour (Watt & Brooks, 2012). Additionally, elevated levels of interpersonal and affective psychopathic traits have previously been associated with deficits in affective responsiveness to sad and fearful faces and increased likelihood of adopting utilitarian solutions to moral dilemmas (Seara-Cardoso, Dolberg, Neumann, Roiser, & Viding, 2013). Recently, research has begun to examine the unique associations between facet level empathy and psychopathic traits. For example, findings from Seara-Cardoso, Queirós, Fernandes, Coutinho, and Neumann (2019) indicated that after controlling for the variance associated with the other facets, interpersonal and affective psychopathy were uniquely associated with deficits in affective empathy, whilst deficits in cognitive empathy were only uniquely associated with affective psychopathy. However, the majority of research examining the external correlates of each facet has been limited to forensic populations and further research is needed to ascertain whether these correlates translate to sub-clinical presentations of psychopathy in the general population.

Previous research has indicated significant cultural differences in psychopathy. For example, Stout (2005) found that East Asian cultures tended to have a relatively low prevalence of psychopathy (0.03%) compared to Western cultures (4%), suggesting that psychopathic traits occur up to 100 times more often in Western cultures such as Australia and the US than in Asian cultures. Further, a version of the SRP was previously administered to a large sample ($N = 33,016$) across 58 countries and 11 major world regions, with findings indicating significant cultural differences in psychopathic traits (Neumann et al., 2012). Specifically, higher interpersonal psychopathy scores were associated with individuals from Asian, African and Middle Eastern countries, whereas individuals from America, Oceania and Europe reported the lowest levels of interpersonal psychopathic traits (Neumann et al., 2012). Additionally, the Oceania and North American regions were

found to exhibit the highest levels of erratic lifestyle traits whilst the highest levels of antisocial psychopathy were reported in Asian, African and European countries (Neumann et al., 2012). Levels of affective psychopathy also varied, with lower levels reported in North America as well as Northern and Southern Europe and Western Europe reporting the highest levels of affective psychopathy above all other cultural regions (Neumann et al., 2012).

2.4.2.2 Psychopathic Traits in Business

Elevated levels of sub-clinical psychopathy have previously been associated with an increased likelihood of occupying a leadership or managerial position (Lilienfeld, Latzman, Watts, Smith, & Dutton, 2014). Empirical data has previously estimated the prevalence of psychopathic traits within the corporate sector to be approximately 4%, considerably higher than the 1% estimated within the general population (Boddy, 2015). Specifically, banking, finance and media sectors are particularly prone to employing individuals with elevated levels of psychopathic traits, with these individuals often quickly rising to occupy managerial positions (Lilienfeld et al., 2014). For example, psychopathic behaviours have been associated with perceptions of dominance or competence (Anderson & Kilduff, 2009) which may result in swift promotions within some organisations. Previous empirical evidence suggests that psychopathic individuals tend to be attracted to particular types of organisations over others and are least likely to be attracted to organisations who value the needs of, or attend to, the care of others (Boddy, 2015).

One possible explanation for this is that some psychopathic traits may be adaptive in the corporate world, a phenomenon often referred to in the literature as 'successful psychopathy' (Pavlić & Međedović, 2019; Smith & Lilienfeld, 2013). These individuals are thought to flourish in organisational environments that require a rational and emotionless behaviour style, willingness to take risks, and a consistent focus on achievement (O'Boyle Jr, Forsyth, Banks, & McDaniel, 2012). Prior research has indicated that psychopathic traits such as grandiosity, callousness and manipulateness are associated with objective decision-making and one's ability to give persuasive arguments and may, therefore, be adaptive in organisational settings (Babiak et al., 2010). For example, within the financial sector, callous and unemotional psychopathic traits may facilitate the ability to execute self-serving investments which capitalize on the financial demise of others (ten Brinke, Black, Porter, & Carney, 2015). Further, as risk-taking is inherent to psychopathy, and required in investment, these traits may allow money managers to make high-

risk trades, potentially resulting in lucrative rewards (ten Brinke, Kish, & Keltner, 2018).

Recently, Pavlić and Međedović (2019) examined the associations between lack of empathy and ruthless manipulation (two factors from the Psychopathic Personality Traits Scale) and variables of workplace success. Their findings indicated that lack of empathy was predictive of increased workplace performance and number of bonuses received, whilst ruthless manipulation positively correlated with salary. The authors suggest that elevated levels of interpersonal and affective psychopathic traits may assist these individuals in presenting themselves as viable candidates for managerial and leadership positions. For example, grandiosity and manipulateness could be attributed to self-confidence and charismatic leadership style, whilst a lack of empathy and remorse could be seen as hardiness and the emotional stability required to stay level-headed under pressure (Pavlić & Međedović, 2019).

Individuals who are referred to as being 'successful' psychopaths typically exhibit elevated levels of interpersonal and affective psychopathic traits (e.g., deceitfulness, manipulateness, callousness, lack of remorse, guilt, and empathy; Bailey, 2019). However, these individuals are thought to differ from their forensic or 'non-successful' counterparts in that they often demonstrate lower levels of behavioural psychopathic traits, which allow them to excel in strategic behaviour that violates social norms but facilitates opportunities for them to attain wealth, power and other social indices of success whilst avoiding legal detection (Pavlić & Međedović, 2019; Skeem et al., 2011). For example, Babiak et al. (2010) found that people high in psychopathic traits were viewed by their co-workers as being strategic and creative in their thinking, with good communication skills. However, they were also perceived as having poor management skills, poor performance appraisals and not being team players, suggesting potential negative implications of elevated psychopathy in the workplace. Recently, ten Brinke et al. (2018) investigated the efficacy of psychopathy in financial investment performance. Longitudinal results suggest a negative relationship between psychopathic traits and performance. Specifically, findings indicated that over a 10-year period, hedge fund managers rated as 1 *SD* above the mean on behaviours related to psychopathic traits reported annualised returns of nearly 1% less than managers rated at the mean. The authors argue that managers with high levels of psychopathic traits are more likely to choose poor investment opportunities, resulting in underperformance on objective measures of job performance. This is consistent with research by Babiak et al. (2010).

Indeed, previous research has indicated that elevated levels of psychopathic traits are associated with increased tendencies toward bullying, fraud, irresponsible leadership, violence and anti-authoritarian attitudes (Gudmundsson & Southey, 2011). Employees who exhibit elevated levels of psychopathic traits are more likely to adopt aggressive and forceful leadership styles in order to achieve self-interested goals (Krick, Tresp, Vatter, Ludwig, & Wihlenda, 2016). Additionally, psychopathic personality traits are an underlying factor for many of the interpersonal behaviours observed in dysfunctional leaders which subsequently cause psychological distress amongst employees (Mathieu, Hare, Jones, Babiak, & Neumann, 2013). For example, behaviours displayed by psychopathic leaders may include ridiculing and degrading employees, lying, deception, harassment and physical aggression, coupled with an inability to take self-responsibility (Mathieu, Neumann, Hare, & Babiak, 2014).

Ten Brinke, Liu, Keltner, and Srivastava (2016) found that political leaders who displayed a lack of empathy and a competitive orientation toward others (i.e., psychopathic traits) tended to receive less support from their peers and yield less political influence compared to their less psychopathic counterparts. In contrast, virtuous leaders were observed to become more influential after coming into power. These findings indicate that empathic leaders who are most likely to act in the interest of others are more likely to receive cooperation from their colleagues, whilst leaders who are most likely to act in self-interest and in opposition to others were least likely to receive support (Ten Brinke et al., 2016). It's possible that psychopathic traits are adaptive in the sense that they assist individuals in quickly rising to leadership or managerial positions, however, once in power, these traits and associated behaviours appear to be counterproductive (Gervais, Kline, Ludmer, George, & Manson, 2013; Hildreth & Anderson, 2016; Porath, Gerbasi, & Schorch, 2015; ten Brinke et al., 2015; ten Brinke et al., 2018).

From the literature reviewed, it is emerging that whilst elevated levels of psychopathic traits may be adaptive at an individual level, these individuals also tend to be particularly effective at manipulating, intimidating and superficially charming others in order to falsely represent themselves as ideal management material and achieve self-interested goals, resulting in a toxic organisational culture (Babiak et al., 2010; Pavlić & Međedović, 2019). These findings are consistent with recent theoretical accounts of power and influence which find that psychopathic traits undermine the collaborative efforts required of successful work and can yield suboptimal outcomes for organisations. Caution should therefore be exercised when

using the term 'successful' to conceptualise elevated levels of psychopathic traits in the workplace.

Interestingly, despite educational environments acting as a pre-cursor to future career pathways, there has been comparatively little research exploring the manifestation and expression of psychopathic personality traits in business school students. From the literature available, previous findings suggest that elevated levels of psychopathic traits are positively associated with a preference for academic disciplines which emphasis social dominance and are negatively associated with a preference for nurturing based disciplines which place a focus on empathy and concern for others (Clow & Scott, 2007). Wilson and McCarthy (2011) investigated differences in psychopathic traits across various academic disciplines, with findings indicating that business and commerce students tend to exhibit higher levels of interpersonal and affective psychopathic traits than students in other academic disciplines, regardless of gender and social desirability. Specifically, some research has indicated that finance majors tend to be less empathic and display higher levels of psychopathic traits than other business majors (e.g., management, marketing and accounting), suggesting that careers which value money, prestige and perceived power are considered attractive to this particular group (Brown et al., 2010). Consistent with this, Brown et al. (2010) found that business students were more likely to act in self-interested ways than students from other academic disciplines. It is possible that students with elevated levels of psychopathic traits are likely to be attracted to academic disciplines where they perceive these traits (e.g., lack of empathy, self-interest and manipulation) will be advantageous for succeeding in the environment (Clow & Scott, 2007).

2.4.2.3 Psychopathic Traits in Psychology

There has been comparatively little research exploring the prevalence of psychopathic traits in the field of psychology. Specifically, to the best of the author's knowledge, Hassall, Boduszek, and Dhingra (2015) conducted the first and only study directly examining differences in psychopathic personality traits between psychology and business students. This cross-sectional study examined levels of SRP psychopathic traits within business and psychology student cohorts and explored associations with academic success. Their findings indicated medium to large effect size differences between disciplines, with business students scoring significantly higher than psychology students on all four SRP psychopathy facets (Hassall et al., 2015). Additionally, the four psychopathy facets in combination accounted for a significant 11% of variance in academic achievement. Their findings

suggest that after controlling for all other variables, antisocial behaviour and student gender were the only unique predictors of academic success, with males and students scoring high on the antisocial facet tending to achieve poorer grades than females and students scoring lower on the antisocial facet (Hassall et al., 2015). Whilst this study provides a good starting point for exploring the prevalence of psychopathic traits within psychology disciplines, longitudinal research is still required to explore the influence of academic disciplinary environment on the development of psychopathic traits.

2.4.3 Academic Discipline Choice and Student Satisfaction.

Student dissatisfaction has previously been identified as a major source of attrition in higher education (Logue et al., 2007). Perhaps unsurprisingly then, the rationale for guiding students toward an academic discipline which is well suited to their personality is underpinned by the premise that good student-discipline fit is associated with student satisfaction and, therefore, retention. Previous research has indeed supported the association between personality and student satisfaction with their discipline. For example, Gilbreath, Kim, and Nichols (2011) examined the association between student-university fit and student wellbeing and satisfaction. Their findings indicated that good student-university fit is predictive of psychological wellbeing and student satisfaction with their university. Naydenova, Lounsbury, Levy, and Kim (2012) found psychology students to be more open and tender-minded than students in other academic disciplines. Further, their findings indicated that the big-five factors of personality, in combination, accounted for a significant 21% of variance in psychology student satisfaction. Other research has suggested that the relationship between student personality and academic success may vary as a function of academic discipline choice. Specifically, findings from Vedel, Thomsen, and Larsen (2015) highlighted personality differences between disciplines, with psychology students being more open than economics students. However, academic success was negatively associated with openness for psychology students and positively associated with academic success for economics students (Vedel et al., 2015). Taken together, previous empirical findings have highlighted the complex nature of the academic discipline selection process, suggesting that a multitude of factors outside of personality may also significantly contribute to students' selection, experiences and satisfaction with their educational environment (Larson et al., 2010; Logue et al., 2007).

2.5 Additional Influences on Vocational Choice

Previous personality literature has provided strong support for the role of student personality characteristics in their choice of academic discipline (see Vedel, Thomsen, & Larson, 2015 for a review). In addition, previous research has indicated that this decision is influenced by other personal factors including one's self-efficacy, knowledge, attitudes and self-concept (Hiatt, Swaim, & Maloni, 2018; Pavel, 2015; Porter & Umbach, 2006; Wiswall & Zafar, 2014). However, empirical evidence indicates that the outcome of this decision is a function of student personality in conjunction with additional factors including gender, race, academic ability, student expectations of the discipline and perceptions of the associated career pathway as well as external social and family influences (Porter & Umbach, 2006; Worthington & Higgs, 2003). Therefore, individuals will choose academic disciplines and by extension, particular vocational pathways, based on personal characteristics and perceived strengths, however, they will also be influenced by particular external environmental demands and expectations such as income and family or societal pressures (Pavel, 2015; Wille et al., 2012). Previous literature suggests the most prevalent criteria which students base their choice of academic discipline on relate to their interest in the discipline, perception of the discipline, career opportunities and external influence from others (e.g., family, friends, teachers, and career counsellors/advisors; Hiatt et al., 2018).

2.5.1 Vocational Interests, Self-Efficacy and Career Factors

Holland's theory of vocational preferences (1985) distinguishes between 6 types of vocational interests and associated environments (i.e., social, enterprising, conventional, realistic, investigative, and artistic). This theory shares a large amount of variance with the big-five model of personality and has gained popularity in educational and vocational counselling for its underlying presumption that individuals will select educational environments which they perceive as aligning with their own personal characteristics (Rayman & Atanasoff, 1999). According to this model, when an individual's characteristics are well matched with that of their educational environment, students are more satisfied with their academic discipline choice and more likely to succeed academically (De Fruyt & Mervielde, 1996). Supporting this theory, Logue et al. (2007) found that artistic, investigative and realistic vocational interests were negatively associated with business student satisfaction. Social interests are negatively related to aggression and positively related to agreeableness (Larson et al., 2010). According to Holland's typology,

psychology schools are considered social environments which promote care and concern for others and encourage altruistic behaviour (Arieli, Sagiv, & Cohen-Shalem, 2016; Naydenova et al., 2012). Using Holland's theory, De Fruyt and Mervielde (1996) identified differences in vocational interest between clinical and organisational psychology graduate students. Their findings indicated that both clinical and organisational students reported high social interests, however organisational psychology students were also found to share many characteristics consistent with enterprising interests, with mean scores comparable to those of business and economics students (De Fruyt & Mervielde, 1996). These findings highlight the variety of occupational pathways available to students following graduation from an undergraduate degree, suggesting that in terms of vocational interests, caution should be used when classifying students as homogenous (Rottinghaus, Gaffey, Borgen, & Ralston, 2006).

Social cognitive career theory (Lent, Brown, & Hackett, 1994) provides an integrated framework for examining personality factors and cognitive processes such as self-efficacy and vocational interests which influence students' academic discipline decision-making. According to this theory, students' initial attraction toward a particular academic discipline is driven primarily by self-efficacy and vocational interests rather than innate personality factors (Lent et al., 1994). Previous research exploring how personality, self-efficacy and vocational interests contribute towards students' academic discipline choice has provided support for the social cognitive career theory in higher education. For example, findings from Larson et al. (2010) indicated that personality factors alone did not differentiate between academic disciplinary cohorts, with students enrolled in social services degrees (e.g., counselling, psychology, social work and teaching) reportedly being more agreeable, sociable and socially close than students in other academic disciplines. However, findings indicated that self-efficacy and vocational interests in combination with personality factors provided more proximal determinants of students' academic discipline choice (Larson et al., 2010). It is likely that personality factors contribute to the development of vocational interests and self-efficacy prior to academic discipline selection. Therefore, it is possible that students' vocational interests are what motivates their initial choice of academic discipline, whilst self-efficacy determines ability and thus their chances of succeeding within the academic environment.

Student interest in their area of study has previously been suggested to be more instrumental in the choice of academic discipline than other personal factors such as future earnings potential (Wiswall & Zafar, 2014). For example, student interest has previously been identified as a primary factor influencing students' initial selection

into a business discipline (Malgwi, Howe, & Burnaby, 2005). Previous research has gauged levels of student interest by considering variables such as previous study of the discipline, for example taking a business or psychology class in high school (Worthington & Higgs, 2003). Previous study and enjoyment of a particular discipline in secondary education has previously been found to be predictive of selecting into a similar area of study at university (Marrs, Barb, & Ruggiero, 2007; Worthington & Higgs, 2003). It is likely this is associated with students' self-efficacy, or students' belief that they are able to complete the required course work and adequately perform the tasks required for the profession associated with their discipline, as students are likely to choose the academic discipline which they believe will provide them with the best chances of being academically successful (Hiatt et al., 2018).

2.5.2 Student Perception and Expectations

Academic discipline choice has also been suggested to be dependent on student's perception and expectations of the discipline, including initial assessment of perceived level of fit between skills, abilities and success-factors (Cobb-Walgren, Pilling, & Barksdale Jr, 2017; Worthington & Higgs, 2003). Students develop ideas about their future career goals and expectations based on educational experiences occurring within their particular disciplinary environments as expressed by interests and preferences for particular activities. For example, a student's level of interest in a discipline may be influenced by their expectations for success and perceived difficulty of the coursework associated with the discipline (Hiatt et al., 2018).

In regards to student perceptions of the discipline, it has been suggested in the literature that accounting is perceived by students as objective, non-controversial and primarily quantitative with a focus on mathematics and statistics, which may discourage more creative, people-orientated students from pursuing the profession (Worthington & Higgs, 2003). Additionally, finance students have been found to perceive the banking and finance industry as having less structure, less precision and being more confirmative than non-finance students (Worthington & Higgs, 2003). Perceptions of the profession also include perceived future earning potential and prior research suggests students will select the academic discipline which maximises their potential lifetime earnings, within the constraints of their own personal abilities (Humburg, 2017; Wiswall & Zafar, 2014). Specifically, prior research has highlighted the influence of perceived earning potential and job availability following graduation as factors contributing toward the choice of a business discipline (Malgwi et al., 2005).

2.5.3 Social Influences

In addition to personal factors, gender, perception and expectations, social factors such as family and parental influences and personal background experiences have been suggested to influence students' choice of academic discipline (Marrs et al., 2007). With respect to parental influence, fathers are more likely to encourage their children to pursue a technical or business-related degree, whilst mothers tend to be more likely to encourage their children to pursue a career within the public services domain (Marrs et al., 2007). As mothers tend to heavily influence the development of their children's values, maternal influence has been suggested to be particularly important when considering factors impacting students' academic discipline selection (Marrs et al., 2007).

2.5.4 Gender

A growing body of literature has also highlighted the interaction between personality, gender and choice of academic discipline. As the choice of academic discipline at university is a key determinant in future earning potential, understanding the compositional differences between different academic disciplines can assist in attempting to explain the long-standing inequality in earnings between genders (Wiswall & Zafar, 2014). In general, previous research has suggested that men are more likely to be attracted to disciplines which lead to vocations involving tangible objects and things (e.g., applied science and economics) and are more likely to base their academic discipline choice on perceived employment opportunities following graduation (Balsamo, Lauriola, & Saggino, 2013). Comparatively, women are more likely to demonstrate preferences for social science related disciplines which lead to vocations involving people (e.g., nursing, teaching and psychology) and their choice of academic discipline tends to be based more on vocational interests than future career opportunities (Balsamo, Lauriola, & Saggino, 2012; Clariana, 2013; Harton & Lyons, 2003; Toto et al., 2015). Some have also suggested that the influence of student personality factors on academic discipline choice may be moderated by student gender, with findings from Clariana (2013) indicating that the relationship between the big-five personality factors and choice of academic discipline for male students was non-significant. On other hand, female education students were significantly more conscientious and agreeable than female business students, who were significantly more emotionally stable than female students in other academic disciplines (Clariana, 2013). Additionally, women overall have been found to demonstrate lower beliefs about their ability than men, regardless of academic discipline (Wiswall & Zafar, 2014). This suggests that self-

efficacy may not be such an important influencing factor in female students' choice of academic discipline.

Gender role stereotypes may also influence personality and student's choice of academic discipline. For example, historically women have had societal expectations placed on them consistent with obedience, cautiousness and avoidance; traits consistent with the big-five factor of conscientiousness (Rubinstein, 2005). This might explain why women are often considered to be more conscientious than men. Comparatively, men are stereotypically perceived as more aggressive, cold and competitive than women, which may translate to men being more extraverted and emotionally stable than women (Rubinstein, 2005). Women also tend to be more empathic and nurturing than men overall which may result in a preference toward a helping profession such as teaching, nursing, social work or psychology; where these nurturing attributes may be perceived as desirable or advantageous (Toto et al., 2015). Supporting this conclusion, Harton and Lyons (2003) found that female students reported being more empathic than men and further, that psychology students were more empathic than students in other academic disciplines. Perhaps unsurprisingly, women were also more likely than men to indicate a preference for pursuing a career in clinical or counselling psychology (Harton & Lyons, 2003).

Psychology has experienced a growing gender divide over the past two decades, with increasingly more women than men enrolling in undergraduate degrees (DET; 2018). Interestingly, male and female students have been found to differ in their motivations for discipline selection. Metzner, Rajewski, and Lauer (1994) suggest that male students chose psychology based on the perception it would allow them the opportunity to achieve higher grades (self-interest), whilst women reported that their decision to study psychology was primarily motivated by an altruistic desire to help others. Although psychology is traditionally conceptualised as being the science of human behaviour, the discipline is commonly viewed by the general public as a 'helping profession'. It is possible this perceptual shift is partly responsible for psychology becoming a female dominated field (Harton & Lyons, 2003). Comparatively, business has traditionally been a male dominated industry (Marrs et al., 2007). It has been suggested that this is due to the types of evaluation measures utilised within business schools favouring male learning styles over females, resulting in greater academic achievement for male students and less interest in pursuing business disciplines for female students (Worthington & Higgs, 2003). Additionally, Malgwi et al. (2005) found that influences on selecting a business academic discipline varied by student gender. Their findings suggest male students

are more likely to be influenced by future potential earnings, career advancement and job opportunities than female students who were found to be more likely to study a business discipline based on their aptitude for the area and previously studying a related subject in high school. Therefore, student gender appears to be an important variable for consideration when examining other variances between business and psychology disciplines.

2.6 Concluding Summary of the Literature

The literature reviewed in this chapter has highlighted that similar types of people tend to do similar types of things in similar types of places, resulting in increased personality homogenisation within groups. Theories of Person-Environment fit, highlight the complex interplay between individual agency and environmental pressures in shaping personality development and behaviour expression.

Previous research has provided considerable evidence to support personality homogeneity at a vocational and organisational level. However, the underlying processes responsible for this observed homogeneity remains an open debate and has yet to be thoroughly explored through the use of a singular theoretical framework. The ASA framework provides an approach to understanding person-environment fit in organisational contexts, positing that increased personality homogenisation within organisations is due to the person-centred processes contained within an attraction, selection and attrition cycle (Schneider, 2001). Selectionist approaches such as the ASA framework have traditionally emphasised the role of individual agency in group homogenisation, suggesting people will actively seek out or avoid environments based on perceived level of fit between their personal characteristics and those of the environment. Comparatively, interactionist approaches suggest that behaviour is a function of both internal personality characteristics in combination with external environmental influences (Sekiguchi, 2004). For example, once attracted and selected into an organisation, socialisation processes designed to improve initial levels of person-environment fit have been suggested to influence personality development (De Cooman et al., 2009). Thus, it is not unreasonable to posit that personality homogenisation within organisational environments is influenced by socialisation processes in conjunction with the person-centred processes outlined in the ASA framework.

Current trends in the literature have underscored the importance of understanding personality development in the context of social environments. In order to further contribute to the trajectory of literature on personality development in social contexts, it is important for research to capture individuals at critical change

points throughout their lives, such as when commencing professional training at university and adopting new social roles (Branscombe & Reynolds, 2014). Although previous research has supported the existence of significant personality variation between students from different academic disciplines, the majority of this literature has centred around examination of higher-order personality factors, such as the big-five traits (Vedel, 2016). In essence, it is likely that lower-level personality characteristics provide more accurate behavioural predictions and thus may be more proximal determinants of students' academic discipline choice (Caspi et al., 2005). For example, empathy, a lower-level facet associated with the big-five personality trait of agreeableness, has previously been found to be predictive of students' preference for pursuing a health related discipline, such as psychology (Toto et al., 2015). In contrast, elevated levels of psychopathy, which is characterised by a lack of empathy, have previously been associated with preferences for business related vocations (Smith & Lilienfeld, 2013).

As tertiary study is often a pre-cursor to future professional pathways, it is plausible that the organisational ASA framework may have applicability to a higher educational context when considering student personality and choice of academic discipline. For example, previous research has indicated that personality is an important predictor of academic discipline choice, theoretically consistent with the attraction and selection components of the ASA framework (Lounsbury et al., 2009; Vedel, 2016). However, despite receiving significant support in the organisational literature, the ASA framework has not previously been applied to higher educational contexts to examine group processes which may contribute towards increased disciplinary homogenisation prior to individuals entering the organisational workforce.

2.7 The Present Research

The studies included in this thesis sought to apply Person-Environment fit theory to an educational context and specifically test the utility of the Attraction, Selection and Attrition framework in exploring personality profile differences between business and psychology undergraduate students and how these differences might have influenced initial attraction toward a particular vocational pathway. Additionally, to examine the role of selection and socialisation processes within the ASA framework on personality homogeneity over time, the present research investigated the impact of potential socialisation effects on student personality development. To the best of the author's knowledge, this is the first time the ASA framework and its underlying processes have been explored in an educational context. Previous research in this

area has tended to focus on either socialisation or selection processes, rather than examining the unique and combined influences of both processes within one theoretical framework. Examining personality differences and other external influences on academic discipline choice within a singular theoretical framework allows for a more comprehensive understanding of person-environment transactions within the educational context.

Understanding the nature of students drawn to business and psychology academic disciplines, and how the particular educational curriculum and teaching environments interact with students' personal characteristics, has applied utility in recruitment and educational practices which subsequently determine the future makeup of these professions. Therefore, it is anticipated that the findings of the research included in this thesis can be used to inform processes related to student selection and socialisation in higher education.

Chapter 3: Examining the Factor Structure and Construct Validity of the Self-Report Psychopathy Scale (SRP-4:SF) in a Large Australian Student Sample

3.1 Introduction

Psychopathy is recognised as one of the most destructive personalities, which is broadly characterised by people who are interpersonally deceptive, affectively cold and lacking empathy, behaviourally reckless and antisocial (Hare & Neumann, 2008). A diagnosis of psychopathy is traditionally made based on an individual's score on the Psychopathy Checklist-Revised (PCL-R), which is considered the standard measurement for the assessment of psychopathy in adult forensic populations (Hare, 2003). Factor analytic research on the PCL-R has provided evidence for the 20-items loading onto four specific, interrelated facets representing the affective (e.g., callousness and lack of empathy), interpersonal (e.g., grandiose and interpersonally manipulative), erratic lifestyle (impulsive and sensation-seeking), and antisocial (e.g., social deviance and overtly antisocial behaviour) features of psychopathy (Hare et al., 1990; Hare & Neumann, 2008). These four facets can also be aggregated to form two factors, representing the interpersonal/affective and lifestyle/antisocial behavioural dimensions of psychopathy (Hare et al., 1990).

Once considered a dyadic personality diagnosis occurring predominantly within forensic and clinical settings, recent research in psychopathy suggests that the construct is dimensional rather than categorical in nature, occurring on a continuum of psychopathic traits within the general population (Hare & Neumann, 2008; Neumann, Schmitt, Carter, Embley, & Hare, 2012; Seara-Cardoso et al., 2019). The prevalence of psychopathy in the general population is not yet well understood, however, previous research has indicated that levels of psychopathic traits within community samples tend to be significantly lower than those within forensic and

clinical settings (Carré, Hyde, Neumann, Viding, & Hariri, 2013). Despite this, low levels of psychopathic traits have still been found to be predictive of meaningful outcomes in the general population, including violence, alcohol use and IQ (Hare & Neumann, 2008), academic misconduct, bullying and fraud (Gudmundsson & Southey, 2011).

Coinciding with the interest in non-clinical manifestations of psychopathic traits has been the need to develop assessment tools capable of accurately capturing the multidimensional nature of the construct as reflected in the general community (Mahmut, Menictas, Stevenson, & Homewood, 2011). Moreover, previous empirical findings have supported varying conceptualisations of psychopathy in the general community. A two-factor model consisting of a personality (interpersonal/affective) and behavioural (lifestyle/antisocial) factor has been proposed (Foulkes, Seara-Cardoso, Neumann, Rogers, & Viding, 2014; Seara-Cardoso et al., 2013; Seara-Cardoso et al., 2012). Further, Cooke and Sellbom (2019) have suggested a three factor model focused on personality characteristics which exclude overt antisocial behaviour. Lastly, a four-factor model, which posits that the personality dimension of psychopathy can be delineated into interpersonal and affective personality traits, and the behavioural component split into erratic lifestyle and antisocial behavioural traits, has been proposed (Carré, Hyde, et al., 2013; Dotterer et al., 2017; Seara-Cardoso et al., 2019).

The PCL-R is considered inappropriate for use with community samples (Williams et al., 2007). This is due to the PCL-R being developed for use as a diagnostic tool in forensic settings and the lengthy administration time of the assessment. Additionally, administration of the PCL-R requires collateral file information (e.g., information on criminal history) which is often unavailable or inapplicable for community participants. However, the development of measures for psychopathy in community populations which captures the same construct as the PCL-R is important in order to make comparisons and explore differentiating characteristics between forensic and community presentations (Mahmut et al., 2008). Self-report measures have subsequently emerged as a viable method for accurately capturing the psychopathy construct within the general population (C. J. Patrick, 2018).

The three most commonly used self-report measures of psychopathy in the literature are the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996), Levenson Self-report psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), and the Self-report Psychopathy scale (Hare, 1985). The original PPI is a 187-item self-report measure designed to capture psychopathic traits in the

community and as such, does not place an emphasis on criminal behaviour. The revised version (PPI-R) reduced the item set to 154 items and yields a total score and eight subscale scores (machiavellian egocentricity, social influence, fearlessness, coldheartedness, rebellious non-conformity, blame externalisation, carefree non-planfulness, and stress immunity) indexing unique facets of psychopathy (Lilienfeld, Widows, & Staff, 2005). Although the PPI-R is considered a comprehensive self-report measure of psychopathy, its length makes it problematic for use with large scale community samples. Further, previous factor analytic research has indicated that the two higher order factors of the PPI-R scales are relatively uncorrelated (weighted mean $r = .12$), suggesting the measure captures a construct of psychopathy different to that proposed by Hare (2003) in the PCL-R (Marcus, Fulton, & Edens, 2013).

The LSRP contains only 26-items designed to assess psychopathic traits in community populations (Levenson et al., 1995). The measure yields a total score and two factor scores; LSRP-P (Primary) and LSRP-S (Secondary) which were modelled after the two dimensions of psychopathy captured in the PCL-R. Previous research on the psychometric properties and factor structure of the LSRP is relatively minimal compared to other self-report psychopathy measures. However, evidence for a three-factor structure has most recently emerged, labelled; egocentricity, callousness and antisocial (Sellbom, 2011). Further, concerns have been raised regarding the discriminant validity of the LSRP-P scale as it has repeatedly failed to assess interpersonal and affective elements of psychopathy, with Lilienfeld, Fowler, and Patrick (2006) suggesting the items related more to measures of antisocial behaviour.

Comparatively, Hare's Self-Report Psychopathy Scale (SRP; Hare, 1985) has proven popular in the psychopathy literature, with previous empirical findings validating its generalised use across community, forensic and student populations (Foulkes et al., 2014; Mahmut et al., 2011; Seara-Cardoso et al., 2019). The full SRP measure contains 64-items, however a shortened version (SRP-SF) containing only 29 items was also developed and is strongly correlated with the full version ($r = .92$; Neumann & Pardini, 2014). Items are scored on a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree) and load onto four interrelated facets of psychopathic traits (interpersonal, affective, lifestyle and antisocial). Each of the four SRP facets is thought to share variance and therefore load onto one superordinate factor of general psychopathy, consistent with the conceptualisation of psychopathy underpinning the PCL-R (Hare & Neumann, 2008; Seara-Cardoso et al., 2019).

Although still a relatively new measure, previous research has indicated that the SRP:SF demonstrates promising psychometric properties. For example, total SRP:SF scores have been found to strongly correlate with narcissism and Machiavellianism – the other two personalities which make up the ‘dark triad’ (Jones & Figueredo, 2013). Additionally, in this same study, all four of the SRP-SF facets were found to be uniquely associated with narcissism, Machiavellianism and social dominance, highlighting the multidimensional nature of the construct (Jones & Figueredo, 2013). The SRP-4:SF facets have also been found to share moderate to strong associations with criminal thinking styles, specifically those characterised by poor judgement, lack of consideration for others and acceptance of antisocial behaviour (Riopka, Coupland, & Olver, 2015). Other research has also indicated that the SRP:SF is positively associated with irresponsible financial decision-making (Jones, 2013), as well as other psychopathy measures such as the Youth Psychopathic Trait Inventory (Neumann & Pardini, 2014). Previous research examining the validity of the SRP has provided evidence for positive associations with externalising psychopathology (Neumann & Pardini, 2014), aggression and substance use (Watt & Brooks, 2012) as well as negative associations with empathy and moral reasoning (Foulkes et al., 2014; Seara-Cardoso et al., 2012) and neurological responses to fearful faces (Carré, Hyde, et al., 2013).

To date, the latest version of the SRP (SRP-4) and its shortened version (SRP-4-SF; Paulhus, Neumann & Hare, 2016) are the only self-report measures which have been found to adequately support the four-facet structure and conceptualisation of psychopathy reflected in the PCL-R (Dotterer et al., 2017; Seara-Cardoso et al., 2019). A distinct advantage of this measure is that it allows the empirically supported forensic conceptualisation of psychopathy to be applied to the wider community. Given that psychopathy is now considered dimensional rather than categorical in nature, the four-faceted conceptualisation underpinning the SRP-4:SF may prove particularly advantageous in assisting the development and understanding of how psychopathy might manifest in different variants across unique populations (Paulhus, Neumann & Hare, 2016, p. 7).

Previous confirmatory factor analyses of the SRP-4:SF items have only been conducted in a handful of studies to date (see Table 3.1). Mixed findings from community based research have supported a 2-factor (Foulkes et al., 2014; Seara-Cardoso et al., 2013; Seara-Cardoso et al., 2012), 3-factor (Neumann & Pardini, 2014) and 4-factor (Carré, Hyde, et al., 2013; Foulkes et al., 2014; Seara-Cardoso et al., 2019) model underlying the construct of psychopathy as captured by the SRP-4:SF in American, British and Southern European samples. Evidence for the 4-factor

structure has also been supported in American student populations (Dotterer et al., 2017; Welker, Lozoya, Campbell, Neumann, & Carré, 2014). No research has previously examined the factor structure of the SRP-4:SF in an Australian student population.

Whilst research considering the two-factor view of psychopathy is useful for differentiating between personality and behavioural features of the construct, the adoption of a two-factor model means there is no way of determining the unique facet level associations with external correlates. For example, recent research has indicated that deficits in cognitive empathy are uniquely associated with affective psychopathic traits, whilst deficits in affective empathy are associated with both the interpersonal and affective psychopathy facets (Seara-Cardoso et al., 2019). However, as empirical evidence exploring facet level associations with external correlates has predominantly been limited to forensic samples, further research is required in order to determine whether previously established associations translate to psychopathy as it manifests within the general population.

A relatively recent development in the non-clinical psychopathy literature has been the emergence of conceptualising the construct within a general model of personality, such as the big-five factors (i.e., Agreeableness, Conscientiousness, Emotional Stability, Extraversion and Openness to Experience) which place less emphasis on the role of overtly antisocial behaviour in psychopathy than Hare's (2003) PCL-R conceptualisation (Miller, Lyman, Widiger, & Leukefeld, 2001). For example, Miller and Lynam (2015) argue that previous theoretical and empirical conceptualisations of psychopathy can be assimilated onto a five-five personality profile broadly characterised by very low levels of conscientiousness and agreeableness as well as several lower-level facets associated with emotional stability and extraversion. Further, meta-analytic findings from O'Boyle, Forsyth, Banks, Story, and White (2015) provide further evidence to indicate that psychopathy can be characterised by very low levels of agreeableness (mean $r = -.53$) and moderately low levels of conscientiousness (mean $r = -.39$). Consistent with this, previous research has indicated the SRP is negatively associated with agreeableness ($r = -.46$) and conscientiousness ($r = -.23$; Williams, Nathanson & Paulhus, 2003). One advantage to this approach is that it provides a universal language to explain a complex personality construct by embedding psychopathy within an empirically based model of general personality, facilitating further multidisciplinary collaboration (Miller & Lynam, 2015). Therefore, examination of the unique facet associations with each of the big-five personality factors may further contribute to the construct validity of the SRP-4:SF measure.

Previous research suggests that associations between correlates of psychopathy (e.g., empathy and moral reasoning) present similar patterns in both male and female samples (Seara-Cardoso et al., 2013). At a factor level, correlates of the interpersonal/affective dimension have previously been found to be consistent across genders, however gender invariance in behavioural correlates has proven to be less certain (Seara-Cardoso et al., 2013). For example, Nicholls and Petrila (2005) posit that the behavioural elements of psychopathy may manifest differently in men and women as a result of gender-role socialisation.

Building on this speculation León-Mayer, Rocuant-Salinas, Eisenbarth, Folino, and Neumann (2019) recently proposed a gender-based modified version of the SRP-4:SF which included re-writing several items to increase their relevance for women. Structural Equation Modelling (SEM) was used to compare how well both versions (standard and modified) of the SRP-4:SF could predict chronic misconduct in a sample of South American incarcerated women. Results indicated that the modified SRP-4:SF was a superior predictor of chronic misconduct in this sample compared to the standard version. Further, the modified SRP-4:SF items were found to produce higher than average responses, indicating that the modifications may add robustness to the assessment of psychopathic features in women. Findings from León-Mayer et al. (2019) provide preliminary evidence which supports a modification of the SRP-4:SF items in terms of how psychopathic traits are expressed in women. However, these results should be interpreted with caution until replication can be achieved with a larger sample size which is more appropriate for conducting SEM.

Previous research using a world mega-sample ($N = 33,016$; 58% female) has indicated that the SRP is invariant across sex (Neumann et al., 2012). However, findings from this study also indicated significant differences in the prevalence of psychopathic traits by world regions, consistent with the possibility of gender-role socialisation. Further cross-cultural research is needed in order to determine the impact of cultural influences on the manifestation of psychopathic traits in men and women in the general population.

Table 3.1 Sample Descriptives and Model Fit Statistics Reported in Previous Confirmatory Factor Analyses of the SRP-4:SF.

Name	N	% Female	Country	Sample	Model Supported	df	χ^2	TLI	CFI	RMSEA
Seara-Cardoso et al. (2012)	124	0%	United Kingdom	Community	2-Factor	1	2.82		.98	
Seara-Cardoso et al. (2013)	100	100%	United Kingdom	Community	2-factor	1	0.76		1.00	
Carre et al. (2013)	200	58%	USA	Community	4-factor	344	631.63		.94	.06
Foulkes et al. (2014)	101	0%	United Kingdom	Community	2-factor	1	0.30		1.00	
					4-factor				.90	.05
Welker et al. (2014)	237	52%	USA	University Students	4-factor	344	728.25		.91	.07
Neumann & Pardini (2014)	425	0%	USA	Community	3-factor			.93		.09
Paulhus et al. (2016)	788	65%	USA	University Students	4-factor				.93	.08
Dotterer et al. (2017)	2,377	49%	USA	University Students	4-factor	344	5739.20	.88	.89	.08
Seara-Cardoso et al. (2019)	513	74%	European	Community	4-factor	344	820.23		.91	.05

3.1.1 The Present Study

The conceptualisation of psychopathy underpinning the PCL-R, and by extension the SRP-SF, is thought to be culture-independent (e.g., Neumann et al., 2012), however administration of a measure in different populations can compromise the underlying factor structure and psychometric properties (Gordts, Uzieblo, Neumann, Van den Bussche, & Rossi, 2017). Despite increased interest in the prevalence and correlates of psychopathic traits in community samples, most of the previous research has been conducted with North American or European samples (Dotterer et al., 2017; Seara-Cardoso et al., 2019), highlighting a significant gap in transferability to unique cultural contexts.

The psychometric properties and underlying factor structure of the SRP-4:SF has yet to be validated on a large Australian non-clinical sample. Therefore, the aim of the present study was to provide cross-cultural validation of the four-facet model by examining the psychometric properties of the SRP-4:SF, including underlying factor structure, gender differences and unique associations with empathy and big-five personality traits as applied to a large, Australian undergraduate student population.

3.2 Method

3.2.1 Participants

A total of 602 undergraduate students (Male = 206, Female = 396) with a mean age of 22.17 years ($SD = 7.12$) were included in the final sample. Students were enrolled in four Australian universities studying either a business ($N = 331$) or psychology ($N = 243$) undergraduate degree.

3.2.2 Measures

3.2.2.1 *Self-Report Psychopathy Scale (SRP-4:SF; Paulhus, Neumann & Hare, 2016).*

Psychopathic traits were measured using the shortened version of the most recent iteration of Hare's Self-Report Psychopathy Scale (SRP-4:SF; Paulhus, Neumann & Hare, 2016). The SRP-4:SF consists of 29-items, scored on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), and measures four dimensions or facets of psychopathy; affective (e.g., "People sometimes say that I'm cold-hearted"), interpersonal (e.g., "It's fun to see how far you can push people before they get upset"), lifestyle (e.g., "I keep getting in trouble for the same things over and over") and antisocial (e.g., "I have tricked someone into giving me money"). Each facet contains 7 items, with the exception of the antisocial facet which contains 8 items. However, for the purposes of this study one of the antisocial items (i.e., the item enquiring about gang activity) was excluded due to low variability in community

samples. This 28-item version has been validated in previous studies and found to demonstrate equivalent psychometric properties to the 29-item version (Gordts et al., 2017; Seara-Cardoso et al., 2019). The 28-item SRP-4:SF therefore yields a total raw score (range = 28 – 140) and four facet scores (range = 7 – 35), with higher scores indicating higher endorsement of psychopathic traits. The SRP-4:SF facets are moderate to strongly correlated with those of the PCL-R and have demonstrated acceptable internal test-retest reliability and validity across community, student and forensic populations (Paulhus, Neumann & Hare, 2016).

3.2.2.2 Basic Empathy Scale (BES; Jolliffe & Farrington, 2006)

The Basic Empathy Scale (BES) was adopted as a measure of cognitive and affective empathy. The BES contains 20-items, with 9 items measuring cognitive empathy (e.g., “I can usually realize quickly when a friend is angry”) and 11 items measuring affective empathy (e.g., “After being with a friend who is sad about something, I usually feel sad”). Items are scored on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) and yield a total score ranging from 20 (empathy deficit) to 80 (high empathy) as well as two factor scores (cognitive and affective empathy). The BES has demonstrated good internal and test-retest reliability in adult samples for both the total score and cognitive and affective factor scores (Carré, Stefaniak, D’Ambrosio, Bensalah, & Besche-Richard, 2013). The present study indicated adequate internal consistency for the total score ($\alpha = .85$) as well as both the cognitive ($\alpha = .79$) and affective ($\alpha = .83$) empathy factors.

3.2.2.3 Ten Item Personality Measure (TIPI; Gosling, Rentflow & Swann, 2003)

A brief 10-item self-report measure of the big-five personality factors (Extraversion, Agreeableness, Emotional Stability, Conscientiousness and Openness) was also included in the present study to examine external correlates of the SRP-4:SF facets. The Ten Item Personality Inventory (TIPI) contains two items per big-five factor, one for each pole. Items are scored on a 7-point Likert scale (1 = Strongly Disagree to 7 = Strongly Agree). Scores for each of the factors range from 2 – 14, with higher scores representing more dominant personality traits. The TIPI is strongly correlated with the original big-five Inventory (BFI; Gosling et al., 2003), indicating adequate convergent validity (mean $r = .77$). Additionally, strong test-retest reliability for each sub-scale has been demonstrated for the TIPI ($r = .62 - .77$), with an overall mean reliability of $r = .72$ (Gosling et al., 2003). The Cronbach’s alpha’s in the present sample were expectedly lower than the standard .7 level due to the small number of items within each facet. (.30 - .67).

3.2.3 Procedure

Participants were recruited from across four large Australian universities via social media advertising, dissemination of recruitment materials by teaching faculty, university online communication boards and a psychology student research participant pool based at the researcher's home university. To ensure confidentiality and encourage honest responding, participants were invited to complete an anonymous online questionnaire entitled 'Personality Traits in Students' via a password protected weblink. The questionnaire consisted of brief quantitative measures of empathy, psychopathic personality traits and big-five personality factors as well as questions pertaining to non-identifying demographic information. As both the SRP-4:SF and BES are scored on a 5-point Likert scale, the ordering of items from these measures was randomised to control for potential ordering effects. Participants from the psychology participant pool were offered partial course credit in exchange for their participation. All other participants were offered an opportunity to win one of five \$50 gift certificates via lottery as an incentive for participation.

3.2.4 Data Analysis

3.2.4.1 Confirmatory Factor Analysis

To examine the underlying factor structure of the SRP-4:SF, Confirmatory Factor Analysis (CFA) was conducted in Mplus version 7.2 (Muthén & Muthén, 2014) using the robust weighted least squares estimation method due to the ordinal nature of the SRP-4:SF items. To assess model fit of the SRP-4:SF, one-factor, two-correlated factor and four-correlated factor solutions were compared, based on item loadings previously specified in the SRP-4:SF technical manual (Paulhus, Neumann & Hare, 2016). In line with previous validation studies, item two from the antisocial facet ("*I have never been involved in delinquent gang activity*") was omitted from the modelling process due to poor variability (Dotterer et al., 2017). Model fit was assessed using the chi-square goodness of fit test (χ^2), comparative fit index (CFI), Tucker-Lewis index (TLI) and Root Mean Square Error of Approximation (RMSEA). Previous acceptable levels of fit have been suggested when CFI and TLI are at or above .90 and RMSEA is at or below .08 (West, Taylor, & Wu, 2012). Given the significantly unequal sample size distributions of males ($n = 206$) compared to females ($n = 396$), multiple-group CFA could not be conducted. Therefore, gender structural invariance was examined by comparing the same models (1-, 2- and 4-factor) for males and females separately.

3.2.4.2 Reliability Analysis

Internal consistency of the SRP-4:SF facet, factor and total scores was examined using Cronbach's alpha (α). Generally, $\alpha \geq .70$ is considered acceptable (Bernstein & Nunnally, 1994). However, given that Cronbach's alpha is known to be impacted by scale length and it is not a measure of scale dimensionality, mean inter-item correlations (MICs) for SRP-4:SF facets, empathy and big-five factor scores were also calculated and relied on as a measure of scale dimensionality and homogeneity. MICs should ideally be between .20 and .40 (Piedmont, 2014).

3.2.4.3 Psychopathy Facet Descriptives

Means and standard deviations for all four SRP-4:SF facets were calculated for the total sample and for male and female samples. In order to examine differences in facet scores between males and females, independent samples t tests were conducted using a conservative adjusted alpha of .01 to account for multiple comparisons. Cohen's d was then calculated as a measure of the standardised difference between male and female sample scores.

3.2.4.4 Correlational Analysis

Convergent and divergent validity were examined by correlating total and sub-facet scores of the SRP-4:SF with scores from the BES and TIPI, using Pearson correlation coefficients with an alpha level of .05 (two-tailed). Semi-partial correlations were also calculated in order to examine the unique associations between SRP-4:SF facets and BES and TIPI sub-scales.

3.3 Results

3.3.1 Confirmatory Factor Analysis

For the total sample ($N = 602$), the CFA indicated good fit for the four-factor model [$\chi^2(344) = 1257.13$; $p < .001$, TLI = .90, CFI = .91, RMSEA = .07]. Findings indicated that the four-factor model fit the data better than either a one-factor or two-factor model, which both failed to reach acceptable levels of fit. Individual item factor loadings were significant and acceptable for the interpersonal (mean loading = .65), affective (.65), lifestyle (.60) and antisocial (.80) facets. Standardised model parameters are displayed in Figure 3.1. The four-factor model demonstrated good fit for the female sample [$\chi^2(344) = 789.06$; $p < .001$, TLI = .90, CFI = .91, RMSEA = .06], however fit indices were slightly below acceptable standards for the male sample [$\chi^2(344) = 754.75$; $p < .001$, TLI = .86, CFI = .87, RMSEA = .08]. Fit statistic

summaries of each factor solution for the total sample and by gender are presented in Table 3.2.

Table 3.2 *Fit Statistics for Each Factor Solution for the Total Sample and by Gender*

Model	df	χ^2	TLI	CFI	RMSEA
1 Factor					
<i>Total sample</i>	350	1702.36	.85	.86	.08
<i>Males</i>	350	933.24	.80	.82	.09
<i>Females</i>	350	1028.75	.85	.85	.07
2 Factor					
<i>Total sample</i>	349	1473.74	.87	.88	.07
<i>Males</i>	349	888.79	.83	.82	.09
<i>Females</i>	349	889.66	.88	.89	.06
4 Factor					
<i>Total sample</i>	344	1257.13	.90	.91	.07
<i>Males</i>	344	754.75	.86	.87	.08
<i>Females</i>	344	789.06	.90	.91	.06

Note: All analyses were performed in Mplus using WLSMV with bootstrapped standard errors. All χ^2 statistics were significant at $p < .001$. df = degrees of freedom; TLI = Tucker-Lewis Index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

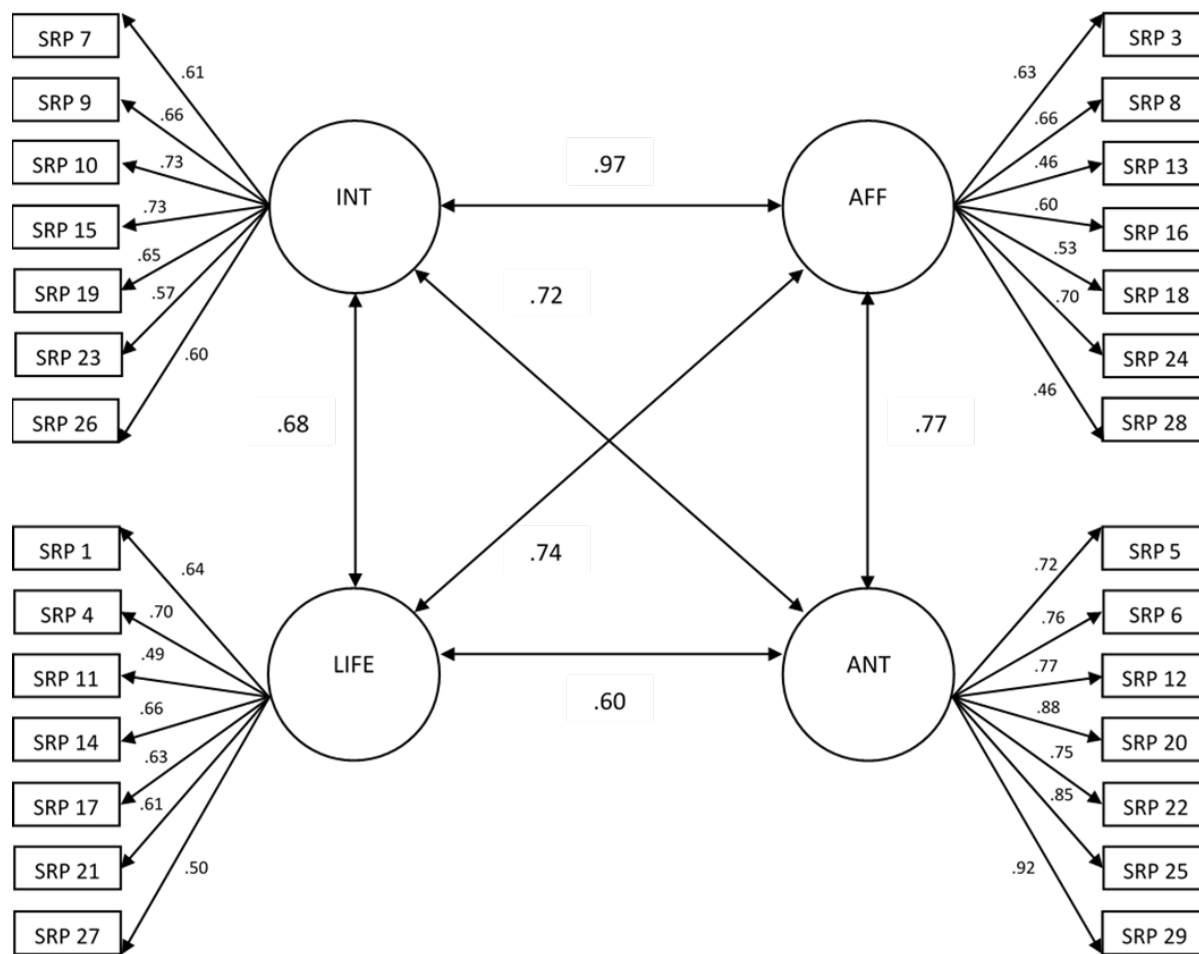


Figure 3.1: Confirmatory Factor Analysis model of the SRP-4:SF. Circles represent the latent variables. INT = Interpersonal, AFF = Affective, LIFE = Lifestyle, ANT = Antisocial. Item numbers were used as the full items could not be reproduced due to copyright.

3.3.2 Descriptive Statistics and Internal Consistency

Internal consistency and descriptive statistics for the SRP-4:SF factors, BES and TIPI factor scores of the total sample and by gender are presented in Table 3.3. Visual inspection of the item endorsement proportions indicated that all of the SRP-4:SF items attracted responses towards the lower end of the scale, consistent with community samples reporting lower levels of psychopathic traits. Additionally, visual inspection of the data suggested no issues with aberrant responding. Total SRP-4:SF raw scores for the entire sample were widely distributed, ranging from 28 – 103 ($M = 55.76$, $SD = 15.74$) and were largely consistent with the college reference sample ($N = 788$; $M = 55.1$, $SD = 15.1$) reported in the SRP technical scoring manual (Paulhus et al., 2016). Consistent with previous research using community samples, scores for the antisocial factor were non-normally distributed, with skewness of 2.78 ($SE = 0.10$) and kurtosis of 8.75 ($SE = 0.20$). To determine

whether psychopathy scores in the present sample were significantly different from those reported in previous validation studies, one-sample t-tests were conducted between the SRP-4:SF factor scores for the total sample and those previously reported in a previous validation study of the SRP-4:SF using a large American student sample (Dotterer et al., 2017; $N = 2111$), using a conservative adjusted alpha of .01 to account for multiple comparisons. Further, as research has indicated that corporate professionals exhibit higher levels of psychopathic traits than the general population (Latzman, Vaidya, Malikina, Berg, & Lilienfeld, 2014) scores were also compared for business and psychology student samples separately.

For the total sample, findings indicated total SRP scores in the present sample were significantly higher than those reported by Dotterer et al. (2017; $M = 51.81$, $SD = 14.54$, $d = 0.23$, $p < .01$). Interestingly, these differences appeared to be most noteworthy for the erratic lifestyle factor ($d = 0.37$, $p < .01$) and the interpersonal manipulation factor ($d = 0.21$, $p < .01$). Small to moderate effect size differences were also noted between business students' psychopathy scores and those reported in Dotterer's et al. (2017) student sample. Specifically, business students in the present sample reported significantly higher levels of interpersonal manipulation ($d = 0.31$), callous affect ($d = 0.22$) and erratic lifestyle ($d = 0.42$). Comparatively, no significant differences were found between psychology students and Dotterer's et al. (2017) sample, with the exception of the erratic lifestyle factor, which was significantly higher in the present sample ($d = 0.28$).

Table 3.3 Descriptive Statistics for the SRP-4:SF, BES and TIPI Scores for the Total Sample and by Gender.

	Total Sample (N = 602)						Male (N = 206)		Female (N = 396)		<i>t</i>	<i>d</i>		
	α	<i>MIC</i>	<i>Skewness</i>	<i>SE</i>	<i>Kurtosis</i>	<i>SE</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
SRP INT	.76	.31	0.62	.10	0.21	.20	14.72	5.09	16.67	5.25	13.71	4.71	7.02**	0.60
SRP AFF	.69	.24	0.73	.10	0.14	.20	13.39	4.71	15.75	4.58	12.16	4.31	9.30**	0.80
SRP LIF	.73	.28	0.30	.10	-0.58	.20	16.41	5.12	18.03	5.37	15.57	4.78	5.73**	0.49
SRP ANT	.75	.36	2.78	.10	8.75	.20	8.71	3.11	9.40	3.90	8.36	2.54	3.96**	0.34
SRP A/I	.84	.27	0.74	.10	.37	.20	28.11	9.09	32.41	8.92	25.88	8.36	8.71**	0.76
SRP L/A	.78	.23	0.81	.10	.43	.20	25.13	6.95	27.43	7.57	23.93	6.29	6.04**	0.52
SRP Total	.88	.22	0.72	.10	0.15	.20	53.24	14.67	59.84	15.00	49.80	13.26	8.42**	0.72
BES Cog	.79	.30	-0.45	.10	0.07	.20	37.14	4.90	35.56	4.92	37.96	4.63	-5.80**	0.50
BES Affect	.83	.32	-0.60	.10	0.61	.20	40.36	7.19	37.22	6.89	41.98	6.79	-8.08**	0.70
BES Total	.85	.23	-0.35	.10	-0.13	.20	77.50	10.17	72.78	9.67	79.95	9.55	-8.66**	0.75
TIPI Extra	.63	.47	-0.08	.10	-0.74	.20	8.40	3.02	7.96	2.87	8.63	3.07	-2.64*	0.22
TIPI Agree	.35	.22	-0.33	.10	0.21	.20	9.89	2.27	9.32	2.25	10.18	2.23	-4.50**	0.38
TIPI Cons	.57	.41	-0.44	.10	-0.58	.20	10.11	2.70	9.65	2.84	10.35	2.59	-2.96*	0.26
TIPI Emo	.67	.50	-0.16	.10	-0.74	.20	8.82	2.99	9.64	2.86	8.40	2.97	4.98**	0.42
TIPI Open	.30	.05	-0.36	.10	-0.38	.20	10.17	2.16	10.03	2.17	10.25	2.16	-1.17	0.10

Note: * $p < .05$, ** $p < .01$. INT= Interpersonal Manipulation; AFF= Affective Callousness; LIF= Erratic Lifestyle; ANT= Antisocial Behaviour; SRP A/I= Affective/Interpersonal; SRP L/A= Lifestyle/Antisocial. BES = Basic Empathy Scale; Cog = Cognitive; Affect = Affective. TIPI = Ten Item Personality Inventory.

Whilst raw scores are useful in determining whether one group exhibits higher levels of psychopathic traits than another, they are not readily interpreted and do not allow for individual's facet scores to be compared with one another. Therefore, in order to examine meaningful differences in psychopathy facet profiles, raw scores need to be converted to standardised T-scores as stipulated in the SRP-4:SF technical manual (Paulhus et al., 2016). According to the classification guidelines in the technical manual, a T-score of 70 or above is classified as 'extremely elevated', reflecting an individual who endorses many more psychopathic traits across most facets than typically expected within student samples (Paulhus et al., p. 22). Within the total sample, 24 (4%) participants' total T-scores were two standard deviations above the sample mean (score > 70). Comparatively, 14 (7%) male and 10 (2%) female participants reported total scores within the extremely elevated range. Additionally, the prevalence of extremely elevated levels of total psychopathy was higher in business students ($N = 17$; 5%) than psychology students ($N = 7$; 3%). A classification table outlining the facet profiles for the total sample as well as by academic discipline and gender is presented in Table 3.4.

Internal consistency of the SRP-4:SF in the present sample was acceptable, with Cronbach's alpha values for the facets ranging from .69 - .76. The two factors also demonstrated good internal consistency ($\alpha = .78 - .84$), as did the SRP-4:SF total score ($\alpha = .88$). In addition, MICS were also consistently good across the SRP-4:SF facets, varying between .24 and .36, indicating they were tapping into unidimensional psychopathy features.

Table 3.4 *T-Score Classification Table of SRP-4:SF Facet Scores for the Total Sample, Business and Psychology Students and by Gender*

Sample	SRP Facet	T-Score Classification			
		<i>Low</i>	<i>Average</i>	<i>Elevated</i>	<i>Extremely Elevated</i>
Total Sample ($N = 602$)	Interpersonal	17%	66%	13%	4%
	Affective	16%	70%	9%	5%
	Lifestyle	13%	65%	17%	5%
	Antisocial	0%	94%	3%	3%
	Total SRP	17%	69%	10%	4%
Male Students ($N = 206$)	Interpersonal	9%	63%	21%	7%
	Affective	5%	70%	16%	9%
	Lifestyle	8%	56%	27%	9%
	Antisocial	0%	91%	3%	6%

	Total SRP	8%	67%	18%	7%
Female Students (<i>N</i> = 396)	Interpersonal	21%	68%	9%	2%
	Affective	21%	71%	6%	2%
	Lifestyle	15%	69%	13%	3%
	Antisocial	0%	96%	3%	1%
	Total SRP	22%	70%	6%	2%
		Interpersonal	14%	66%	15%
Business Students (<i>N</i> = 331)	Affective	15%	68%	11%	6%
	Lifestyle	11%	65%	19%	5%
	Antisocial	0%	92%	4%	4%
	Total SRP	16%	67%	12%	5%
		Interpersonal	19%	69%	10%
Psychology Students (<i>N</i> = 243)	Affective	18%	71%	7%	4%
	Lifestyle	15%	65%	14%	6%
	Antisocial	0%	96%	2%	2%
	Total SRP	19%	71%	7%	3%

3.3.3 Gender

Consistent with previously established gender differences, the present findings indicated moderate – large effect size differences in SRP-4:SF scores between genders, with males scoring significantly higher than females across the interpersonal ($d = .60$), affective ($d = .80$), lifestyle ($d = .49$) and antisocial facets ($d = .34$). Additionally, significant differences were reflected in Factor 1, Factor 2 and total SRP-4:SF scores, with males scoring significantly higher than females ($d = .76$, $.52$ and $.72$ respectively).

As seen in Table 3.3, moderate effect size gender differences were also observed for empathy, with females reporting significantly higher scores on the cognitive, affective and total BES scales ($d = .50 - .75$). Small but significant differences were found in extraversion, agreeableness and conscientiousness scores, with females reporting higher levels than males. Conversely, males were found to report significantly higher levels of emotional stability than females ($d = .42$). Male and female students were not found to significantly differ in openness scores.

3.3.4 External Validity

Convergent and divergent validity of the SRP-4:SF within an Australian university student sample was assessed through examining associations between the SRP facets and the BES and TIPI sub-scales. Pearson's correlation and semi-partial correlation coefficients are displayed in Table 3.5.

The interpersonal factor was moderately negatively associated with cognitive empathy, affective empathy, total empathy and agreeableness as well as being weakly negatively associated with conscientiousness and openness. However, after controlling for shared variance between the other SRP-4 factors, interpersonal psychopathy remained weakly negatively associated only with agreeableness and openness. Moderate to strong correlations were noted for the affective psychopathy factor and cognitive, affective and total empathy as well as agreeableness. After controlling for the shared variance between the SRP-4 factors, affective psychopathy remained moderately significantly negatively associated with affective and total empathy and weakly associated with cognitive empathy, extraversion and agreeableness. The lifestyle facet was weakly negatively associated with cognitive empathy, affective empathy, total empathy, agreeableness, conscientiousness, and emotional stability. Additionally, the lifestyle facet was weakly positively associated with openness and extraversion. After accounting for the shared variance between the other SRP-4 factors, the lifestyle facet remained significantly negatively associated with conscientiousness and emotional stability and significantly positively associated with cognitive empathy, affective empathy, total empathy, extraversion and openness, albeit weakly. The antisocial factor was weakly to moderately negatively associated with cognitive, affective and total empathy, agreeableness, conscientiousness and openness. However, only weak negative correlations remained between the antisocial facet and cognitive empathy and openness once the shared variance between the other SRP-4 factors was accounted for.

Table 3.5 Pearson Zero-Order and Semi-Partial Correlation Coefficients between SRP-4:SF, BES and TIPI Factors for the Total Sample

	Total			Interpersonal		Affective		Lifestyle		Antisocial	
	<i>r</i>	<i>r</i>	<i>sr</i>	<i>r</i>	<i>sr</i>	<i>r</i>	<i>sr</i>	<i>r</i>	<i>sr</i>	<i>r</i>	<i>sr</i>
Cognitive Empathy	-.39**	-.35**	-.07	-.41**	-.20**	-.17*	.11*	-.37**	-.19**		
Affective Empathy	-.36**	-.34**	-.05	-.46**	-.34**	-.14**	.14**	-.20**	.02		
Total Empathy	-.44**	-.41**	-.07	-.53**	-.33**	-.18**	.15**	-.32**	-.07		
Extraversion	-.02	-.06	-.07	-.07	-.10*	.17**	.26**	-.01	.00		
Agreeableness	-.45**	-.42**	-.10*	-.49**	-.26**	-.29**	-.01	-.22**	.05		
Conscientiousness	-.28**	-.22**	-.05	-.20**	.00	-.29**	-.19**	-.17**	-.04		
Emotional Stability	-.07	-.03	.01	-.01	.06	-.11**	-.11*	-.08*	-.07		
Openness	-.06	-.12**	-.11*	-.11**	-.07	.15**	.29**	-.16**	-.15**		

Note: * $p < .05$, ** $p < .01$ (corrected for multiple comparisons).

3.4 Discussion

The present study sought to contribute to the cross-cultural validity of the SRP-4:SF by examining the psychometric properties, including underlying factor structure and construct validity as assessed by associations with empathy and the big-five personality traits in an Australian business and psychology undergraduate student sample. Results were largely consistent with previous North American and European validation studies, indicating sound psychometric properties of the SRP-4:SF in an Australian student sample. Findings contribute new evidence to the cultural independence of the SRP-4:SF and support the universality of its underlying factor structure. Additionally, findings highlighted unique-facet level associations with empathy and general personality traits, providing further cross-cultural knowledge of external correlates relevant to understanding the manifestation of particular psychopathic characteristics within student populations.

3.4.1 Factor Analysis

Confirmatory factor analysis indicated the four-factor model was of superior fit over one- and two-factor alternative models, which both failed to reach acceptable levels of fit. Mean item loadings for the interpersonal, affective, lifestyle and antisocial SRP-4:SF facets were acceptable and in line with those reported in the SRP-4:SF technical manual ($N = 1,730$; range = .69 - .71; Paulhus, Neumann & Hare, 2016) as well as a recent community based validation of a Portuguese version of the SRP-4:SF ($N = 513$; mean range = .69 - .83; Seara-Cardoso et al., 2019).

With regard to gender configural invariance, the four-factor model demonstrated acceptable fit for the total sample and for females, although, fit indices were slightly below acceptable standards for males. However, this is likely due to sampling issues, as there were almost twice as many females ($n = 396$) compared to males ($n = 206$) in the present sample. Although it is permissible to conduct multiple-groups CFA with unequal sample sizes, it is preferable that the groups be as balanced as possible because interpretation of the analysis is more complex if the group sizes differ markedly (Brown, 2014, p. 251). Regardless, for both male and female data sets, the 2-factor model fit better than the 1-factor model, and the 4-factor model fit better than the 2-factor model. Such consistency across the two samples suggests that the items reliably capture the same four factors in both males and females, supporting previous validation studies which indicate that the SRP-4:SF is invariant across gender (Dotterer et al., 2017; Neumann et al., 2012).

Individual mean item factor loadings in the present study were significant and adequate for each factor. Findings indicated the SRP-4:SF items loading onto the antisocial facet had some of the highest loadings, whilst items loading onto the affective facet tended to have some of the lowest. This is consistent with previous research and suggests that affective psychopathic traits may be particularly difficult to capture via self-report items (Neumann & Pardini, 2014; Seara-Cardoso et al., 2019). For example, Neumann and Pardini (2014) reported the affective SRP-SF facet to have a factor loading of .59 in a community sample of males ($N = 425$), which was similar to that found in the present study (.58). Comparatively, previous empirical evidence using the PCL-R clinical interview assessment method on a sample of 6,929 reported an affective factor loading of .72 (Neumann, Hare, & Newman, 2007). Consistent with previous research examining the factor structure of the SRP-4:SF in student samples (Welker et al., 2014), factor loadings in the present sample were strongest between the interpersonal and affective facets, and weakest between the antisocial and lifestyle facets. In contrast, the antisocial facet was found to be more closely associated with the interpersonal facet (.72). This is consistent with previous empirical evidence suggesting the antisocial facet is more strongly correlated with the other SRP-4:SF facets in community and student populations compared to general offender samples. Thus antisocial behaviour is likely a key indicator of psychopathic traits within these samples (Neumann et al., 2015). It is possible that the present findings support a view that psychopathy in student samples may be characterised by more covert forms of antisocial behaviour, rather than the overt antisocial characteristic of forensic samples (e.g., criminality).

3.4.2 Reliability

Internal consistency of the SRP-4:SF in the present sample was strong for the total SRP score and slightly lower for each of the facets, but still within acceptable standards (α range = .69 - .84). Additionally, mean inter-item correlations varied between .24 and .36, indicating that each facet taps into the same unidimensional construct of psychopathy as measured by the SRP-4:SF. These findings are largely consistent with previous community based research (Mahmut et al., 2011; Neumann & Pardini, 2014; Seara-Cardoso et al., 2012) as well as a recent validation of a Portuguese translated version of the SRP-4:SF (Seara-Cardoso et al., 2019) and indicates the four SRP-4:SF facets and total score demonstrate acceptable internal consistency and reliability.

3.4.3 Validity

Construct Validity of the SRP-4:SF in the present sample was assessed by examining correlations between the SRP-4:SF facets, cognitive empathy, affective empathy, and the big-five general personality traits, two empirically relevant correlates to the understanding of psychopathy (Hare & Neumann, 2008; Miller & Lynam, 2015). As the SRP-4:SF factors are highly correlated, semi-partial correlation coefficients were used to examine how each psychopathy factor was uniquely associated with each external correlate. Findings largely supported previous research and indicated unique facet-level associations with empathy and big-five general personality traits, providing evidence that each of the inter-related factors captures separate elements of the psychopathy construct as measured by the SRP-4:SF (Welker et al., 2014).

3.4.3.1 Unique Correlates with the Big-Five Traits

The present findings were largely consistent with previous international community-based research and suggest that psychopathy as captured by the SRP-4:SF is characterised by very low agreeableness and moderately low levels of conscientiousness (Miller & Lynam, 2015; O'Boyle et al., 2015; Seara-Cardoso et al., 2019). Specifically, findings indicated that all SRP-4:SF factors were weakly to moderately correlated with low agreeableness (r 's = -.49 to -.22; $p < .001$) and weakly correlated with conscientiousness (r 's = -.17 to -.29; $p < .001$). Further, after controlling for the shared variance among the other SRP-4:SF factors, interpersonal manipulation ($sr = -.10$; $p < .05$) and callous affect ($sr = -.26$; $p < .001$) were the only SRP-4:SF factors to remain uniquely associated with agreeableness, whilst only the erratic lifestyle factor remained uniquely negatively associated with conscientiousness ($sr = -.19$; $p < .001$). This finding differs slightly from a recent validation of the SRP-4:SF on a Portuguese community sample which suggested that low conscientiousness was significantly uniquely associated with the interpersonal, affective and lifestyle SRP-4:SF factors (Seara-Cardoso et al., 2019), suggesting the relationship between psychopathy and conscientiousness may depend on sub-population.

Weak, but significant gender differences were observed when semi-partial correlations were examined for males and females separately, with interpersonal manipulation remaining uniquely associated with low agreeableness ($sr = -.10$, $p < .05$) and low openness ($sr = -.12$, $p < .05$) for females ($N = 396$), but not males ($N = 206$). Low openness was also uniquely associated with the antisocial factor for females, but not males ($sr = -.18$, $p < .001$), indicating low openness may be an

external correlate of psychopathy particularly relevant to the understanding of female interpersonal and behavioural manifestations of the construct within student samples. Comparatively, low openness ($sr = -.15, p < .05$) and emotional stability ($sr = -.21, p < .001$) were uniquely associated with the affective factor for males, but not for females. Although weak, these associations highlight gender-specific associations with external correlates of psychopathy as measured by the SRP-4:SF, allowing for speculation around possible gender-specific differences in the manifestation of psychopathic traits (Nicholls & Petrila, 2005).

3.4.3.2 Unique Correlates with Empathy

Pearson's correlation coefficients indicated negative correlations between total empathy and each of the SRP-4:SF factors. Affective empathy was moderately negatively associated with interpersonal and affective psychopathy as well as weakly negatively associated with erratic lifestyle and antisocial behaviour. Cognitive empathy was moderately negatively associated with the interpersonal, affective and antisocial factors, as well as weakly negatively associated with erratic lifestyle. However, after controlling for shared variance amongst the other SRP-4:SF factors, affective empathy was moderately negatively associated with affective psychopathy as well as weakly positively associated with erratic lifestyle. Comparatively, cognitive empathy remained uniquely negatively associated with the affective and antisocial psychopathy factors after accounting for shared variance, albeit weakly. Consistent with previous research, the present findings indicated similar patterns of association between psychopathic traits and cognitive, affective and total empathy for male and female samples, although correlations tended to be slightly stronger for males (Seara-Cardoso et al., 2013).

The present findings are also consistent with previous validations of the SRP-SF, suggesting that psychopathy in community and student samples is characterised by deficits in affective empathy rather than cognitive empathy (Bettison, Mahmut, & Stevenson, 2013; Seara-Cardoso et al., 2013). However, this previous research has been limited by a two-dimensional view of psychopathy (i.e., interpersonal/affective and lifestyle/antisocial), and therefore does not allow for exploration of how cognitive and affective empathy may be uniquely associated with specific psychopathic propensities. Comparatively, the present findings indicated that, after accounting for shared variance amongst the other factors, the interpersonal manipulation factor was not significantly related to cognitive, affective or total empathy. The erratic lifestyle factor was uniquely positively associated with affective and total empathy. This is consistent with previous research by Pechorro, Ray, Salas-Wright, Maroco,

and Gonçalves (2015), who adopted the same measure of empathy used in the present research to validate a measure of psychopathic traits in youth. They also concluded that the behavioural and interpersonal elements of psychopathy were largely unrelated to empathy deficits. Taken together, these findings suggest that the lack of empathy commonly considered a key feature of psychopathy is uniquely associated with affective psychopathic traits as measured by the SRP-4:SF.

3.4.4 Psychopathic Trait Distributions and Gender Differences

The SRP-4:SF scores for the total sample in the present study were consistent with those reported by Paulhus et al. (2016) using a large American-based student sample, supporting cross-cultural independence of the SRP-4:SF in an Australian student population. However, the significant mean factor-score differences observed between the present student sample and those reported by Dotterer et al. (2017), although small in effect size, indicate that further cross-cultural research is required to draw definitive conclusions regarding the cultural independence of psychopathy.

Although substantially more research has been conducted on the presentation of psychopathy in men than women, gender differences and similarities have been well documented in the literature (Neumann et al., 2012). Consistent with previously established gender differences, the present findings indicated males scored significantly higher than females across all of the SRP-4:SF factors with medium to large effect size, suggesting males tend to demonstrate higher levels of endorsement of psychopathic traits as measured by the SRP-4:SF than females (Dotterer et al., 2017; Paulhus et al., 2016; Seara-Cardoso et al., 2019; Welker et al., 2014). Further, findings indicated the prevalence of 'extremely elevated' total psychopathy scores was considerably higher in the male sample (7%) compared to the female sample (2%). Significant gender differences were also observed in the prevalence of 'extremely elevated' psychopathy scores at a factor level. This was particularly notable for the callous affect factor (9% of males compared to 2% of females) and the antisocial behaviour factor (9% of males compared to 3% of females). However, differences for the interpersonal manipulation (7% of males, 2% of females) and erratic lifestyle factors (9% of males, 3% of females) were also observed.

Moderate sized gender differences were noted for empathy, with females reporting significantly higher levels of cognitive, affective and total empathy than males. Lastly, small but significant gender differences were noted for the big-five personality factors, with females tending to be more agreeable (moderate effect size), extraverted and conscientious (small effect size) than males, who were in turn

significantly more emotionally stable (medium effect size). No significant differences between men and women were found for openness to experience. These findings further support previously established gender differences in personality traits, indicating that women tend to be more empathic, agreeable, conscientious, extraverted, and neurotic than men (Costa Jr et al., 2001; Harton & Lyons, 2003; Jolliffe & Farrington, 2006).

Previous research has indicated the prevalence of 'extremely elevated' psychopathic traits in community samples as measured by the SRP-4:SF is between 2.9 – 4.3% (Gordts et al., 2017; Seara-Cardoso et al., 2019). This is largely consistent with a previous study, which indicated 4% of the total sample reported scores within the extremely elevated range, indicating individuals who more closely reflect the prototypical psychopath (Paulhus et al., 2016). Although these classification guidelines are not intended to be interpreted as a diagnostic cut-off, they are useful in exploring the distribution of psychopathic traits in various sub-populations. For example, when business and psychology students' scores were considered independently, 3% of the psychology sample ($N = 243$) and 5% of the business sample ($N = 331$) scored in the extremely elevated range. These findings highlight sub-sample differences in psychopathic traits within student populations and support a view that business students exhibit higher levels of psychopathy than students in other academic disciplines (Vedel & Thomsen, 2017). However, with the exception of the aforementioned studies, distributions of T-score classifications have not been widely reported in previous research. Therefore, the present findings contribute further knowledge to the understanding of distributions and prevalence rates of elevated psychopathic traits in various sub-samples within the general population.

3.4.5 Limitations

Findings provide evidence to support the conceptualisation of psychopathy captured by the SRP-4:SF from within a structurally based model of general personality characterised primarily by very low agreeableness and low conscientiousness. However, the measure of big-five traits used in the present study was limited by low internal consistency due to only containing two items measuring each factor. In order to improve the understanding of psychopathy (as measured by the SRP-4:SF) in non-clinical populations, future research should consider including a measure of the big-five factors which allows for differentiation between the six-lower level personality characteristics of each big-five factor. This may provide a more comprehensive and accurate conceptualisation of the construct from within a

universally understood and empirically based model of general personality. Additionally, as findings indicated that model fit indices for the four-factor model fell slightly below acceptable levels for the male sample, further research with equally distributed sample sizes of men and women is required to validate the present conclusions regarding gender invariance.

3.4.6 Future Directions

For the purposes of this research the aim was to examine the reproducibility of the intended four-factor structure of the SRP-4:SF, and the acceptable fit enabled the current research to progress. However, previous research suggests that the four SRP-4:SF factors may also be aggregated to form the traditional two-dimensional conceptualisation of psychopathy adopted in the PCL-R (e.g., Seara-Cardoso et al., 2019). The present findings support this view, suggesting that alternative models may also demonstrate acceptable fit for the SRP-4:SF items. For example, as the present findings indicated that the interpersonal and affective factors were highly correlated (0.70), future studies might consider treating the SRP-4:SF as a hierarchical structure. In this instance, the interpersonal and affective factors could be modelled as separate latent variables under the umbrella of a second-order factor, which in turn correlates with a second-order factor that subsumes the erratic lifestyle and antisocial factors. However, as the present findings demonstrate, when considering external correlates of psychopathy, there is value in adopting a four-factor model as it allows for identification of unique external associations with particular psychopathic traits.

3.5 Conclusions

Findings support the use of the SRP-4:SF as a valid and reliable self-report measure of psychopathic traits in an Australian student population and contribute further evidence to the universality of its underlying four-factor structure. Configural invariance across genders was also generally supported, suggesting the SRP-4:SF items capture the same four factors of psychopathy in both men and women. However, given that previous factor analytic research has indicated males and females differ with respect to levels of item endorsement on the SRP-4:SF (e.g., Dotterer et al., 2017), the possibility of scalar variance cannot be discounted. Additionally, findings contribute new evidence to suggest the associations between psychopathy and empathy and the big-five general personality factors translate to an Australian student population. To summarise, the present findings provide cross-cultural validation of the SRP-4:SF in an Australian student population and highlight

the utility of differentiating between variants or sub-types of psychopathy by examining unique factor-level associations with relevant external correlates in order to gain a more thorough understanding of the ways in which psychopathic traits manifest in the general population as well as within various sub-samples.

Chapter 4: Empathy and Psychopathic Traits as Predictors of Selection into Psychology or Business Disciplines

4.1 Abstract

Objective: The Attraction, Selection and Attrition model posits that individuals actively self-select into vocational and educational environments based on their personality traits and values. The present study investigated whether pre-existing empathy and psychopathic personality trait differences in newly enrolled first year undergraduate students predicted selection into psychology and business vocational pathways respectively.

Method: An online self-report survey collected data on levels of psychopathic traits and empathy from 380 newly enrolled first year business and psychology undergraduate students to examine whether these pre-existing personality traits could predict academic discipline attraction and selection.

Results: Binary logistic regression analysis partially supported the proposed hypotheses. Cognitive empathy and gender were found to be significant predictors of student discipline, with females and those with higher cognitive empathy more likely to be attracted and selected into a psychology rather than a business degree. Small to moderate effect size differences were observed, with psychology students reporting significantly higher cognitive empathy ($d = .53$) and lower interpersonal psychopathy ($d = .27$) than business students.

Conclusions: Findings highlight specific personality trait differences present between newly enrolled business and psychology students and the importance of these pre-existing differences in student vocational decision-making. It is anticipated that findings may assist vocational and career counsellors in guiding prospective students in the direction of a vocational pathway that is best suited to their personality, as this is likely to result in increased student satisfaction and self-esteem whilst reducing student attrition.

4.2 Introduction

The choice of tertiary field of study is one of considerable importance for young adults and acts as a pre-cursor to future career pathways. Vocational research has suggested that the repercussions of this decision extend beyond graduation, impacting work satisfaction and productivity, income and job security (Balsamo et al., 2013; Porter & Umbach, 2006). A multitude of factors have been found to influence a student's vocational choice, including race, gender, academic ability, socio-economic status and social and family influences (Porter & Umbach, 2006). However, a large body of research has provided strong support for broad personality traits as significant predictors of academic discipline choice (Lounsbury et al., 2009; Vedel, 2016).

Vocational personality theories such as the ASA model (Schneider, 1987) posit that individuals will actively self-select their environments, such as study and vocational pathways based on their personality traits and values. The initial attraction phase of the ASA model highlights that people's preferences for particular organisations tends to be based primarily on unconscious estimates of the resemblance between self (i.e., personality traits) and the organisation's culture (Slaughter et al., 2005). Organisations conduct both formal and informal selection processes in order to ensure they hire individuals who are of good 'fit' to their organisational culture, making up the selection aspect of the ASA model (Slaughter et al., 2005). Finally, individuals who turn out not to be a good 'fit' for the organisational environment eventually leave the environment, either through dismissal or resignation, resulting in employee attrition.

Consistent with the ASA model, Roberts and Nickel (2017) proposed the 'niche-picking principle'. This suggests people will select environments which match their personality traits and that the attraction effects of personality to a particular environment will result in greater personality trait consistency (Roberts & Nickel, 2017). In other words, good initial 'fit' between an individual's personality and their environment will result in continued good fit as personality remains consistent as a result of the environmental experiences. Applied to the university context, Roberts and Robins (2004) reported that student fit in a university environment was moderately consistent over a four-year period, concluding that good student fit was associated with increased self-esteem, emotional stability and personality consistency.

The ASA framework and niche picking principle suggest that the pre-existing personality trait differences which initially attract an individual to an environment, are

primarily responsible for variation in people's fit within an environment (Schneider, 1987). An alternative explanation is that socialisation processes within the organisation shape individuals' behaviour via reward and punishment schedules, resulting in improved fit and a strengthening of the personality traits most suited to that environment (Balsamo et al., 2013).

The ASA model and niche picking principle can be applied to university students and their choice of academic discipline. Potential students with specific types of personalities may be attracted to certain academic disciplines and in turn academic disciplines may have admission criteria to select particular types of students; ultimately creating a homogenous cohort (Balsamo et al., 2012). It is also possible that socialisation processes strengthen fit between students and disciplines. Previous research comparing group differences in personality factors across academic disciplines has established that significant personality variation exists between different academic disciplines. A review of big five personality differences across academic vocations found lower levels of agreeableness in business, economics and law students compared with psychology, humanities and arts students (Vedel, 2016). Recently, Litten, Roberts, Ladyshevsky, Castell, and Kane (2018) reported that undergraduate psychology students as a whole exhibited higher level of empathy and lower levels of psychopathic traits than business students. However, as these studies examined students across all years of study, it is unclear whether these differences are the result of pre-existing individual differences present prior to niche picking into academic disciplines (attraction processes) or whether they developed because of socialisation processes occurring within the educational environment.

To determine the role attraction processes play in observed personality differences across academic disciplines, one must examine newly enrolled first year students who have not yet been exposed to the potential socialisation effects within their discipline-specific educational environment. However, research in this area is lacking as studies using student samples often do not specify what year(s) of study the students are from. Therefore, there is no way to distinguish whether the observed personality differences are a result of attraction processes driven by pre-existing personality characteristics, or whether they develop as a result of the students' exposure to the specific educational environment of their chosen discipline (socialisation effects).

To date, research on newly enrolled tertiary students is limited to a handful of studies (Balsamo et al., 2012; Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002; Vedel & Thomsen, 2017; Vedel et al., 2015), with findings largely supporting the

presence of pre-existing personality differences predicting student academic discipline choice (attraction processes). Nevertheless, the majority of these previous studies have focused on broad trait measures of personality such as the big five (Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness), which are superordinate factors of general personality traits. These traits may therefore be too broad to reliably distinguish between students in different academic disciplines (Vedel et al., 2015). Vedel et al. (2015) suggests that examination of lower-level characteristics, such as facets of broad personality factors may provide unique predictive validity not captured by the use of broad superordinate personality traits. Therefore, it may be more useful to examine lower-level traits which are considered desirable for the academic disciplines of interest, as they may provide better behavioural predictions (Naydenova et al., 2012).

Elevated levels of empathy have previously been associated with selection into helping vocations, such as psychology (Marsh, 1988; Toto et al., 2015), whilst research over the last decade has suggested that higher levels of psychopathic traits are present in the corporate world (Smith & Lilienfeld, 2013). However, there has been little research to date focused on examining these traits in higher education disciplines, a pre-cursor to future vocation. Therefore, the present study compared facet level empathy and psychopathic personality traits of newly enrolled business and psychology students in order to examine the impact these traits have on attraction and selection into particular academic disciplines. Directional hypotheses were developed in accordance with the attraction and selection processes outlined in the ASA model (Schneider, 1987).

4.2.1 Empathy

Empathy is a lower-level personality trait associated most strongly with the broad personality traits of agreeableness and openness to experience (Bertram et al., 2016). The display of empathy is two-fold; initially, it involves affect recognition and emotional contagion and is followed by understanding another's feelings (Seara-Cardoso et al., 2012). Empathy can therefore be conceptualised in two components: perspective taking and affective empathy. Perspective taking is the cognitive component of empathy, where the individual can adopt another's perspective and respond appropriately (Toto et al., 2015). Cognitive empathy is considered a skill, which could theoretically be improved upon through training (Camarano, 2010). Comparatively, affective empathy encompasses empathic concern, or the ability to feel warmth and compassion for others' wellbeing (Toto et al., 2015). Affective

empathy is commonly conceptualised as a stable and fixed internal personality trait, not able to be taught or improved upon through training (Camarano, 2010).

Practicing psychologists often rely heavily on the emotional ability to display empathy – to co-experience clients' emotions or perspective cognitively or ideally, both (Camarano, 2010). Therapist empathy has been found to play an important role in achieving positive therapeutic outcomes such as client satisfaction and treatment compliance and is considered a core component of the therapeutic alliance between client and therapist (Bertram et al., 2016).

Consistent with the ASA model and niche picking principle, it would be expected that people who display higher levels of empathy than others would be more likely to be attracted to a pursuing a helping profession, such as psychology (Toto et al., 2015). Marsh (1988) suggested that the general descriptive factors of a typical 'helping career' personality include high levels of concern for the needs of others rather than personal gains as well as higher levels of self-doubt and self-blame. Students often express a desire to pursue a psychology vocation because they have an interest in its applied helping domain and are often shocked when faced with the initial empirical and scientific nature of undergraduate courses (Holmes, 2014).

Empathy in both its affective and cognitive forms is thought to be crucial to the development of positive moral reasoning and prosocial behaviour (Jolliffe & Farrington, 2006). Subsequently, a lack of empathy has been strongly associated with antisocial behaviour and is often considered a core feature of a psychopathic personality (Smith & Lilienfeld, 2015). However, prior research has yielded mixed findings on the relationship between cognitive and affective empathy and psychopathic traits within community samples (Mullins-Nelson et al., 2006). Mullins-Nelson et al. (2006) found total psychopathy to be negatively associated with total empathy ($d = -.49$). However, individuals who scored high on the interpersonal/affective factor (Factor 1 psychopathy) exhibited normative levels of cognitive empathy, while individuals with elevated levels of the behavioural factor (Factor 2 psychopathy) were found to possess deficits in both cognitive and affective empathy (Mullins-Nelson et al., 2006). These findings suggest that to examine emotional deficits (such as empathy) associated with psychopathic traits, further research exploring the relationship between the two constructs at a factor level is required.

4.2.2 Psychopathy

Traditionally, psychopathy has been characterised by superficial charm, egocentricity, dishonesty, risk-taking behaviour, manipulateness and a lack of

empathy, guilt and remorse, which is masked by normalcy (Hare & Neumann, 2008). The majority of previous research in this area has focused on psychopathy in forensic populations, using a two-factor model to distinguish between the interpersonal and affective (Factor 1) and behavioural (Factor 2) characteristics of the construct (Hare et al., 1990). However, updated conceptualisations and subsequent measures of psychopathic traits for community populations have begun to emerge in the literature (Paulhus et al., 2016). Research with community samples suggests that psychopathy can be understood as a collection of personality traits, present within a normative population in varying levels of severity, which cluster into four unique domains, giving rise to the four facet (Affective, Antisocial, Lifestyle and Interpersonal) model of psychopathy (Paulhus et al., 2016) adopted in the present study.

Findings from nonclinical psychopathy research suggests that some psychopathic traits may be useful adaptations in community settings such as the business world (Boddy, 2015; Smith & Lilienfeld, 2013). For example, it is thought that people who display psychopathic traits tend to succeed in organisational settings which require a rational and emotionless behaviour style, willingness to take risks, and a consistent focus on achievement (O'Boyle Jr et al., 2012).

Interestingly, despite educational environments acting as a pre-cursor to subsequent vocational environments and career pathways, relatively little research has been conducted on the manifestation and prevalence of psychopathic traits in business school students. From the sparse literature available, findings suggest that business school students possess higher levels of psychopathic traits than other academic disciplines (Hassall et al., 2015; Krick et al., 2016; Vedel & Thomsen, 2017; Westerman, Bergman, Bergman, & Daly, 2012).

Hassall et al. (2015) found that 3rd year business and psychology students in the United Kingdom differed in levels of psychopathy, with business students reporting significantly higher levels of psychopathic traits than psychology students. However, as 3rd year students were used, it remains unknown whether the variations were present prior to discipline selection (attraction processes) or developed from repeated exposure to the specific learning environment and culture of the discipline (socialisation processes), or both. Building on this, Krick et al. (2016) suggested that business and management students possess higher levels of dark triad traits (Psychopathy, Narcissism, and Machiavellianism) than students in other academic disciplines. However, as psychopathy was measured as a unitary construct, findings do not shed light on unique psychopathic personality trait differences present in these cohorts which may be of more applicable value in the educational context.

Recently, Vedel and Thomsen (2017) conducted a comparative study of newly enrolled business, political science, and psychology students. Their results supported previous findings, indicating, with a medium-large effect size, that psychology students reported the lowest levels of psychopathy, whilst business students reported the highest levels of psychopathy ($d = .75$). Vedel and Thomsen (2017) suggest that the observed psychopathic trait variation across academic disciplines was representative of a distinction in motivation for attraction to a specific discipline, with students motivated by self-interest, power, and financial gains (psychopathic characteristics) more likely to select into a business degree which will ultimately lead to a career which encourages and rewards self-interested behaviour. However, this study also treated psychopathy as a unitary construct which does not allow for further speculation around the potential usefulness of particular facet level psychopathic traits in an educational context.

As established previously, the association between psychopathy and empathy is complex but for the most part suggests an inverse relationship in forensic and community samples. Some evidence has emerged suggesting that this pattern is also true for student populations. For example, Holt and Marques (2012) found that empathy was consistently ranked the lowest important trait for successful and effective leadership by business students. Their findings provide insight into business students' concerning belief that empathy interferes with rational decision making (i.e., displays of empathy demonstrate weakness in leadership) and therefore holds no functional place within business settings (Holt & Marques, 2012). Further research examining psychopathic traits and empathy within the academic arena is required to fully understand the complex interaction between the two constructs and the role in which they play in attraction to and selection into particular vocational pathways.

4.2.3 Present Study

Previous research has established differences in the types of personality traits present in business and psychology professionals and students, with an emphasis on the role of empathy for pursuing helping related vocations and arguably psychopathic traits for the business world. However, it remains unclear whether these personality differences are present prior to choice of academic discipline and subsequently influence a student's decision-making process. By examining the personality trait differences of newly enrolled students who are yet to be exposed to the potential socialisation effects of their chosen academic vocational environments, it is possible to determine the influence which these individual characteristics may

have on guiding students' attraction towards a particular academic discipline and subsequent vocational pathway (Balsamo et al., 2013). Additionally, examining empathy and psychopathic trait differences at a facet level remains an unexplored area of research which may provide unique insights into more specific individual differences and their role in influencing student's choice of academic discipline. Therefore, the present study aimed to examine pre-existing differences in cognitive and affective empathy as well as four facets of psychopathic traits in newly enrolled first year undergraduate business and psychology students. It was hypothesised that after controlling for age, gender and social desirability, higher levels of psychopathic traits and lower levels of cognitive and affective empathy would predict attraction and selection into a business degree, whilst lower levels of psychopathic traits and higher levels of cognitive and affective empathy would predict attraction and selection into a psychology degree.

Due to the variability of course structure and teaching methods across universities and within academic disciplines, the present research expands on that of Vedel and Thomsen (2017) by examining students from four Australian universities. The present findings will provide a cross-cultural comparison for the only two other published studies (United Kingdom and Denmark) directly comparing psychopathic traits in business and psychology students (Hassall et al., 2015; Vedel & Thomsen, 2017). Further, the present findings will assist in determining the extent to which lower level personality characteristics (empathy and psychopathic traits) influence a student's choice of vocational pathway and provide increased knowledge on the types of student personalities which are drawn to Australian psychology and business schools. Given that psychopathy has previously been associated with academic misconduct and cheating behaviour in students (Coyne & Thomas, 2008) and the strong association between personality and learning styles more broadly (Chamorro-Premuzic, Furnham, & Lewis, 2007), findings may also be of use to higher education stakeholders to better understand the level of diversity, or lack thereof, within these two cohorts.

To date, only two studies have examined self-reported psychopathic traits in an Australian community sample (Watt & Brooks, 2012; Zágón & Jackson, 1994). Further, the psychometric properties of the self-report measure of psychopathy utilised in this study show promise but have yet to be tested on an Australian student sample. Therefore, the present findings may provide important insights into the relevance of psychopathic traits at a facet level within a local higher educational context.

4.3 Method

4.3.1 Participants

A total of 252 newly enrolled, first year undergraduate business (116 = Male, 136 = Female) and 128 (35 = Male, 93 = Female) psychology students with a mean age of 20.92 years ($SD = 6.13$) were included in the final sample.

4.3.2 Materials

4.3.2.1 *Self-Report Psychopathy Scale (SRP-4: SF; Paulhus, Neumann & Hare, 2016).*

The SRP-4: SF is a 29-item self-report measure designed to measure psychopathic personality traits in forensic and non-forensic populations. Items are scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) and yield a total score, two factors (Factor 1 and Factor 2), and four facet scores (Affective, Interpersonal, Lifestyle and Antisocial). The SRP-4: SF emulates the four-factor model of psychopathy which has demonstrated good fit across community, forensic and student samples, and has acceptable internal and test-retest reliability and validity (Paulhus et al., 2016). The SRP-4: SF Cronbach's alphas for the present sample show promise ($\alpha = .67 - .75$), although these were expectedly lower than the standard .9 level due to the small number of items within each facet². However, the total SRP score demonstrated good overall scale reliability of $\alpha = .88$.

4.3.2.2 *Basic Empathy Scale (BES; Jolliffe & Farrington, 2006).*

The BES was used to assess cognitive, affective and total empathy in the present study. The BES is a 20-item self-report measure, scored on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), which yields a total score and two factor scores (Cognitive and Affective empathy). The BES demonstrates good construct, convergent and divergent validity as well as supporting the popular two-factor conceptualisation of empathy (Jolliffe & Farrington, 2006). Scores range from 20 (deficit in empathy) to 100 (high empathy) and the measure has demonstrated adequate internal and test-retest reliability in adult samples for both the affective and cognitive factors (Carré, Stefaniak, et al., 2013). Cronbach alpha's in the present sample's BES factors were adequate ($\alpha = .78 - .83$), as was the total BES score ($\alpha = .85$).

² The reported .9 level was printed in error. Generally, $\alpha > .70$ is considered acceptable (Bernstein & Nunnally, 1994).

4.3.2.3 *The Social Desirability Scale-17 (SDS-17; Stöber, 2001).*

Deception is considered a core psychopathic trait and, as such, the potential for response bias when using self-report psychopathy measures forms a concern (Ray et al., 2013). Findings from a recent meta-analysis suggest that this concern is often exaggerated within community and student samples, however, the potential effect can be controlled for using a measure of social desirability (Ray et al., 2013). The Social Desirability Scale-17 (SDS-17) is a brief and valid measure of socially desirable responding (Stöber, 2001). The current version of the SDS-17 comprises 16 true or false items and has demonstrated sound internal and test-retest reliability and adequate convergent and discriminant validity as displayed by strong correlations with other social desirability measures during initial validation of the measure (Stöber, 2001). Cronbach's alpha for the present sample was lower than expected ($\alpha = .61$), however as social desirability was included as a precautionary control variable in the analysis, it is not considered to weaken the validity of the results.

In addition to the aforementioned measures, participants were also asked to provide demographic information including their age, gender, and academic discipline in which they were enrolled.

4.3.3 Procedure

Following Human Research Ethics Approval, the study was advertised on social media and university online communication boards. Recruitment emails were also sent to a database of first year business and psychology teaching staff at four major universities, requesting that the study be extended to their student cohorts. Additionally, the study was also made available to psychology students from the researchers' home university in exchange for partial course credit. Newly enrolled (within the first five weeks of semester) first year business and psychology undergraduate students across four Australian universities were invited to complete a brief anonymous online survey titled 'Personality Traits in Students'. The survey consisted of a number of short quantitative measures as well as non-identifying demographic information. A chance to win one of five \$50 gift certificates (lottery) was offered to students as an incentive for participation. A total of 562 students participated in the study, however, responses with large amounts of missing data (114), students not in their first year of study (49), and students studying both business and psychology (19) were excluded from the final sample.

To investigate whether empathy and psychopathic personality trait differences predicted selection into business or psychology academic disciplines, data was

analysed in SPSS (v. 24) using binary logistic regression models. After removing cases with incomplete measures, students studying both psychology and business and students not in their first year of study, six cases (1.58%) in the final sample had missing data. Little's MCAR test was non-significant, indicating the data was missing completely at random, $\chi^2(491) = 461.70, p = .825$ (Little, 1988). Expectation maximisation (EM) was then performed to estimate the missing values for the six remaining cases.

4.4 Results

A summary of demographics, social desirability (SDS), empathy (BES) and psychopathy (SRP-4:SF) facet scores for psychology and business students are presented in Table 4.1. In order to assess the significance of differences in empathy and psychopathic trait differences at the facet level between business and psychology students, independent sample t-tests were conducted using a conservative adjusted alpha of .01 to account for multiple comparisons. Findings indicated (with medium effect size) that psychology students reported significantly higher cognitive empathy than business students; [$t(378) = -4.84, p < .01$]. Additionally (with small effect size), business students reported significantly higher levels of interpersonal psychopathy than psychology students; [$t(378) = 2.51, p < .01$]. Small effect size differences were also noted for affective empathy ($d = .24$), with psychology students scoring higher than business students, and affective psychopathy ($d = .25$), with business students scoring higher than psychology students.

Table 4.1 Social Desirability, Empathy and Psychopathy Scores by Academic Discipline

Outcome Measure	Business Students (N = 252)		Psychology Students (N = 128)	
	M	SD	M	SD
Age	20.85	6.36	21.04	5.69
SDS Total Score	6.17	2.00	6.10	1.91
Cognitive Empathy	36.12	4.86	38.61	4.49
Affective Empathy	39.37	7.34	41.11	7.23
SRP Interpersonal	51.44	10.12	48.70	9.88
SRP Affective	50.53	10.63	47.88	10.41
SRP Lifestyle	51.95	10.31	50.44	10.63
SRP Antisocial	49.33	9.60	48.62	8.06

Note: SDS = Social desirability scale, SRP = Self-report psychopathy scale 4-short form.

Spearman's correlation coefficients and internal consistency coefficients of key variables are presented in Table 4.2. No issues with multicollinearity were found between the empathy and psychopathy facets. Academic discipline was significantly positively correlated with gender ($r = .18$), cognitive empathy ($r = .24$) and affective empathy ($r = .12$). Discipline was also negatively correlated with the interpersonal ($r = -.13$) and affective ($r = -.13$) facets of the SRP, indicating that higher empathy was associated with choice of a psychology discipline, whilst higher Factor 1 psychopathy (interpersonal & affective facets) was associated with choice of a business discipline. Cognitive and affective empathy demonstrated significant negative correlations with all of the psychopathy facets. Cognitive and affective empathy positively correlated with gender, with females reporting higher levels than males, whilst the psychopathy facets negatively correlated with gender, with males reporting higher levels than females. Weak, negative associations were observed between social desirability scores and all the psychopathy facets; however, these were non-significant. SDS scores were not associated with empathy. Additionally, age was negatively correlated with affective and total empathy, but not did not significantly correlate with cognitive empathy or any of the psychopathy facets.

Table 4.2 Spearman's Correlation Coefficients and Internal Consistency Coefficients Between Academic Discipline, Age, Gender, Social Desirability, Empathy and Psychopathy Facets.

Scale	α	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. First Degree			0.33	-0.11*	-0.02	0.06	0.07	0.38**	0.09	0.05	-0.01	0.03	0.05	-0.02	0.00
2. Enrolment Status				-0.06	0.22**	0.10	0.08	0.30**	-0.09	-0.01	0.03	-0.03	-0.01	0.10	0.02
3. Work					0.01	0.02	0.01	-0.00	0.02	-0.11*	-0.04	0.07	0.04	-0.00	0.08
4. Time with Others						-0.04	-0.02	0.27**	0.05	-0.08	-0.15**	0.02	0.01	-0.01	0.02
5. Discipline							0.18**	-0.02	-0.02	0.24**	0.12*	-0.13**	-0.13*	-0.07	0.01
6. Gender								-0.70	0.09	0.23**	0.29**	-0.27**	-0.38	-0.20**	-0.11*
7. Age									0.07	-0.05	-0.13*	-0.01	0.04	-0.01	-0.04
8. SDS	.61									0.00	0.04	-0.07	-0.09	-.07	-0.08
9. BES Cognitive	.78										0.42**	-0.39**	-0.41**	-0.21**	-0.15**
10. BES Affective	.83											-0.30**	-0.43**	-0.17**	-0.20**
11. SRP Interpersonal	.75												0.70**	0.59**	0.45**
12. SRP Affective	.72													0.59**	0.39**
13. SRP Lifestyle	.74														0.41**
14. SRP Antisocial	.67														

Note: Male = 0; Female = 1. * $p < .05$; ** $p < .01$; SDS = Social Desirability Scale, BES = Basic Empathy Scale, SRP = Self-Report Psychopathy Scale 4-short form. Business = 1, Psychology = 2.

Binary logistic regression was conducted to determine the likelihood a student would self-select into either a business or psychology discipline based on their cognitive and affective empathy scores, as well as scores on each of the four psychopathy facets, as measured by the SRP 4:SF. Gender, age, and social desirability were controlled for and entered into step 1 of the regression, whilst the empathy and psychopathy facet predictors were entered into step 2. The model included one binary dependent variable (student discipline), six primary predictors (cognitive and affective empathy, interpersonal, affective, lifestyle and antisocial psychopathy), one binary covariate (gender) and two scale covariates (social desirability and age). A test of the full model against a constant only model was statistically significant, indicating that the predictors and control variables as a set reliably distinguished between students self-selecting into a business or psychology degree ($\chi^2(9) = 32.64(9), p < .001$).

Nagelkerke's R^2 of .114 indicated a moderate relationship between prediction and grouping. Prediction success overall was 67.9%, with gender and cognitive empathy scores explaining significant proportions of unique variance, indicating that females and students with high cognitive empathy were more likely to select into a psychology rather than a business degree. It should be noted that the odds ratios of the significant predictors were all relatively small. Interestingly, affective empathy and all four of the psychopathy facets were not found to be significant predictors of student academic discipline. Results of the hierarchical binary logistic regression are summarised in Table 4.3.

Table 4.3 Summary of Hierarchical Binary Logistic Regression Predicting Discipline from Empathy and Psychopathic Traits.

Predictors	B	S.E	Wald	Exp (B)	95% CI		χ^2	Nagelkerke R^2
					Lower	Upper		
Step 1								
Gender	0.84**	0.24	12.55	2.31	1.45	3.68	13.43	0.05
Age	0.01	0.02	0.23	1.01	0.97	1.04		
Social Desirability	-0.04	0.06	0.51	0.96	0.86	1.07		
Constant	-1.15	0.52	4.78	0.32				
Step 2								
Gender	0.66*	0.26	6.48	1.94	1.16	3.22	32.64	0.11
Age	0.01	0.02	0.29	1.01	0.97	1.05		
Social Desirability	-0.05	0.06	0.66	0.95	0.85	1.07		
Cognitive Empathy	0.11**	0.03	14.56	1.12	1.06	1.18		
Affective Empathy	-0.01	0.02	0.00	1.00	0.96	1.04		
SRP Interpersonal	-0.02	0.04	0.32	0.98	0.91	1.05		
SRP Affective	0.02	0.04	0.24	1.02	0.94	1.10		
SRP Lifestyle	-0.01	0.03	0.08	0.99	0.94	1.05		
SRP Antisocial	0.04	0.04	1.10	1.04	0.97	1.11		
Constant	-5.46**	1.62	11.42	0.00				

Note: * $p < .05$; ** $p < .01$. SRP = Self-report psychopathy scale 4:SF. Psychology = 1; Business = 0

Given these unexpected findings and the known cultural differences in empathy (Cassels et al., 2010) and psychopathic traits (Neumann et al., 2015), it is possible that findings are being influenced by cultural differences within the sample. Seventeen percent of business students reported being international students, compared to less than one percent of psychology students being international students. Therefore, further exploratory independent sample t-tests were conducted to see if there were significant differences between international and domestic business students on affective empathy, cognitive empathy, interpersonal psychopathy, affective psychopathy, lifestyle psychopathy and antisocial psychopathy. A summary of cognitive and affective empathy and psychopathy facet scores and descriptives is presented in Table 4.4.

Table 4.4 Empathy and Psychopathy Scores for Domestic and International Business Students.

Outcome Measure	International (N = 43)		Domestic (N = 209)	
	M	SD	M	SD
Cognitive Empathy	33.47	5.12	36.67	4.64
Affective Empathy	38.40	5.58	39.57	7.65
SRP Interpersonal	54.02	10.15	50.90	10.06
SRP Affective	52.95	11.54	50.03	10.39
SRP Lifestyle	52.42	11.97	51.85	9.96
SRP Antisocial	54.37	12.53	48.29	8.56

SRP = Self-report psychopathy scale 4-short form.

Findings indicated significant differences between international and domestic business students on cognitive empathy; [$t(250) = -4.05, p < .001$], with international students being less empathic than domestic students. Additionally, significant differences were found between international and domestic business students on the antisocial facet of the SRP; [$t(50.35) = 3.04, p < .01$], suggesting that international students were more antisocial than domestic business students. No further significant differences were found. This finding suggests (with medium to large effect sizes) that international business students were significantly higher in antisocial psychopathic traits and significantly lower in cognitive empathy than domestic business students.

4.5 Discussion

The present research aimed to examine the impact pre-existing cognitive and affective empathy and interpersonal, affective, lifestyle and antisocial psychopathic personality traits have on attraction and selection into psychology and business disciplines. We hypothesised that after controlling for age, gender and social desirability, higher levels of cognitive and affective empathy and lower levels of psychopathic traits would be predictive of selection into a psychology discipline. Results partially supported the proposed hypothesis, with combined cognitive and affective empathy scores explaining a significant proportion of variance (7.5%) in academic group membership. However, only cognitive empathy was found to explain a significant proportion of unique variance in choice of academic discipline, with higher levels being predictive of selection into a psychology discipline. It was also hypothesised that higher levels of psychopathic traits and lower levels of empathy would be predictive of selection into a business discipline, after controlling for age, gender and social desirability. Surprisingly, results did not support this hypothesis, as after control variables and empathy scores were included, none of the four psychopathy facets explained a significant proportion of unique variance in choice of academic discipline.

4.5.1 Empathy

Medium effect size differences were noted for empathy, with psychology students reporting significantly higher levels of cognitive empathy than business students. This finding is theoretically consistent with the attraction and selection components of the ASA model (Schneider, 1987), suggesting that as empathic skills would be considered advantageous in the applied context of psychology (Toto et al., 2015), more empathic students would be attracted to pursuing a career in psychology as a helping profession (Marsh, 1988).

The present findings are also consistent with those of Harton and Lyons (2003), which indicated cognitive (but not affective) empathy was a significant predictor of selection into a psychology vocation. Understanding alternative perspectives is important for general social skill development and so people possessing high levels of cognitive empathy tend to be more outgoing and social (Jonason & Kroll, 2015). Further, Wai and Tiliopoulos (2012) propose that cognitive empathy and the ability to adopt many different perspectives may offer useful functionality in careers such as psychology and counselling.

However, the cognitive capacity to adopt another's perspective is what allows individuals to anticipate how others would react to them and subsequently change their behaviour in order to illicit the desired response. In business, having a knowledgeable understanding of the client's motives and likely behaviour is crucial in order to obtain the most ideal self-serving outcome. For example, Galinsky et al. (2008) found that perspective taking skills were advantageous in business negotiations, whereas the ability to connect emotionally (affective empathy) was not. In a business negotiation context, perspective-taking is thought to allow for objective-decision making without compromising self-interested goals and can facilitate the balance between competition and cooperation (Galinsky et al., 2008).

Despite cognitive empathy being important in both business and psychology, the present findings suggest that business students demonstrate lower perspective taking ability than psychology students. Cognitive empathy (including perspective-taking) is thought to be a set of cognitive skills which could be impacted upon by experiences and theoretically taught through exposure to external environments which encourage individuals to take others' perspectives (Harton & Lyons, 2003). Therefore, the present findings highlight a need for learning experiences that enhance student perspective-taking skill development to be incorporated into Australian undergraduate business education.

4.5.2 Gender, age and social desirability correlates of empathy and discipline selection

Consistent with previous findings (Harton & Lyons, 2003; Jolliffe & Farrington, 2006), gender was significantly and positively correlated with both cognitive and affective empathy, with females reporting higher levels of cognitive and affective empathy than males. Gender was also a significant predictor of academic discipline selection, with females more likely to be attracted and selected into a psychology discipline than males. These observed gender and discipline effects are consistent with prior research suggesting females are more likely than males to select into a helping vocation such as psychology (Marsh, 1988). Findings indicated a significant negative correlation between age and affective empathy, indicating that emotional empathy declined with age. However, given the limited age range of the first-year university student population, this finding should be interpreted with caution. No significant relationships were found between social desirability scores and cognitive or affective empathy.

4.5.3 Psychopathy

Business students were found to significantly differ from psychology students only on the interpersonal facet of psychopathy ($d = 0.27$). This finding highlights the utility of examining psychopathy at a multifaceted level rather than as a unitary construct. The interpersonal facet of the SRP is associated with Factor 1 psychopathy, which encapsulates the affective and interpersonal characteristics of the construct and is the factor most commonly associated with lack of empathy. Individuals high in this facet tend to adopt an arrogant and deceitful interpersonal style in their relationships and have a tendency to lie, manipulate and charm others in order to get their needs met (Wilson & McCarthy, 2011). Additionally, Factor 1 psychopathy has previously been associated with cheating behaviour in university students (Coyne & Thomas, 2008).

Consistent with the present findings, Wilson and McCarthy (2011) also found business students reported higher levels of Factor 1, but not Factor 2 psychopathy than students in other academic disciplines. However, as highlighted by the results of Wilson and McCarthy (2011) and echoed in the present findings – psychopathic personality traits do not appear to have a significant influence on academic discipline choice.

Recent research suggests that specific psychopathic traits may increase over the course of study for business students (Litten et al., 2018), suggesting that exposure to the specific environment created within business schools may influence the development of specific psychopathic personality characteristics. In combination, these findings suggest that socialisation, rather than attraction and selection processes account for higher rates of psychopathic traits in business students.

Perhaps the most curious finding in the present study was that none of the four psychopathy facets (interpersonal, affective, lifestyle, and antisocial) were found to be predictive of academic discipline in business and psychology students. There are a number of potential reasons for why this might be the case. For example, it is possible that the image of Australian business schools is different from international business institutions in such a way that they attract different student personality types which are lower in psychopathic traits. This interpretation is supported by the observed differences between domestic and international business students in the present sample. Findings suggest (with medium to large effect sizes) that international business students were significantly higher in antisocial psychopathic traits and lower in cognitive empathy than domestic business students. Importantly, personality characteristics are only one component which contributes to the choice

of academic discipline with vocational interests and self-efficacy also predictive of vocational choice (Larson et al., 2010).

Students entering university represent a population who are exploring possible vocational pathways and engaging in study to further develop their knowledge and skillset before making a concrete decision on their future career choice (Lüdtke, Roberts, Trautwein, & Nagy, 2011). Therefore, entry into a psychology or business undergraduate degree is the first steppingstone into a multitude of potential vocational pathways. This may have implications for the present findings as participants were not asked about intended future career aspirations upon completing their education or motivation for selecting their chosen field. For example, whilst empathy is considered an important characteristic for working in an applied psychology role, it may be less so for those students interested in pursuing a research-based career. Business students may have personality traits which would be better suited to a different field of study but had familial expectations and pressures placed on them to pursue a particular educational pathway which will ensure financial stability later in life (Lüdtke et al., 2011). Future research should consider exploring personality traits in conjunction with motivations for selection into academic vocations as these may be more important areas for educational stakeholders to focus on in regard to student attraction, selection and attrition.

4.5.4 Gender, age and social desirability correlates of psychopathic traits and discipline selection

Findings indicated significant negative correlations between gender and psychopathic traits, with males scoring higher than females across each of the psychopathy facets. Social desirability scores demonstrated negative correlations with each of the four psychopathy factors, however these were non-significant, indicating that the use of impression management tactics was not associated with psychopathic traits in the present sample. Lastly, age was not significantly correlated with any of the psychopathy facets, likely due to the limited age range of the present sample.

4.5.5 Limitations

The findings and interpretations presented in the current paper should be considered in the context of several limitations. First, the cross-sectional design of the study means that it is possible the findings are subject to cohort bias and caution should be used when generalising these findings to other populations. A useful avenue for future research would be to examine students longitudinally to explore factors which influence student retention and attrition within these disciplines. The

present findings offer insight into pre-existing personality trait differences of newly enrolled business and psychology students. However, the potential functionality of these traits to their respective disciplines was not assessed, limiting the comments that can be made about whether or not these personality traits are advantageous for student satisfaction or academic success within their respective disciplines. The present research assumes that new enrolling student cohorts are homogenous in regard to the degree of exposure to possible socialisation effects and possible previous exposure to socialisation processes. Generalising to a wider population, this is unlikely to be the case. For example, full-time students might experience greater exposure to possible socialisation effects than part-time students and students may have been 'newly enrolled' in their current degree, however, have previously studied a different discipline and been exposed to any associated socialisation effects. Finally, the present research only considered two specific areas of personality as predictors of academic discipline selection, which may be too simplistic when considering the multifaceted nature of this decision-making process. It is likely that additional variables were not considered in the study, such as motivation for selection and future career aspirations, may account for a significant portion of variance in choice of academic vocation. Therefore, it would be beneficial for future research to consider a broader scope of variables which may impact upon vocation selection processes.

4.6 Conclusions

Choosing which vocational pathway to pursue is one of the first big life decisions made by adolescents and young adults, with personality factors playing a role in the decision-making process (Balsamo et al., 2013). The present findings highlight some key personality distinctions between students drawn to Australian business and psychology degrees, specifically, students with lower cognitive empathy and higher interpersonal psychopathic traits tend to be drawn to a business discipline over a psychology discipline. Findings provide limited support for the applicability of the attraction and selection components of Schneider's (1987) ASA model in an educational context.

The findings and interpretations made in the present paper may be used to inform teaching practices within Australian business education. For example, findings highlight that newly enrolled business students exhibit lower cognitive empathy than students in psychology, which may provide rationale for educators to over-emphasise the importance of interpersonal relationships in business and incorporate learning opportunities designed to improve student perspective-taking

skills. Future research should explore the impact of additional factors that might influence student academic discipline choice in order to gain a more holistic understanding of the complex interaction of components that influence students' vocational choices and shape their future career pathways.

Chapter 5: Personality Differences and Motivations for Educational Choice in Business and Psychology Students

5.1 Introduction

Many of the choices people make throughout their lives can be viewed as expressions of personality, including choice of academic discipline (Larson et al., 2010). Choice of tertiary field of study is one of considerable importance for young adults and acts as a pre-cursor to future vocational pathways. Prior research suggests that this decision is influenced by multiple factors such as race, gender, socio-economic status, social and family influences, academic ability and personality characteristics (Porter & Umbach, 2006). Further, vocational research suggests that the outcome of this decision has major impacts on students' lives which extend far beyond graduation, affecting occupational choice, income, earning potential, job stability, work productivity, and overall job satisfaction (Humburg, 2017; Porter & Umbach, 2006; Wiswall & Zafar, 2014). The present study examines self-reported personality trait differences between first year business and psychology university students and explores their motivations for selecting into their respective disciplines. Business and psychology represent two of the most popular degrees for undergraduate students (Department of Education and Training [DET], 2018).

5.1.1 Theoretical Underpinnings

Vocational personality theories such as Person-Environment Fit (P-E Fit; Caplan & Harrison, 1993) posit that individuals self-select their environments, such as study and vocational pathways, based on their personality traits and values. According to theories of P-E fit, people will be attracted to environments in which they perceive their personality traits will be considered advantageous and this is thought to vary depending on the unique characteristic demands of a particular environment (Watkins, 1982; Wille et al., 2010). Good P-E Fit at university is preferable at an

individual level as it is associated with increased self-esteem, emotional stability and personality consistency (Roberts & Robins, 2004; Vedel, 2016), and is predictive of psychological wellbeing and student satisfaction (Gilbreath et al., 2011). The benefits of good P-E Fit in university also extends beyond the individual to a societal level as good 'fit' is associated with higher retention rates, which are associated with improved student outcomes and considered economically desirable at an individual and institutional level (Bowles & Brindle, 2017; Vedel, 2016).

The Attraction, Selection and Attrition (ASA) model (Schneider, 1987) builds on the concept of P-E Fit, positing that people's attraction towards particular organisations (and by extension educational environments) is based on unconscious estimates of how well they 'fit', and how closely their personality traits match those of the particular academic culture (Litten et al., 2018; Schneider, 1987). Further, universities will select students whom they believe to be a good 'fit' for a course culture, with those students whose initial 'fit' is poor tending to drop out or change disciplines, resulting in attrition (Balsamo et al., 2012). One recent study, which applied the ASA model to the university sector, found empathy and psychopathic personality trait variation between business and psychology first year students (Litten et al., 2018). This variation provides empirical support for the initial attraction and selection phases of the ASA model (Litten et al., 2018). However, this research focused specifically on empathy and psychopathic traits, rather than general personality traits, such as the big-five factors (Litten et al., 2018). Initial attraction and selection are also influenced by a multitude of other factors extending beyond personality, such as environmental demands and expectations, genetic factors, income, and societal pressures (Porter & Umbach, 2006). Thus, in order to guide students toward an academic discipline which is a good 'fit', vocational and career counsellors need to consider the influence these external factors have on student-discipline fit in conjunction with more traditional personality assessment measures. More expansive research to identify additional variables that may influence academic discipline attraction is therefore warranted.

5.1.2 Personality

A large body of research indicates that pre-existing personality traits are significant predictors for selection into particular academic disciplines (Lounsbury et al., 2009; Porter & Umbach, 2006; Vedel, 2016; Watkins, 1982). The five-factor model is a robust trait model in adult personality and is the most widely accepted conceptualisation of personality in organisational behaviour research (Wille et al., 2010). The big-five personality traits (Extraversion, Agreeableness, Openness,

Emotional Stability, and Conscientiousness) are considered the most basic and fundamental units of individual differences, which can be easily observed in behaviours across time and situation (McAdams & Olson, 2010).

Vedel (2016) conducted a systematic review of big-five personality differences across academic disciplines. Results indicated, with medium - large effect sizes, that psychology students tended to possess higher levels of openness to experience, agreeableness, and neuroticism than business students, who tended to exhibit higher levels of extraversion and conscientiousness. More recent research supports these findings, underscoring the association between highly extraverted students and a preference for law, business or economics disciplines over other fields of tertiary study (Humburg, 2017). Prior research has provided a foundation for exploring how personality trait differences may influence students' attraction toward a particular academic discipline. However, limited research exists on the role other factors might play in academic discipline decision-making (Balsamo et al., 2012).

5.1.3 Other Influences on Academic Discipline Choice

Individual differences can be expressed in terms of personality traits, but also include differences in interests and preferences for particular educational and vocational environments (De Fruyt & Mervielde, 1996). Larson et al. (2010) examined how personality, self-efficacy and interests uniquely and collectively contributed to students' selection of academic discipline. Findings indicated that interests and self-efficacy are more proximal determinants of academic discipline choice than personality traits, stressing the importance to vocational counsellors of not solely relying on measures of personality.

Research has unveiled a number of important factors other than personality which are believed to influence choice of academic discipline including gender, family influences, personal background experiences, interest in the area of study, self-efficacy and perceptions of the profession, such as expected income earning potential and career advancement opportunities (Marrs et al., 2007; Worthington & Higgs, 2003). Past performance and enjoyment of a particular discipline, such as prior high school study in the area, has been found to be predictive of choosing that academic discipline at university (Marrs et al., 2007; Worthington & Higgs, 2003). This may be in part due to students' self-efficacy and aptitude for the discipline, as students are likely to be attracted to a discipline in which they believe they will be academically successful (Porter & Umbach, 2006).

From the limited literature available, the primary influences on students' attraction toward a psychology discipline are considered to be a strong interest in the subject,

enjoying learning about people and holding a belief that an undergraduate psychology degree would provide good preparation for a particular graduate program or professional degree (Marrs et al., 2007). Comparatively, the primary influences on students' attraction toward entering a business discipline have been identified as gender (being male), level of interest in the field, perceptions of the business profession and mode of study (Worthington & Higgs, 2003).

5.1.4 Present Study

The first aim of this study was to determine the predictive value of the big-five personality traits in relation to students being attracted and selected into either a business or psychology degree in an Australian student population. Drawing on previous literature summarised above it was hypothesised that after controlling for student gender, agreeableness and openness to experience would be significant positive predictors of attraction and selection into a psychology discipline, whilst conscientiousness, extraversion and emotional stability would be significant positive predictors of attraction and selection into a business discipline.

To date, research on academic discipline choice has been limited by the use of predominantly quantitative methodology, restricting the ability for in-depth examination of how external factors interact with student personality characteristics to influence academic discipline decision-making (Castro, Kellison, Boyd, & Kopak, 2010). Therefore, the second aim of this study was to explore qualitatively how newly enrolled undergraduate psychology and business students conceptualise the influences that motivated them to study within their chosen discipline, and the personality characteristics they believe will help them be successful in this discipline. By adopting a mixed methods design, the present study expands on previous research by allowing for identification of variances in student personality traits and academic discipline choice which may have been missed or underreported by research utilising a quantitative methodology (Hanson, Creswell, Clark, Petska, & Creswell, 2005). It is anticipated the present findings will assist in expanding knowledge in this area to inform educational and vocational counsellors in their role guiding students toward an academic discipline where there is good fit, maximising the chances of student retention, academic success and student satisfaction (Logue et al., 2007; Vedel et al., 2015).

5.2 Method

The present research adopted a concurrent triangulation design, collecting, analysing and integrating both quantitative and qualitative data (Hanson et al.,

2005). Data was collected concurrently as part of an online questionnaire, analysed separately, and results were integrated during the interpretation of findings and discussion (Hanson et al., 2005). This design allowed for in-depth explanation of factors influencing psychology and business students' choice of academic discipline and provides opportunity for cross-validation of findings across quantitative and qualitative components.

5.2.1 Participants

The final sample of 227 newly enrolled (first five weeks of semester), first year undergraduate business (102 male, 125 female) and 125 psychology students (35 male, 90 female) with a mean age of 20.82 years ($SD = 6.10$) was drawn from four large Australian universities as part of a wider research investigation (Litten et al., 2018) using a stratified sampling scheme. An a-priori power analysis conducted prior to data collection indicated a sample size of 85 participants per group was required for an 80% chance of detecting a moderate association between variables at an alpha-level of .05.

5.2.2 Materials

5.2.2.1 *Ten Item Personality Measure (TIPI; Gosling, Rentfrow & Swann, 2003)*

The TIPI is a brief 10-item self-report measure that captures the big-five personality factors (two items per factor, one for each pole). Items are scored on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree). Adequate convergent validity of the TIPI has been demonstrated with strong correlations (mean $r = .77$) to the original big-five Inventory (BFI; Gosling et al., 2003). It demonstrates strong test-retest reliability for each subscale ($r = .62 - .77$) with an overall mean reliability of $r = .72$ (Gosling et al., 2003). Mean inter-item correlations for each of the TIPI scales in the present sample ranged from .19 to .49, suggesting adequate internal consistency.

5.2.2.2 *Qualitative Survey*

Two open-ended questions explored the students' motivation for choosing their particular academic discipline and their perceptions of personality traits required to be successful in their discipline;

- (1) What kind of personality characteristics do you think you possess which will help you to be successful in your chosen course?
- (2) Why did you choose to study business/psychology?

5.2.3 Data Collection and Procedure

Following Human Research Ethics Approval (HRE2016-0024), participants were recruited via study advertisements on social media, university online communication boards emails sent via coordinating staff of first-year business and psychology compulsory units at four large Western Australian Universities, and a student participation pool at the researcher's home university. Potential participants were invited to complete the brief anonymous online survey. Participant pool students were offered partial course credit and all other students were offered a chance to win one of five \$50 gift cards via lottery.

5.2.3.1 Missing Values

A total of 534 students participated in the study, however responses with incomplete measures (114), and students who were not in the target group (68) were excluded, resulting in a final sample size of 352. Six further cases (1.58%) had missing data. Little's MCAR test was non-significant, indicating the data was missing completely at random, $\chi^2(491) = 461.70, p = .825$. Expectation maximisation was performed to replace the missing values.

5.3 Results

5.3.1 Quantitative Results

A summary of big-five personality trait factor scores by gender for business and psychology students is presented in Table 5.1. Spearman's correlation coefficients and internal consistency coefficients for gender and each of the big five factors are presented in Table 5.2. Agreeableness demonstrated significant positive correlations with openness and conscientiousness. Females reported significantly higher agreeableness, conscientiousness and extraversion, but lower emotional stability than males.

Table 5.1 *Big-Five Means and Standard Deviations for Business and Psychology Students.*

Discipline	Sample	N	A	O	C	ES	E
			M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Business	Male	102	4.51 (1.18)	4.99 (1.12)	5.04 (1.37)	4.96 (1.35)	3.82 (1.36)
	Female	125	4.88 (1.03)	5.17 (1.12)	5.26 (1.32)	4.35 (1.48)	4.54 (1.38)
	Total	227	4.71 (1.11)	5.08 (1.12)	5.16 (1.34)	4.63 (1.45)	4.22 (1.42)
Psychology	Male	35	4.80 (1.12)	5.18 (1.04)	4.30 (1.34)	4.65 (1.64)	4.41 (1.50)

<i>Female</i>	90	5.35 (1.15)	5.33 (1.00)	5.10 (1.32)	4.05 (1.49)	4.10 (1.60)
<i>Total</i>	125	5.20 (1.17)	5.31 (1.00)	4.87 (1.37)	4.22 (1.55)	4.19 (1.75)

Note: A = Agreeableness, O = Openness, C = Conscientiousness, ES = Emotional Stability, E = Extraversion.

Binary logistic regression was conducted in order to determine the likelihood that students would be attracted and selected into either a business or psychology discipline based on their big-five personality factor scores. Gender was controlled for and entered into step 1 of the regression, whilst each of the big-five personality predictors were entered into step 2. The model included one binary dependent variable (student discipline), five primary predictors (Agreeableness, Openness, Conscientiousness, Emotional Stability and Extraversion) and one binary covariate (gender). A test of the full model against a constant only model was statistically significant, indicating that the predictors and gender as a set reliably distinguished between students attracted and selected into a business or psychology degree ($\chi^2(5) = 22.53(5), p < .001$).

Table 5.2 Spearman's Correlation Coefficients and Internal Consistency Coefficients for Gender and the Big-Five Personality Traits

Scale	α	1.	2.	3.	4.	5.	6.
1. Gender			0.22**	0.09	0.12*	- 0.20**	0.11*
2. Agreeableness	0.36			0.24**	0.21**	- 0.01	0.07
3. Openness	0.31				0.05	0.08	0.26**
4. Conscientiousness	0.57					0.24**	0.07
5. Emotional Stability	0.65						0.16**
6. Extraversion	0.60						

Note: Gender: Male = 0; Female = 1. * $p < 0.05$; two-tailed, ** $p < 0.01$; two-tailed.

Nagelkerke's R^2 of .121 indicated a small to moderate relationship between prediction and grouping³. Prediction success overall was 66.2%, with agreeableness and conscientiousness scores and gender explaining significant proportions of unique variance, indicating that females and highly agreeable students were more likely to be attracted and selected into a psychology rather than a business academic discipline. Comparatively, males and highly conscientious students were more likely to be attracted and selected into a business rather than psychology

³ Although Nagelkerke's R^2 is not directly equivalent to OLS R^2 , it does provide an approximation which is widely used (Peng, Lee & Ingersoll, 2002). Nagelkerke's R^2 in logistic regression varies between 0 – 1 and is often interpreted similarly to the R^2 in linear regression (see Field, 2013, p.767 – 768).

academic discipline. Extraversion, emotional stability and openness were not significant predictors of student academic discipline. Results of the hierarchical binary logistic regression are summarised in Table 5.3.

Table 5.3 Summary of Hierarchical Binary Logistic Regression Predicting Academic Discipline from the Big-Five Personality Traits.

Predictors	B	Odds Ratio	95% CI		Wald
			Lower	Upper	
<u>Step 1</u>					
Gender	0.74	2.10**	1.31	3.35	9.55
<u>Step 2</u>					
Gender	0.62	1.85*	1.11	3.08	5.56
Agreeableness	0.39	1.47**	1.18	1.85	11.30
Openness	0.12	1.13	0.90	1.142	1.10
Conscientiousness	-0.23	0.79**	0.66	0.95	6.24
Emotional Stability	-0.10	0.91	0.77	1.07	1.42
Extraversion	-0.06	0.95	0.80	1.12	0.44

Note: Step 1: $R^2 = .03$ (Cox & Snell); $.04$ (Nagelkerke). Step 2: (Hosmer & Lemeshow = $.24$); $R^2 = .08$ (Cox & Snell); $.12$ (Nagelkerke). * $p < 0.05$; ** $p < 0.01$. Psychology = 1; Business = 0.

5.3.2 Qualitative Findings

A directed content analysis (for an overview see Hsieh & Shannon, 2005) of the qualitative data was conducted (NVivo 11) as this allowed for exploration of the transferability of previously developed conceptualisations (personality traits and influences on academic discipline selection) to business and psychology student cohorts. Responses were read, coded, and analysed by student discipline. A randomly selected sample of 10 responses for each question was coded by another member of the research team. Inter-rater reliability was strong for all five personality codes from question 1 ($\kappa = .812$), and all 12 codes from question 2 ($\kappa = .844$). Each response was tagged with the participants ID number, to link the qualitative responses to the quantitative data and participant demographic information in order to allow for integration of findings during the 'mixing' stage.

The big-five personality domains were used as the initial codes for Question 1; 'what personality characteristics do you think you possess that will help you be

successful in your course?. Coding definitions and parameters are provided in Table 5.4. A frequency summary table of the big-five personality factor codes is presented in Table 5.5. The most frequently referenced personality factors for psychology students were agreeableness, conscientiousness and openness. Comparatively, business students most frequently referenced conscientiousness, extraversion and openness. Emotional stability was the least referenced personality factor for both psychology and business students.

Table 5.4 *Coding Definitions and Parameters for Qualitative Question One.*

Big-Five Personality Factors	Coding Descriptors
<i>Agreeableness</i>	Agreeable, kind, co-operative, sympathetic, understanding, trusting, honest, polite, fair, altruistic, empathic, compliant, good listener, respectful, generous, considerate, friendly, accommodating of others, helpful, supportive, flexible, and modest.
<i>Conscientiousness</i>	Conscientious, prepared, organised, structured, attentive to detail, logical, practical, pragmatic, neat, patient, hardworking, driven, dependable, efficient, responsible, and stubborn.
<i>Extraversion</i>	Extraverted, social, assertive, confident, decisive, dominant, strong-willed, self-assured, forceful, enthusiastic, passionate, leader, outgoing, bold, spontaneous, energetic, active, easily approachable, friendly, optimistic and enjoys the company of others.
<i>Openness to Experience</i>	Open to new experiences, intellectually curious, eager to learn, creative, imaginative, quick-witted, perceptive, resourceful, a critical thinker, analytical, innovative, introspective, reflective, emotionally deep, philosophical, and artistic.
<i>Emotional Stability</i>	Emotionally stable, level-headed, cold, impersonal, relaxed, objective, undaunted, independent, easy-going, undemanding, reserved, calm under pressure, restrained, and good impulse control.

Table 5.5 Frequencies of Big-Five Personality Factor Codes and Example Responses from Business and Psychology Students.

Node	Discipline	References (% Cover)	Quote
Agreeableness	<u>Business</u>	58 (13.74%)	<i>"I'm attentive, I listen to other people and understand what they want and evaluate the best way for me to deliver that."</i>
	<u>Psychology</u>	104 (41.43%)	<i>"I am capable of a large degree of empathy, almost too much to be honest. I am able to listen to and hear what people are saying, but also what they are not saying. I've always been a point of support for those around me."</i>
Conscientiousness	<u>Business</u>	120 (28.43%)	<i>"I think being conscientious, determined and goal-motivated helps."</i>
	<u>Psychology</u>	43 (17.13%)	<i>"Organized, disciplined, focused."</i>
Emotional Stability	<u>Business</u>	28 (6.63%)	<i>"I believe I am a very business orientated person who is not easily persuaded and not affected or driven by emotions as others are. I consider myself to be self-assured, cold and calculated; and I believe these personality characteristics will assist me in my chosen course."</i>
	<u>Psychology</u>	20 (7.97%)	<i>"I am emotionally stable and can think through intense situations before reacting to them."</i>
Extraversion	<u>Business</u>	111 (26.30%)	<i>"Leadership skills, people skills, bit of an extrovert, I like working with people, I tend to talk quite a bit. Like to think I'm a good negotiator."</i>
	<u>Psychology</u>	30 (11.95%)	<i>"I am friendly, I am easy to talk to, charming."</i>
Openness	<u>Business</u>	65 (15.40%)	<i>"Someone who likes to be mentally stimulated and is keen to learn new things with an open mind."</i>
	<u>Psychology</u>	39 (15.54%)	<i>"I believe I keep an open mind".</i>

A Chi-Square test of independence was performed to examine whether there was a statistically significant relationship between the big-five personality traits perceived to be important for success and choice of academic discipline. The relation between the variables was significant [$\chi^2(1, N = 352) = 73.41, p < .001$]. A visual inspection of the contingency table (see Table 5.6) indicated that none of the expected frequencies were < 5 . This finding should be interpreted with some caution however, as the column total for Emotional stability was slightly below the generally accepted level of 50.

Table 5.6 Chi-Square Contingency Table for Question 1

	Business	Psychology	Row Totals
<i>Agreeableness</i>	58 (100) [17.73]	104 (62) [28.70]	162
<i>Conscientiousness</i>	120 (101) [3.68]	43 (62) [5.95]	163
<i>Emotional Stability</i>	28 (30) [0.09]	20 (18) [0.15]	48
<i>Extraversion</i>	111 (87) [6.52]	30 (54) [10.56]	141
<i>Openness</i>	65 (64) [0.01]	39 (40) [0.01]	104
Column Totals	382	236	618 (Grand Total)

Note: (Expected frequency); [Chi-Square statistic]

Question 2 asked participants 'why did you choose to study business/psychology?'. Data was initially coded using concepts in the literature on factors which influence student academic discipline choice: previous study in the area, family influences, future job opportunity and earning potential; emergent codes were added through analysis. The final set of codes used for analysis and their definitions are presented in Table 5.7.

Table 5.7 Coding Definitions and Parameters for Qualitative Question Two

Code Name	Description of Code
<i>Interest</i>	Coded when general 'interest', 'passion', 'fascination' or 'curiosity' was stated as a contributing factor to students' choice of academic discipline.
<i>Previous/Current Employment</i>	Coded when either previous employment experiences or a desire to upskill/change current employment position was stated as a contributing factor to students' choice of academic discipline.
<i>Self-Efficacy</i>	Coded when participants indicated that their choice of academic discipline had been influenced by general confidence in their own abilities to succeed within the respective field of study.

<i>Past-Experiences</i>	Coded when responses indicated that some personally meaningful past experience had contributed toward students' choice of academic discipline.
<i>Previous Study</i>	Coded when responses indicated that the choice of academic discipline was motivated by previously studying and enjoying a similar area of study in secondary education.
<i>Expected Income</i>	Coded when responses indicated the decision to pursue either a business or psychology degree was motivated students' perception it would provide opportunities for a lucrative career.
<i>Career Opportunities</i>	Coded when responses indicated the decision to pursue either a business or psychology degree was motivated by a perception that it would provide good job stability and varied career opportunities in the future.
<i>Self-Interest Perceived Gain</i>	Coded when responses indicated that the decision to pursue either a business or psychology degree was motivated by a desire to fulfil an internally driven, self-interested desire/need.
<i>Altruistic Perceived Gain</i>	Coded when students indicated their choice of academic discipline was motivated by a perception the associated profession would provide opportunities for altruistic behaviour.
<i>Family Influence</i>	Coded when responses indicated that the choice of academic discipline had been influenced by family members.
<i>Other External Influence</i>	Coded when students indicated that someone external to their family of origin had contributed toward their choice of academic discipline.
<i>Default Degree</i>	Coded when students indicated their choice of academic discipline was primarily driven by uncertainty about their future vocational direction.

A summary of factors reported by students as influencing discipline choice is presented in Table 5.8. The main factors influencing students' choice of a psychology vocation were interest in the area, altruistic perceived gain, career opportunities, previous study and enjoyment of the field, and previous experiences of personal mental health struggles or supporting others with mental health difficulties. These five factors combined account for 80.59% of all psychology student responses to Question 2. The main factors influencing students' choice of a business pathway included career opportunities following graduation, interest in the field, self-interested perceived gain, confidence/self-efficacy, and family/parental influence. These five factors combined account for 77.26% of all business student responses to Question 2.

Table 5.8 Frequency Summary of Influencing Factor Codes and Example Responses from Business and Psychology Students.

Node	Discipline	References (% Cover)	Example Quote
Previous Study	<u>Business</u>	12 (3.83%)	<i>“Since I have done business in my high school, I am more comfortable pursuing that subject.”</i>
	<u>Psychology</u>	15 (7.46%)	<i>“I was successful when studying Psychology in year 11 and 12 ATAR.”</i>
Previous/Current Employment	<u>Business</u>	10 (3.21%)	<i>“Previously worked within the finance industry for 6 years and chose to complete a degree in finance to progress further within my career.”</i>
	<u>Psychology</u>	2 (0.99%)	<i>“My work as a Teacher demonstrated a need to have skills around counselling and a need to understanding how children are identified with special needs and in turn diagnosed.”</i>
Self-Efficacy	<u>Business</u>	22 (7.02%)	<i>“It sounded like something I could achieve compared to another degree like Engineering, which seems incredibly difficult.”</i>
	<u>Psychology</u>	5 (2.49%)	<i>“I have been told that I am easy to talk to and trustworthy. I feel that this is something I would be good at.”</i>
Past Experiences	<u>Business</u>	0	N/A
	<u>Psychology</u>	15 (7.46%)	<i>“I have been treated by health professionals which have been very poor and lacked hands on knowledge. I think this is due to lack of hands on experience and have purely learnt about human behaviour out of books and educational institutions. In the future I hope to use the knowledge from university study and my own experience to help others.”</i>
Expected Income	<u>Business</u>	9 (2.87%)	<i>“I want to be an Accountant, because it is good money.”</i>
	<u>Psychology</u>	0	N/A
Career Opportunities	<u>Business</u>	103 (32.9%)	<i>“I chose to study business because it is very broad and diverse with a lot of job opportunities in the future.”</i>

	<u>Psychology</u>	20 (9.95%)	<i>"I am aiming to be a psychologist in the future and so this degree is the steppingstone for that."</i>
Self-Interest	<u>Business</u>	38 (12.1%)	<i>"I wanted to make a profession out of what I enjoy."</i>
	<u>Psychology</u>	14 (6.96%)	<i>"To learn more about myself and possibly understand problems that I face."</i>
Altruistic	<u>Business</u>	6 (1.92%)	<i>"I feel that with business I may have an opportunity to make a difference and use it as a way to give back to society."</i>
	<u>Psychology</u>	40 (19.90%)	<i>"I want to help people, so psychology would be a great way to do it."</i>
Interest	<u>Business</u>	63 (20.13%)	<i>"I chose Business Administration because it sounded the most interesting to me compared to other degrees I read about."</i>
	<u>Psychology</u>	72 (35.82%)	<i>"It's an area I have always been interested in and probably should have studied psychology the first time instead of commerce."</i>
Family	<u>Business</u>	16 (5.11%)	<i>"I chose to study business because I come from a business orientated family, which has put pressure on me to succeed on a professional level."</i>
	<u>Psychology</u>	2 (0.99%)	<i>"My older sister is a successful Psychologist and encouraged me to pursue psychology."</i>
Others	<u>Business</u>	6 (1.91%)	<i>"Saw a career person at university and did a test which suggested my degree as a good fit."</i>
	<u>Psychology</u>	4 (1.99%)	<i>"A close friend completed her degree and after speaking to her about it I was sure that this is what I wanted to study."</i>
Default Degree	<u>Business</u>	7 (2.23%)	<i>"Didn't know what else to study and thought business was a good place to start."</i>

Psychology

²
(0.99%)

"I was unsure about what I wanted to do."

A Chi-Square test of independence was performed to examine whether there was a statistically significant relationship between reported influences on academic discipline choice and selecting either a business or psychology degree. The expected frequency for 'Other external influences' was 4, just under the acceptable level. Further, only the 'Interest', 'Career Options' and 'Self-Interest' column totals were above 50. The Chi-Square statistic becomes inaccurate when used to analyse contingency tables that contain less than 50 cases. Another Chi-square test was performed on the variables which had total N's above 50 (Interest, Career Options & Self-Interest). Altruism was also included as the column total only just fell short of the $N > 50$ threshold. The relation between these variables was significant [$\chi^2 (1, N = 352) = 40.78, p < .001$]. The contingency table for this second Chi-Square test is displayed in Table 5.9.

Table 5.9 Chi-Square Contingency Table for Question 2

	Business	Psychology	Row Totals
<i>Interest</i>	63 (80) [3.47]	72 (55) [5.00]	135
<i>Career Options</i>	103 (73) [12.77]	20 (50) [18.37]	123
<i>Self-Interest</i>	38 (30.67) [1.75]	14 (21) [2.52]	52
<i>Altruism</i>	6 (27.13) [16.46]	40 (19) [23.68]	46
Column Totals	210	146	356 (Grand Total)

Note: (Expected frequency); [Chi-Square statistic]

5.3.3 Integration of Findings

The quantitative data was examined in combination with the qualitative responses and was found to be largely complementary, with the exception of extraversion in business students. Extraversion was the lowest big-five factor mean score for business students; however qualitative findings indicate that they reported extraversion as being the second most important personality trait for success in the business world after conscientiousness. A visual display of the integration of quantitative and qualitative findings is presented in Table 5.10.

Table 5.10 *Mean Big-Five Factor Scores and Coding Percentages for Business and Psychology Students*

	Business Students	Psychology Students
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	<i>Coverage</i>	<i>Mean Score</i>	<i>Coverage</i>	<i>Mean Score</i>
Agreeableness	13.74%	4.71	41.43%	5.20
Openness	15.40%	5.08	15.54%	5.31
Conscientiousness	28.43%	5.16	17.13%	4.87
Emotional Stability	6.63%	4.22	7.97%	4.22
Extraversion	26.30%	4.22	11.95%	4.19

5.4 Discussion

The present study adopted a mixed methods approach to examine self-reported personality trait differences between first year business and psychology university students before qualitatively exploring their motivations for selecting into their respective disciplines. After controlling for gender, highly agreeable students were more likely to be attracted and selected into a psychology degree while highly conscientious students were more likely to be attracted and selected into a business discipline. Openness to experience, emotional stability and extraversion were not found to be predictive of student academic discipline.

Qualitative findings indicated the most frequently cited influence on academic discipline choice for business students was future career opportunities, with a third of respondents discussing the reliability of obtaining employment and building a career being the main influencing factor on their decision to pursue a business discipline. Interestingly, future career opportunities had significantly less influence on psychology students' choice of academic discipline. Comparatively, having a strong interest in the area was found to be the most prominent influencing factor for students pursuing a psychology discipline, with over a third of respondents expressing a keen interest for learning about human behaviour and emotion to gain insight into their own and others behaviour. Additionally, psychology students indicated a belief that agreeableness was the most important trait for success in their field, whereas business students reported conscientiousness to be the most important trait associated with success in a business field. The key quantitative and qualitative findings will be discussed further below.

5.4.1 Personality Traits

The present quantitative findings supported previous research in that agreeableness was found to be a significant positive predictor of attraction and

selection into a psychology discipline (medium effect size), whilst conscientiousness was a significant positive predictor of attraction and selection into a business discipline (Humburg, 2017; Logue et al., 2007; Vedel, 2016). However, contrary to previous literature (Vedel, 2016; Watkins, 1982), the findings indicate that extraversion, emotional stability and openness are not predictive of attraction and selection into a business or psychology discipline when personality is examined in isolation using a quantitative methodology. However, integration of the quantitative results with the qualitative data in this study indicated further personality differences between business and psychology students. This suggests that a quantitative measure of the big-five personality factors alone may be too broad to adequately differentiate between business and psychology students' vocational choices.

5.4.1.1 Agreeableness

Qualitative findings indicated that agreeableness was the most frequently referenced personality trait by psychology students. Consistent with previous literature, the present findings suggest that new undergraduate psychology students tend to be highly agreeable and hold a belief that being highly agreeable is necessary for success in the field (Humburg, 2017; Vedel, 2016). This is theoretically consistent with the concept of Person-Environment fit, which posits that people are attracted toward environments in which they perceive their personality traits will be considered advantageous and assist them to succeed (Caplan & Harrison, 1993; Wille et al., 2010).

Comparatively, agreeableness was found to be the second least important big-five personality factor required for success amongst business students. This belief may support a view that highly agreeable people are less likely to succeed in the highly self-interested, competitive world of business. For example, managerial roles often involve making difficult decisions which may have negative implications for subordinates and being highly agreeable may impede on a manager's ability to remain objective (Vedel, 2016).

5.4.1.2 Conscientiousness

Conscientiousness has previously been found to be one of the best predictors of performance across vocational fields, particularly in business (Vedel, 2016). Consistent with this previous research, conscientiousness was found to be a significant predictor of attraction and selection into a business discipline and was the most frequently referenced factor for success by business students. Conscientiousness was the second most frequently referenced personality factor for psychology students, consistent with previous research demonstrating that

conscientiousness is an important predictor of academic achievement and student satisfaction, regardless of academic discipline (Clariana, 2013). These findings reflect the perceived importance of conscientiousness for academic success in general, regardless of academic discipline choice.

5.4.1.3 Emotional Stability

Contrary to previous findings (Lounsbury et al., 2009; Vedel, 2016), emotional stability was not found to be a significant predictor of academic discipline choice in the quantitative analysis. Further, emotional stability was the least referenced personality factor for both psychology and business students, indicating a shared belief that being emotionally stable is relatively unimportant for success in a business or psychology vocation compared to other personality traits. Interestingly, psychology students' responses related to emotional stability were 'stay calm' and 'remain objective', whereas business students described characteristics, such as 'tough', 'unempathetic', 'cold and calculated' and 'independent'. It's possible that the different characteristics reported by these students indicates personality differences at a sub-facet level, which would not be captured in a quantitative measure of the big-five personality factors.

5.4.1.4 Extraversion

The present quantitative findings did not support extraversion as a significant predictor of academic discipline choice between business and psychology students, as argued in recent research (Humburg, 2017; Logue et al., 2007; Vedel, 2016; Watkins, 1982). However, qualitative analysis revealed that extraversion was the most frequently referenced big-five factor by business students after conscientiousness, with more than a quarter of the sample describing themselves as extraverted and believing that this trait will be advantageous in helping them to succeed in the business world. Fewer psychology student responses referenced extraversion or related sub-facets, indicating that being highly extraverted is not considered to be particularly important for succeeding in the field of psychology.

Business students' qualitative extraversion responses included adjectives such as 'leader', with responses strongly highlighting positive outlooks, outgoing personalities and an enjoyment of working in social, competitive, fast paced environments. Comparatively, extraversion responses from psychology students included adjectives such as "passionate", "easy to talk to" and "friendly", which could be considered the 'softer' extraversion traits that may overlap with agreeableness. These findings indicate that psychology students are reporting a different sub-facet of extraversion than those reported by business students.

5.4.1.5 *Openness*

Openness to experience was not found to be a significant positive predictor of academic discipline and was the only big-five factor not significantly associated with student gender. The present findings sit in contrast to conclusions from a recent systematic review, suggesting that psychology students tend to be more open to new experiences than business students (Vedel, 2016). Interestingly, both psychology and business students scored highly on levels of openness compared to other big-five personality factors, and both disciplines referenced openness to experience equally in their qualitative responses. This finding also sits in contrast to previous findings suggesting business students typically score low on this trait (Vedel, 2016). It is possible that this finding reflects a shift in the way prospective students are perceiving the business world; from a traditionally conservative and structured career choice to a more entrepreneurial and fluid perspective with opportunities for more innovation, creativity and flexibility (Kavanagh & Drennan, 2008). Consistent with the ASA model, this change in perception of the business would supposedly then attract students who are more open to new experiences (Schneider, 1987). However, this is only one possible explanation and further replication of this study would be required with larger and equal sized samples to support this conclusion.

5.4.2 *Influencing Factors*

Present findings indicated the main factors influencing students' choice of a psychology vocation were interest in the area, altruistic perceived gain, career opportunities, previous study and enjoyment of the subject, and previous experiences of either personal mental health issues or supporting others with mental health difficulties. These five factors combined accounted for more than 80% of all psychology student responses to the question about why they chose to study psychology. This finding is largely consistent with previous literature that suggests having a strong interest in the subject, enjoying learning about people and holding a belief that an undergraduate psychology degree would provide good preparation for a particular graduate program or professional degree (Marrs et al., 2007). Interest in an area of study can be gauged by considering variables such as past study in the same area (Worthington & Higgs, 2003). Therefore, the present findings indicate that students' previous study and enjoyment of psychology (e.g., in secondary school) instilled an interest in the field which subsequently influenced their decision to pursue the field at a tertiary level.

The main factors influencing students' attraction towards a business discipline were career opportunities following graduation, having an interest in the area, self-interested perceived gain, confidence/self-efficacy, and family/parental influence. The present findings underscore the findings of Worthington and Higgs (2003) who suggest that level of interest, student confidence, earning and job availability following graduation are primary factors influencing initial student attraction towards a business discipline. Business students reported being attracted towards their discipline because they believed it would provide them with a good income and job stability. This is consistent with previous research that suggests students' perceptions of the profession (e.g. future earning potential) plays an important role in choice of academic discipline (Wiswall & Zafar, 2014), and that students will be attracted to the academic discipline which maximises their potential lifetime earnings, given their own personal abilities (Humburg, 2017).

Consistent with previous research, the present findings suggest that female students are significantly more agreeable, conscientious, neurotic and extraverted than male students, regardless of academic discipline (Costa Jr et al., 2001; Vedel et al., 2015). Student gender was also found to be a significant predictor of academic discipline choice, with females being more likely to be attracted and selected into a psychology discipline and males being more likely to be attracted and selected into a business discipline. This finding is consistent with prior literature suggesting women are more likely to demonstrate a preference for social science related disciplines which lead to vocations working with people, such as psychology (Balsamo et al., 2012; Clariana, 2013; Harton & Lyons, 2003; Toto et al., 2015).

5.5 Limitations

The findings and interpretations presented above should be considered in the context of the study's limitations. The present research examined the independent effects of the Big-Five personality traits on academic discipline, empathy, and psychopathic traits. However, as suggested by Carver and Conner-Smith (2010) it is also important to consider the interaction of personality traits in determining behavioural outcomes. For example, Allen, Greenlees, and Jones (2011) found that athletes who were highly extraverted, emotionally stable, and open adopted a problem-focused coping style, whilst highly conscientious, extraverted, open, and agreeable athletes used emotion-focused coping. Therefore, future research might expand on the present findings by examining both independent and interactive effects of the Big-Five personality traits in relation to academic discipline choice.

Although a large body of personality research to date has focused on the broad five factors, each of these factors encompasses six lower-level facets which are associated with their superordinate factor, but largely independent of each other (Vedel et al., 2015). The present findings suggest that these superordinate factors alone are too broad to reliably distinguish between business and psychology students in terms of their vocational choice. Future research might look to replicate the present study by using a more expansive measure than the TIPI that captures the lower-level facets of each superordinate factor. Additionally, the generalisability of the present findings is limited by the relatively small and unequal sample sizes of business and psychology students.

Finally, the present findings provide insight into personality differences and motivations for academic discipline choice in business and psychology students, however, limited comment can be made regarding whether or not these characteristics represent an optimal 'fit' between the student and their respective discipline. Person-Environment fit suggests that people will be attracted towards environments in which they perceive to be a good 'fit', that is they perceive their personality traits will be considered advantageous subsequently maximising their chances of excelling within that environment (Wille et al., 2010). Future research could possibly examine student-discipline 'fit' in business and psychology students by using their personality traits as a predictor of academic success within their disciplines.

5.6 Conclusions

The ASA model (Schneider, 1987) and concept of Person-Environment Fit (Caplan & Harrison, 1993) suggest that students' attraction toward a particular educational environment is based on unconscious estimates of how well they 'fit', with good student-discipline fit associated with psychological wellbeing, student satisfaction and higher rates of retention (Bowles & Brindle, 2017; Gilbreath et al., 2011). The present findings provide support for the attraction and selection components of Schneider's (1987) ASA model, with males and highly conscientious students more likely to be attracted and selected into a business vocation and females and highly agreeable students more likely to be attracted and selected into a psychology discipline. The present study suggests that the choice of pursuing either a business or psychology vocational pathway is influenced in part by the students' assessment of their suitability to the academic environment based on personality factors and also by other factors such as student gender, level of interest in the field, family influences, self-efficacy, and perceptions of the profession

associated with the discipline. The present findings contribute to further in-depth understanding of the complex interplay between personality and external influencing factors on choice of academic discipline and highlight the importance of vocational and career counsellors considering both personality factors and external motivating factors when guiding students toward a vocational pathway which is a good 'fit'.

Chapter 6: The Influence of Academic Discipline on Empathy and Psychopathic Personality Traits in Undergraduate Students

6.1 Abstract

The Attraction, Selection and Attrition (ASA) model posits that people are attracted to organisations that embody similar personality traits and values to their own. These traits are thought to be further shaped by the organisation's culture, ultimately creating a homogenous workforce within the organisation (Schneider, 1987). This research applies the ASA model to investigate whether specific university disciplines have an impact on the development of psychopathic traits and empathy in students. An online survey collected data on levels of psychopathic traits and empathy from 259 psychology and business undergraduate students to examine whether group level variations were present across years and disciplines. Generalised Linear Mixed Modelling analyses supported the hypothesised interaction effects of year of study and discipline for psychopathic traits only. Moderate-large discipline effect sizes were noted, with psychology students reporting significantly higher levels of cognitive ($d = .77$) and total empathy ($d = .74$) than business students. Additionally, business students reported significantly higher levels of affective, antisocial, interpersonal and total psychopathic traits than psychology students ($d = .36 - .45$). Findings provide support for the attraction and selection components of the ASA model. Implications of these findings are discussed in the context of the model and self-selection.

6.2 Introduction

The personality literature has established that external environments play a pivotal role in personality trait development (Roberts et al., 2006). Changes in personality traits tend to be most dramatic during young adulthood; a period of time when many are in university and/or starting a career (Roberts et al., 2006). The

present study investigated the impact university discipline may have on students' personality trait development, situated within Schneider (1987) Attraction, Selection, Attrition theoretical framework.

Schneider's (1987) Attraction, Selection, Attrition (ASA) model posits that people will be attracted to organisations that they perceive as aligning with their own personality traits, values and interests. Organisations will select employees in a similar fashion, resulting in the individual traits of the employee continuing to be accentuated by the organisational environment as well as their unique life experiences. Employees who do not fit the organisation culture over time either resign or are terminated by the organisation, resulting in a homogenous workforce (Schneider, 1987).

The ASA model is underpinned by the self-selection and indoctrination hypotheses. The self-selection hypothesis, congruent with the attraction and selection components of the ASA model, posits that individuals will be attracted to vocational choices that they believe to embody their own personality characteristics. The indoctrination hypothesis, congruent with the final attrition component of the ASA model, suggests that particular vocational environments will influence or enhance the development of personality characteristics which may be advantageous to that environment (Elegido, 2014). Previous literature has found strong support for the self-selection hypothesis however evidence for the indoctrination hypothesis is sparser (Elegido, 2014).

It should be noted however that attraction, selection and attrition are also influenced by genetic factors (see Scarr & McCartney (1983) for an overview of this work), certain environmental demands and expectations such as income and societal pressures. The 'Plasticity Principle', coined by Roberts et al. (2008) posits that personality trait change can also be brought about by repeated exposure to reward and punishment schedules which aim to shape behaviour to align with social roles (Roberts et al., 2008). Workplace environments are capable of influencing personality trait changes due to the operant conditioning of employees via punishment and reward within the workplace environment (Le et al., 2014).

It is a small inferential leap to apply the ASA model to a university setting. For example, Vedel and Thomsen (2017) found that students who were motivated by power, self-interest and financial gain were more likely to enrol in a business degree as this leads to a career which encourages and rewards self-interested behaviour (psychopathic alignment). Comparatively, psychology students reported the highest levels of openness and agreeableness (empathy alignment; Vedel & Thomsen, 2017) which are appropriate for working in this field. Therefore, drawing on the ASA

model, it is proposed that empathic and psychopathic personality traits which initially attract students to a course in psychology or business are the same ones that may be influenced and accentuated as they progress through their degree.

6.2.1 Empathy

The construct of empathy is the single most researched variable in relation to psychotherapeutic processes (Camarano, 2010; Marangoni et al., 1995), with psychologists thought to rely heavily on the emotional ability to exhibit empathy – to cognitively understand another’s perspective, co-experience their emotional state or ideally, both (Camarano, 2010). Additionally, empathy is considered a core component of engaging in ethical and other prosocial behaviours. It is not surprising then to think that psychology training programs might place strong emphasis on improving interpersonal communication skills and empathic understanding (Marangoni et al., 1995).

Business schools are designed to equip students with skills for success in a traditionally competitive field. It has been argued that business degrees often lack an empathic, person centred approach and in-depth focus on moral and ethical behavioural practice (Frank, 2004). The literature yields mixed results on the efficacy of increased empathy for therapists, as well as the extent to which empathy skills training, built into psychology and business courses, is effective in furthering the development of this particular construct (Marangoni et al., 1995; Toto et al., 2015). Therefore, further investigation into the development of empathy in both psychology and business students is warranted.

6.2.2 Psychopathy

A deficit or lack of empathy is associated with antisocial behaviour and is a defining feature of psychopathy (Camarano, 2010). Other features of psychopathy include superficial charm, egocentricity, dishonesty, risk-taking and manipulative behaviour as well as a lack of guilt and remorse, masked by normalcy (Wilson & McCarthy, 2011). Traditionally, psychopathy has been conceptualised as a dyadic and fixed personality disorder used primarily as a psychiatric diagnosis in forensic settings. However, there is a growing body of literature focused on psychopathy within community settings, specifically in the workplace (Wilson & McCarthy, 2011), with research suggesting around 4% of corporate leaders meet the threshold for a psychopathic pathology, considerably higher than the 1% reported prevalence in the general population (Babiak et al., 2010).

This shift in research focus has been accompanied by an updated conceptualisation of the construct which evaluates psychopathy as a collection of

personality traits, existing on a spectrum, displayed in varying levels of severity (Babiak et al., 2010; Boddy, 2015). Further, research suggests that these traits tend to cluster into four unique areas of personality, namely; the interpersonal, affective, antisocial, and lifestyle psychopathy facets (Paulhus et al., 2016). This view of psychopathy is in line with current personality development research, emphasising the role of both genetics and environment, and as such was adopted for the purposes of the present study.

Despite increased interest, research investigating the role of psychopathic traits in the business world remains in its infancy (Babiak et al., 2010; Boddy, 2015), resulting in limited knowledge of the manifestation and longer-term implications these traits may have within this sector. Even sparser literature exists which has examined the development of psychopathic personality traits in business students, a pre-cursor to the business world (Brown et al., 2010; Frank, 2004; Hassall et al., 2015; Vedel & Thomsen, 2017; Wilson & McCarthy, 2011). Two previous studies have directly examined levels of psychopathy in business and psychology students, reporting business students possess higher levels of psychopathic traits than psychology students ($d = .32 - .75$; Hassall et al., 2015; Vedel & Thomsen, 2017). Cross-sectional and longitudinal research is required to understand the influence university courses may have on the further development of empathy and psychopathic traits (Wilson & McCarthy, 2011).

6.2.3 Present Study

The relationship between empathy and psychopathy has produced some mixed findings. Whilst much of the previous forensic literature supports an inverse relationship between psychopathy and empathy, new findings are emerging which suggest that empathy levels tend to be higher in non-incarcerated psychopathic individuals (Mullins-Nelson et al., 2006). For example, Mullins-Nelson et al. (2006) found psychopathy was negatively correlated with affective empathy ($r = -.41$), but not significantly correlated with cognitive empathy, suggesting that psychopathic individuals in the community may possess normative levels of cognitive empathy, allowing them to exhibit adequate social skills to evade detection from the judicial system. These mixed findings highlight the need for further research into the relationship between facet level empathy and psychopathic traits.

Investigation of psychopathic traits and empathy in a university student population would provide valuable information regarding the prevalence of these traits in non-clinical populations and identify possible external perpetuating factors involved in their development. Previous cross-sectional research has established

that different personality types will be attracted to different academic environments, what remains unknown is whether these traits are further developed from exposure to these learning environments. Further, the two previous studies that have directly compared business and psychology students on levels of psychopathic traits used a UK sample of 3rd year students and a Dutch sample of first year students. The present research provides an Australian comparison of these traits and adds to the sparse literature in this area.

Therefore, working within an ASA framework, the present research was the first to examine the influence university course discipline has on the manifestation of psychopathic traits and empathy in business and psychology students. As empathy deficit is considered a core feature of psychopathy and empathy is a possible predictor of selecting a helping profession discipline (Marsh, 1988), it was hypothesised that after controlling for age, gender, and social desirability, year of study and discipline would interact in predicting levels of empathy and psychopathic traits. Specifically, year of study would be negatively related to levels of empathy (cognitive and affective) for business students, but positively related for psychology students; and year of study would be positively related to levels of psychopathic traits (Interpersonal, Antisocial, Affective and Lifestyle facets) for business students, but negatively related for psychology students. Findings can provide insight into the influence university courses may have on the development of these personality traits.

6.3 Method

6.3.1 Participants

The sample comprised 135 (64 = Male, 71 = Female) business and 124 (26 = Male, 98 = Female) psychology undergraduate students from four Australian universities with a mean age of 24 years ($SD = 8.35$). A summary of participant demographics is presented in Table 6.1.

6.3.2 Materials

6.3.2.1 *Self-Report Psychopathy Scale (SRP-4:SF; Paulhus, Neumann & Hare, 2016)*

Psychopathic personality traits were measured using the SRP-4: SF; a 29-item self-report measure designed to emulate the item-to-factor relations in the current gold standard psychopathy measure, the Psychopathy Checklist Revised (PCL-R). Items are scores on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) and yield a total T-score and four 7-item facet (affective, interpersonal, lifestyle and antisocial) T-scores. T-Scores range from 30 (low psychopathy) to 80

(elevated psychopathy). The four-facet model of psychopathy has good fit across community, forensic and student samples and acceptable internal and test-retest reliability and validity (Paulhus et al., 2016). Cronbach's alphas for the total score ($\alpha = .89$) and four facets ($\alpha = .68 - .75$) were acceptable in the present sample.

6.3.2.2 Basic Empathy Scale (BES; Jolliffe & Farrington, 2006)

Empathy was assessed using BES, a 20-item self-report measure of both cognitive and affective empathy, scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with scores ranging from 20 (deficit in empathy) to 100 (high empathy). The BES demonstrates good construct, convergent and divergent validity (Jolliffe & Farrington, 2006) and adequate internal and test-retest reliability (Carré, Stefaniak, et al., 2013) Cronbach's alphas for the facets ($\alpha = .79 - .82$) and total BES score ($\alpha = .86$) were adequate in the present sample.

6.3.2.3 The Social Desirability Scale-17 (SDS-17; Stöber, 2001)

Deception is considered a core psychopathic trait and, as such, the potential for response bias when using self-report psychopathy measures forms a concern (Ray et al., 2013). Findings from a recent meta-analysis suggest that this concern is often exaggerated within community and student samples, however, the potential effect can be statistically controlled for using a measure of social desirability (Ray et al., 2013). The SDS-17 is a brief and valid measure of socially desirable responding, comprised of 16 true or false items with raw scores ranging from 0-16 (Stöber, 2001). The SDS-17 has demonstrated sound internal and test-retest reliability as well as adequate convergent and discriminant validity (Stöber, 2001) Cronbach's alpha for the present sample was .62.

Table 6.1 Participant Demographics (N = 259)

Sample	Covariate	1 st Year (N = 157)	2 nd Year (N = 49)	3 rd Year (N = 53)
Business Students	Female	46	11	14
	Male	50	8	6
	International	23	9	13
	Domestic	73	10	7
Psychology Students	Female	48	24	26
	Male	13	6	7
	International	0	2	3
	Domestic	61	28	30

6.3.3 Procedure

Following Human Research Ethics Committee approval, the study was advertised through social media, university online communication boards, teaching staff, and a psychology student participant pool. Business and psychology undergraduate

students were invited to complete an online survey titled 'Personality Traits in Students' via a password protected link. A chance to win one of five \$50 gift certificates (lottery) was offered to students as incentive for participation. Students in the psychology participant pool were provided with partial course credit. A total of 345 students across three years of undergraduate study were recruited, however, responses with large amounts of missing data (50), students identifying as 'other gender' (2) and students studying both business and psychology (11) were excluded from the final sample for analysis. Missing data for a further six cases (2.17%) in the final sample were replaced using Expectation Maximisation.

6.3.4 Analysis

Data was analysed in SPSS (v. 24) using a series of eight Generalised Linear Mixed Models (GLMMs) to examine the impact of year and discipline on cognitive, affective and total empathy scores and the four psychopathic facets and total psychopathy scores after controlling for age, gender, and social desirability scores. Each GLMM included one nominal random effect (student), one ordinal fixed effect (year of study), one binary fixed effect (student discipline), one binary covariate (gender), two scale covariates (social desirability and age) and the Year x Discipline interaction effect. GLMM assumed a normal probability distribution for each dependent variable and linked it to the predictors with an identity function. The slight negative skew shown by the outcomes was accommodated by the GLMM 'robust statistics' option. A correlation matrix of the covariates and dependent variables is displayed in Table 6.2.

Table 6.2 Correlation Matrix of Dependent Variable Outcomes and Covariates by Discipline (N = 259).

DV	Facet	Age		Gender		Int. Stat		SDS	
		B	P	B	P	B	P	B	P
BES	Cognitive	.02	.10	.08	.17	.30**	-.05	.19*	.17
	Affective	-.05	.01	.28**	.30*	.18*	.10	-.14	-.11
	Total	-.03	.05	.22**	.25**	.27**	.05	.01	-.01
SRP 4:SF	Interpersonal	-.20*	-.15	-.22*	-.24**	-.13	.15	-.29**	-.18*
	Affective	-.14	-.11	-.32**	-.27**	-.14	.11	-.24**	-.14
	Antisocial	-.10	-.19*	-.25**	-.19*	-.30**	.11	-.18	-.05
	Lifestyle	-.07	-.06	-.32**	-.08	-.03	.04	-.21*	-.15
	Total	-.15	-.16	-.33**	-.24**	-.18*	.13	-.26**	-.18*

Note: * correlation is significant at the 0.05 level (2-tailed) ** correlation is significant at the 0.01 level (2-tailed). Int. Status = international student status.

6.4 Results

A correlation matrix of empathy and psychopathic facets and total scores is presented in Table 6.3.

Table 6.3 Spearman's Correlation Matrix for Empathy and Psychopathic Trait Facets.

Scale Facet	BES Affect	BES Cog	BES Total	SRP INT	SRP AFF	SRP ANT	SRP LIF	SRP Total
BES Affect								
BES Cog	.428**							
BES Total	.898**	.771**						
SRP INT	-.286**	-.341**	-.358**					
SRP AFF	-.380**	-.401**	-.452**	.597**				
SRP ANT	-.275**	.322**	-.348**	.433**	.494**			
SRP LIF	-.104	-.153*	-.142*	.477**	.518**	.428**		
SRP Total	-.290**	-.353**	-.368**	.794**	.822**	.673**	.811**	

Note: * correlation is significant at the 0.05 level (2-tailed) ** correlation is significant at the 0.01 level (2-tailed). BES Affect = Affective Empathy, BES Cog = Cognitive Empathy, INT = Interpersonal, AFF = Affective, ANT = Antisocial, LIF = Lifestyle.

6.4.1 Empathy

A summary of the empathy GLMM results is displayed in Table 6.4. The hypothesised Year x Discipline interaction effect was not supported by the cognitive, affective or total empathy GLMM results. The main effect for discipline was significant for all three empathy analyses, indicating that psychology students reported significantly higher levels of cognitive ($d = .77$), affective ($d = 0.51$) and total empathy ($d = .74$) than business students. A plot of the total empathy score and main effects is presented in Figure 6.1.

The other main effect for year of study was not significant for any of the empathy GLMMs. After controlling for all other covariates, gender was significant for affective and total empathy, indicating that females reported higher levels of affective and total empathy than males. Social desirability was significant for cognitive empathy only, with higher SDS scores being associated with higher levels of cognitive empathy. Age was not significant for any of empathy GLMMs.

Table 6.4 Summary of Covariates, Main and Interaction Effects for BES Empathy GLMMs

Facet		Age	Gender	SDS	Discipline	Year	Interaction
COG	F	1.08	3.84	9.62*	26.26**	0.46	0.00
	η_p^2	0.00	0.01	0.04	0.09	0.00	0.00
AFF	F	0.61	19.74**	3.50	6.15*	0.81	0.64

	η_p^2	0.00	0.07	0.01	0.02	0.00	0.00
	F	0.00	16.12**	0.05	16.97**	0.29	0.33
Total	η_p^2	0.00	0.06	0.00	0.06	0.00	0.00

Note: effect size reported as partial-eta squared. * effect is significant at the .05 level. ** effect is significant at the .001 level COG = cognitive, AFF = affective.

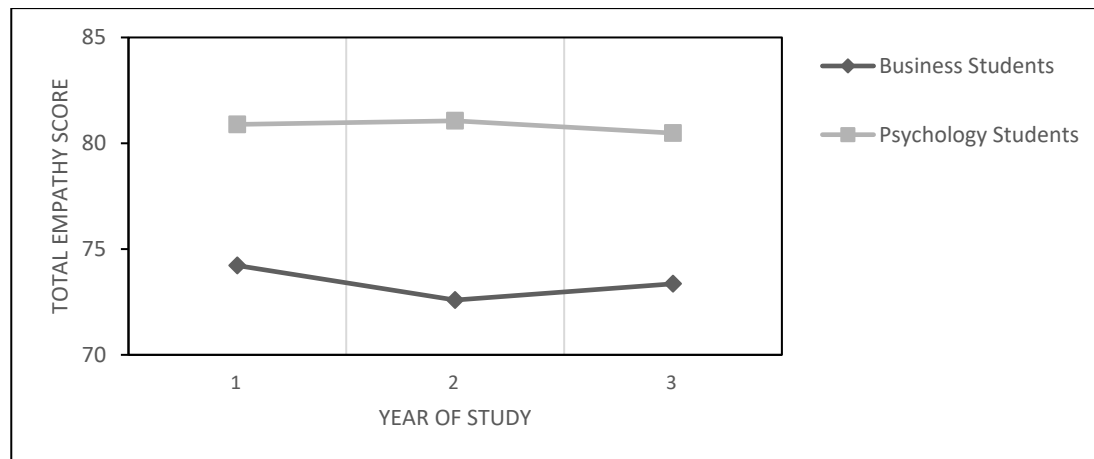


Figure 6.1 Plot of Total Empathy by Year of Study for Business and Psychology Students

6.4.2 Psychopathy

A summary of the SRP facets and SRP total score GLMM results are displayed in Table 6.5. The hypothesised year X discipline interaction effect was significant for psychology students for the lifestyle facet ($p = .028$) and total psychopathy ($p = .030$) scores. The simple main effect was not significant for business students for the lifestyle facet ($p = .573$) or total psychopathy ($p = .345$) scores. The Year x Discipline interaction was non-significant for the affective, interpersonal and antisocial SRP facets. The main effect for student discipline was significant for the interpersonal, affective, antisocial and total SRP GLMMs, indicating that business students reported significantly higher levels of these traits than psychology students. The other main effect for year of study was not significant for any of the SRP facets or total scores. A plot of the total psychopathy score main effects is presented in Figure 6.2.

Table 6.5 Summary of Covariates, Main and Interaction Effect for SRP Psychopathy GLMMs.

Facet		Age	Gender	SDS	Discipline	Year	Interaction
INT	F	9.95*	15.89**	21.80**	9.78*	0.12	2.45
	η_p^2	0.04	0.06	0.08	0.04	0.00	0.01
AFF	F	4.44*	30.42**	15.91**	9.78*	1.02	2.07
	η_p^2	0.02	0.11	0.06	0.04	0.00	0.01
ANT	F	8.49*	13.32**	4.36*	7.72*	0.71	2.03
	η_p^2	0.03	0.05	0.02	0.03	0.00	0.01
LIFE	F	0.60	12.57**	13.55**	3.44	0.94	3.71*
	η_p^2	0.00	0.05	0.05	0.01	0.00	0.01
Total	F	7.92*	27.28**	22.89**	11.39**	0.41	3.75*
	η_p^2	0.03	0.10	0.08	0.04	0.00	0.01

Note: effect size reported as partial-eta squared. * effect is significant at the 0.05 level, ** effect is significant at the .001 level. INT = interpersonal, AFF = affective, ANT = antisocial, LIFE = lifestyle.

Additionally, after controlling for all other covariates, gender was significant for all SRP facets and total SRP score GLMM, with males reporting higher levels of psychopathic traits than females. Age was significant for the total SRP scores and all facets except lifestyle, with higher scores being associated with younger participants. Social desirability was significant for all SRP facets and total scores, with higher SDS scores being associated with lower levels of psychopathic traits.

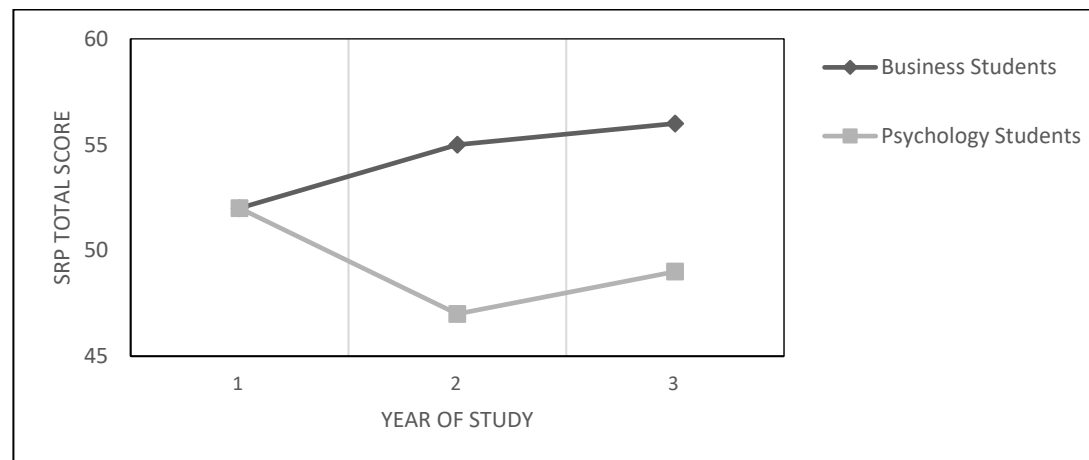


Figure 6.2 Plot of Total Psychopathy Scores by Year of Study for Business and Psychology Students.

6.5 Discussion

The present research aimed to examine the influence university course discipline has on the manifestation of psychopathic traits and empathy in business and psychology students. As empathy deficit is considered a core feature of psychopathy and a possible predictor of selecting a helping profession discipline (Marsh, 1988), it was hypothesised that year of study would be negatively related to levels of empathy (cognitive and affective) for business students, but positively related for psychology students. Findings did not support a year of study and discipline interaction effect for levels of empathy. However, a significant discipline effect was evident, with psychology students reporting higher levels of empathy than business students. It was also hypothesised that year of study would be positively related to levels of psychopathic traits for business students, but negatively related for psychology students. Results supported this hypothesis as a significant year of study and discipline interaction effect was found for the total score as well as the lifestyle facet. However, the other psychopathic trait scores did not support the hypothesised interaction effect. Further, year of study was not significantly related to any of the psychopathy facets or total score, regardless of student discipline. Findings provide insight into the types of personality traits possessed by individuals whom are attracted to business and psychology disciplines and how these courses might influence the development of these traits.

6.5.1 Empathy

A prominent finding was the medium to large discipline effect sizes observed for empathy, with psychology students reporting significantly higher levels of cognitive ($d = .77$), affective ($d = .51$) and total empathy ($d = .74$) than business students. This finding is consistent with the attraction and selection components of the ASA model, as it suggests that students possessing greater empathic ability are attracted to the psychology profession. This finding is also supported by Marsh's (1988) research suggesting that increased empathy may be predictive of selection into the study of a helping profession.

In contrast to findings from Elegido (2014) who suggest that business schools promote more self-interested behaviour in students, the present results did not support the hypothesis that year of study would be negatively related to cognitive, affective or total empathy for business students but positively related for psychology students. This finding does not support the final attrition component of the ASA model and may be reflective of a more recent emphasis on implementing ethical

practice standards in business schools. For example, many universities now adopt an international standard such as Principles of Responsible Management Education (PRME) in order to meet accreditation requirements of ethics learning (Compact, 2007)

Furthermore, consistent with the findings of Toto et al. (2015), year of study was not found to be a significant predictor of cognitive, affective, or total empathy. This could be interpreted as business and psychology courses not having a significant impact on student empathy development, however, further research examining individual differences over time would be required to support this explanation. It is also likely this finding may reflect the scientific and theoretically based nature of psychology undergraduate degrees (Holmes, 2014). Accordingly, whilst students with high levels of empathy may initially self-select into psychology, the undergraduate course content is not focused on developing the professional clinical skills of students. Similarly, business undergraduate courses are not designed to have an impact on empathy. Instead, business school curricula teach an economically based model of human behaviour which minimises the role of human emotionality in business decision making (Elegido, 2014).

Future longitudinal research might explore the individual development of student empathy in business and psychology courses at a post-graduate level, when students are engaging in more experiential learning such as fieldwork placements (Elegido, 2014; Holmes, 2014). For example, psychology post-graduate courses aim to prepare students for engaging in psychological practice through clinical placements whilst business post-graduate courses promote student engagement in organisational internships. It is plausible that greater importance would be placed on displays of empathic behaviour and interpersonal skill building during these activities (Marangoni et al., 1995).

Present findings should be interpreted in the context of known factors of empathy variation. The results supported previously established gender differences in empathy (Jolliffe & Farrington, 2006; Konrath et al., 2011), finding medium-large effect sizes for affective, cognitive and total empathy scores, with females reporting significantly higher levels than males. Prior research has also suggested that older individuals display greater empathy than younger individuals (Toto et al., 2015) however, the present research found no significant age effects for empathy; possibly due to the restricted age range of the university student sample.

6.5.2 Psychopathy

Findings provide mixed support for the hypothesised year of study x discipline interaction, with a significant interaction evident for the total psychopathy score, however at a facet level; only the lifestyle facet interaction effect was significant. Within the total score and lifestyle facet, year of study was significant for psychology students, but not for business students. This suggests there was a significant decrease in lifestyle psychopathic traits across years of study for psychology students, but no significant change across years of study for business students. The significant interaction effect noted for the total psychopathy scores provides some support for the attrition component of the ASA model and indoctrination hypothesis and allows for some speculation around the influence student discipline choice has on the development of empathy and psychopathic traits of students. However, it is important to note that due to the limited sample size and unequal distribution of students across years of study, these findings would need to be replicated in a larger sample than that of the present study.

The findings supported significant discipline effects, with business students reporting higher levels across the interpersonal, antisocial and affective facets as well as the total SRP score (medium effect sizes) than psychology students. This finding is consistent with previous research (Hassall et al., 2015; Vedel & Thomsen, 2017; Wilson & McCarthy, 2011). Vedel and Thomsen (2017) suggest the differences between business and psychology students are representative of differing motivations for self-selection into the disciplines. For example, students motivated by self-interest, power and financial gain (psychopathic alignment) may be more likely to enrol into a business degree. Vedel and Thomsen's (2017) conclusions and the present findings can therefore be considered consistent with the initial attraction and selection components of the ASA model (Schneider, 1987).

Year of study was not significant for any of the SRP facets or total score, indicating that these traits did not significantly differ across years of study for either discipline. Interestingly, findings were consistent with the previously established negative correlation between age and psychopathy (Paulhus et al., 2016, p. 79). Significant age effects were noted for the total psychopathy score as well as all facets except lifestyle, indicating that as a student ages, levels of these traits tend to decline as part of normal development. It is also possible that as students' progress through their degree, levels of psychopathic traits decrease due to increased group work in order to succeed academically (Hassall et al., 2015). Business schools may also be more responsive today with greater moral and ethical behaviour practice

applied in their curriculum (Frank, 2004). Given the increasing research on theoretical approaches to conceptualising psychopathy, future research might be directed at further exploring these facet level psychopathic trait variations across academic majors in a larger population and their implications for academic success.

In addition to age, psychopathy findings should be considered in the context of previously identified covariates such as gender. Regardless of student discipline, males possessed higher levels of psychopathic traits than females ($d = .74$), consistent with well-established gender differences within the literature and in the initial validation of the SRP 4:SF measure (Paulhus, et al., 2016, p. 79; Vedel & Thomson, 2017).

6.6 Limitations

The magnitude of the present findings should not be over interpreted, and interpretations must be considered in the context of several limitations. First, as the research adopted a cross-sectional design which examined group differences over years of study, it is possible the findings are subject to cohort bias. Longitudinal research examining individual differences over time in this population is required to reliably examine all three components of the ASA framework and assess the impact course of study has on individual student empathy and psychopathic trait development. This study was also limited by the small and unequal sample size distributions across each year of study for both discipline groups, reducing the likelihood of finding a significant interaction effect between discipline and year of study which could be generalisable to a wider population.

6.7 Conclusions

Notwithstanding the limitations, this research provides support for the attraction and selection components of Schneider's (1987) ASA model, and the self-selection hypothesis. Results suggest that students who possess higher levels of empathy and lower levels of psychopathic traits tend to be more likely to self-select into studying a psychology degree, whilst students with lower levels of empathy and higher levels of psychopathic traits tend to be more likely to self-select into a business degree. Findings also suggest that years of study within a discipline may have an impact on the development of student empathy and psychopathic traits, supporting the indoctrination hypothesis. However, little comment can be made on the extent to which findings support the attrition component of the ASA model as further longitudinal research with a larger sample size is required to determine

individual trait development through the course of study. The present study provides an encouraging platform for such future research.

Chapter 7: The Influence of Business and Psychology Schools on Student Self-Perception, Empathy and Psychopathic Personality Traits.

7.1 Introduction

Life experiences and external environments, including career and study pathways, are known to play an important role in personality development, particularly during young adulthood, when these changes are often the most dramatic (Le et al., 2014; Roberts et al., 2017). Previous sociological, organisational and personality literature has provided strong evidence to suggest individuals possess a tendency to seek out environments they perceive to best align with their personality, a phenomenon coined self-selection or 'attraction' processes (Chan, 2005; Roberts & Nickel, 2017; Schneider, 1987). Therefore, the present longitudinal study sought to explore the influence of business and psychology educational environments on the development of student empathy and psychopathic personality traits over a one-year period. Additionally, as students' perception of themselves and their environment is associated with subsequent behaviour and, therefore, personality development, the present study sought to qualitatively examine students' reported changes in their perception of their discipline and of themselves, during the length of enrolment in their degree.

Previous higher education research findings support the existence of significant personality variance between cohorts of different academic disciplines (for a review see Vedel, 2015). However, the previous research using student samples has primarily consisted of comparative studies, which often do not specify what year of study students are in at the time of data collection (Porter & Umbach, 2006; Roberts & Robins, 2004; Vedel & Thomsen, 2017). Subsequently, there has been limited ability to distinguish whether the observed personality differences are the result of attraction processes driven by pre-existing personality characteristics, or whether they develop over time as a result of students' exposure to the unique educational

environment of their chosen discipline (socialisation effects), or possibly both. Therefore, in order to explore the possible impact of educational environment on personality development, the present study examined the development of empathy and psychopathic traits in students from two of the most popular undergraduate degrees, business and psychology, over a one-year period (Department of Education and Training [DET], 2018).

7.1.1 Theoretical Underpinnings

Social psychology emphasises the role that situational demands of an environment play in human behaviour (De Cooman et al., 2009). Alternatively, personality psychology stresses the agency of people and individual differences in explaining human behaviour (Schneider, 2001). The Attraction, Selection, Attrition (ASA) model is a theoretical framework of organisational functioning which encompasses elements of both social and personality psychology (Schneider, 1987). The initial attraction component of the ASA model embodies self-selection theory, which posits that individuals' attraction towards organisations is based on unconscious estimates of their 'fit', or how closely aligned their personality characteristics are with that of the organisation's pre-existing culture (Chan, 2005; Schneider, 1987). Organisations then conduct selection processes to ensure they hire employees who are a good fit to their pre-existing work culture (selection); and finally, the attrition component of the ASA model suggests that over time, any individuals who turn out to have poor 'fit' with the organisation will leave, either by resignation or dismissal (Schneider, 1987, 2001).

Central to the ASA model is the hypothesis that organisational culture will become increasingly homogenous over time through this attraction, selection and attrition cycle. Schneider et al. (1998) speculated that homogeneity of personality characteristics within organisations is undesirable as it limits opportunities for growth and breeds rigidity. Previous support for the homogeneity hypothesis has suggested that organisational membership accounts for nearly a quarter of variance in personality characteristics (Schneider et al., 1998).

Schneider and colleagues (1998) speculated that homogeneity of personality characteristics could be attributed to the person-based processes encapsulated within the ASA model. It is possible homogeneity of personality within organisations is influenced by ASA processes in combination with socialisation processes designed to increase new employees' 'fit' with the organisational culture (De Cooman et al., 2009; Schneider et al., 1998; Slaughter et al., 2005). For example, findings from (Le et al., 2014) suggested that specific personality traits associated

with particular work environments were strengthened over time through socialisation processes occurring as a result of exposure to the environment.

It is possible that a combination of attrition and socialisation effects are responsible for increased personality homogeneity within groups over time. For example, De Cooman et al. (2009) integrated socialisation theory with the ASA framework in order to examine how well employees' values fit with those of their organisation over a two-year period. Their findings noted increased homogeneity amongst employees' work values and their perception of 'fit' with the organisation over time. They concluded that after attraction to and selection by an organisation, individuals enter the workforce with a certain perception of their fit; socialisation practices in the environment then serve to enhance fit, however if employees' initial fit was low, post-hire attrition is more likely (De Cooman et al., 2009). It is becoming increasingly evident that in order to holistically understand intrapersonal personality variation and change, personality development must be conceptualised as a series of behavioural transactions between the individual and their social environment (Giordano, 2017).

7.1.2 Personality as a Process

A meta-analysis of 92 longitudinal studies investigating personality development across the lifespan provides compelling evidence to suggest personality is more fluid than initially theorised (Roberts et al., 2006). Mean-level changes in personality occur most noticeably between the ages of 20 – 40 years, with individuals becoming more extraverted, conscientious and emotionally stable (Hudson et al., 2012; Roberts et al., 2003; Roberts et al., 2006). It is likely that this phase of adulthood is associated with the most drastic changes in personality as it is the developmental period when individuals generally transition from formal education to tertiary study and are faced with deciding on their future vocational pathway (Roberts et al., 2006).

Roberts et al. (2003) suggest that individuals are capable of both stability and change, dependent on social roles, identities and life experiences. For example, changes in personality occur when one encounters new situations but finds that previous behavioural responses are no longer functional or appropriate. Additionally, personality change is more likely when there are strong external pressures to behave in a particular way (e.g. adopt group norms/roles). For example, the 'Plasticity Principle' (Roberts et al., 2008), posits that personality change can be brought about by repeated exposure to reward and punishment schedules aimed at shaping behaviour to align with social roles. Indeed, a prominent belief amongst sociologists is that workplace environments can influence the personality

development of employees via operant conditioning techniques in order to improve fit with the organisational culture (Le et al., 2014). The process of socialisation is therefore understood as a tactic employed by an organisation or institution that is designed to encourage the adoption of group norms, values and beliefs.

7.1.3 Personality and Academic Discipline

A large body of research indicates that pre-existing personality traits are significant predictors for attraction to and selection into particular academic disciplines, theoretically supporting the processes of attraction and selection (Lounsbury et al., 2009; Porter & Umbach, 2006; Vedel, 2016; Watkins, 1982). For example, Vedel (2016) conducted a systematic review of big five personality differences across academic disciplines. Results indicated, with medium - large effect sizes, that psychology students tended to possess higher levels of openness to experience, agreeableness, and neuroticism than business students, who tended to exhibit higher levels of extraversion and conscientiousness.

Although the ASA model has primarily been applied in organisational research, it is not unreasonable to speculate similar processes may take place prior to this, such as in higher education. For example, most university disciplines outline a set of desired 'graduate attributes' which encompass the skills, understanding, knowledge and personal qualities that educational institutions aim to develop in their students via socialisation processes embedded in the educational experience (Cranney et al., 2009). Applied to a higher education context, this integrated theoretical approach suggests the unique educational environment created by different academic disciplines will inevitably aid in shaping the personality characteristics of the students within them to improve fit with the environment/discipline. Theoretically, over time or the duration of study, such influence combined with attrition of students whose initial fit was poor may result in homogenous cohorts of graduates entering the workforce, restricting potential opportunities for diversity and innovation (Slaughter et al., 2005).

A recent study provided partial support for the applicability of the ASA framework in higher education, with significant empathy and psychopathic personality trait variation found between business and psychology first year undergraduate students (Litten et al., 2018). The cross-sectional study provided support for the initial attraction and selection components of the ASA model; however, the study was limited by cohort bias and so any comments on potential socialisation effects were speculative at best. The present study builds on and expands previous research by examining the influence of academic discipline on student perceptions and

personality development longitudinally. Specifically, the influence of business and psychology undergraduate learning environments on the development of student empathy and psychopathic personality traits was explored.

7.1.4 Empathy and Psychology

There has been much debate over the conceptualisation of empathy (see Camarano, 2010 for a review), however one characteristic that is agreed on is that empathy involves both an affective component and a cognitive component. In this two-factor model of empathy, cognitive empathy encompasses the cognitive ability to understand others' perspectives and respond appropriately and is involved in skills such as reflective listening and empathic questioning (Toto et al., 2015). Affective empathy involves the emotional side of empathy, or an individual's ability to experience compassion, empathic concern, and warmth for others (Toto et al., 2015).

Empathy is considered a core counselling skill, and psychology training programs subsequently emphasise the importance of empathy in their teachings and provide optimal opportunity for activities aimed at improving interpersonal communication skills and empathic understanding (Lyons & Hazier, 2002; Marangoni et al., 1995). Previous research also suggests that naturally highly empathic individuals are more likely to be attracted to and selected into a psychology degree, consistent with the attraction and selection principles of the ASA model (Litten et al., 2018; Toto et al., 2015). According to socialisation theory and the corresponsive principle, repeated exposure to a learning environment which promotes care and compassion for others' needs will theoretically enhance student empathy over time. For example, findings from a systematic review on interventions designed to improve medical students' empathy indicate that it can be enhanced through the use of particular interventions implemented within the educational environment (Kelm et al., 2014).

7.1.5 Empathy and Business

Empathy is considered a key component in ethical decision-making, effective leadership and other prosocial behaviours (Brown et al., 2010; Elegido, 2014; Konrath et al., 2011). Business education has been heavily criticised in the past for disregarding the role of emotions in decision-making and adopting a narrow disciplinary approach to teaching which endorses values of power and achievement (Arieli et al., 2016; Elegido, 2014; Marques, 2019). Subsequent concerns have been raised regarding business students' lack of empathy (Petersen & Ford, 2018). Indeed, previous research indicates that business students are significantly less empathic, less cooperative, and more likely to engage in unethical behaviour than

students from other academic disciplines (Brown et al., 2010; Frank, 2004; Litten et al., 2018).

A particularly notable finding from the research was the progressive tendency toward cooperation noted in non-finance disciplines as students approached the final year of their degree (Frank, 2004). This pattern was not observed in finance students, suggesting that unethical behaviour is a result of the educational experience of the individual student combined with the ideology implicit to the course subject matter (Frank, 2004). This provides support for the impact of socialisation processes on student personality development.

Traditionally, business education tends to emphasise self-interest, achievement, success and financial gain, and promotes an economically based model of human behaviour (Elegido, 2014; Gudmundsson & Southey, 2011; Marques, 2019). Whilst this pedagogy may be logical, it is possible that it also instils a view in students that empathy has little relevance to rational decision-making and the corporate arena (Brown et al., 2010; Elegido, 2014). Comparatively, psychology education tends to promote altruistic behaviour, compassion, care and concern for others, potentially even at the cost of one's self-interest, to the extent that burnout may occur (Kelm et al., 2014).

Empathy is thought to play an important role in both the corporate world and applied psychology, however when the two disciplines are compared, previous findings suggest that psychology students are significantly more empathic than business students, who tend to possess higher levels of psychopathic traits (Hassall et al., 2015). Deficits in empathy have traditionally been considered a key component of the psychopathic personality (Hare & Neumann, 2008). However, community-based research has recognised that empathy and psychopathy are not unitary constructs (Babiak et al., 2010). Previous findings suggest the possibility of unique facet level associations between empathy and psychopathy. For example, Mullins-Nelson et al. (2006) found that affective empathy was significantly negatively associated with psychopathy ($r = -0.40$), but cognitive empathy was unrelated, suggesting that psychopathic individuals in the community may possess normative levels of cognitive empathy, allowing them to exhibit adequate social skills to evade detection from the judicial system. Further exploration of the relationship between student empathy and psychopathic traits at a facet level may offer insight into these differences.

7.1.6 Psychopathy and Business

A lack or deficit of empathy is commonly considered a core feature of psychopathy, along with risk-taking behaviour, manipulativeness, egocentricity, and superficial charm. Once viewed strictly as a unitary and fixed personality disorder prevalent in forensic settings (Hare et al., 1990), there has been a growing body of literature focused on the manifestation of psychopathy within the corporate world (Boddy, 2015; Boddy & Croft, 2016). It has been estimated that the prevalence of psychopathy within business professions is significantly higher than that of the general population (Babiak et al., 2010).

Previous forensic research on psychopathy adopted a two-factor model to differentiate between the interpersonal and affective (Factor 1) and behavioural (Factor 2) characteristics of the construct (Hare et al., 1990). However, research with community samples posits that psychopathy can be conceptualised as a collection of personality traits present within a normative population in varying levels of severity; which cluster into four unique domains, giving rise to the four facet (Affective, Interpersonal, Lifestyle and Antisocial) model adopted in the present research (Paulhus et al., 2016).

Organisational research suggests that some particular psychopathic traits may be useful adaptations for success in the business world. For example, it has been suggested that individuals with elevated psychopathic traits often succeed in organisational environments which require rational and emotionless behaviour, consistent focus on achievement, and a willingness to take risks (O'Boyle Jr et al., 2012). There has been comparatively little research exploring the manifestation and expression of psychopathic personality traits in business school students, despite educational environments acting as a pre-cursor to a future career pathway. From the sparse literature available, findings indicate that business school students possess higher levels of psychopathic traits than students in other academic disciplines (Hassall et al., 2015; Krick et al., 2016; Litten et al., 2018; Vedel & Thomsen, 2017; Westerman et al., 2012).

Even less published research is available on factors which influence the development and expression of specific psychopathic traits. Recently, Litten et al. (2018) suggested that business students exhibit higher levels of interpersonal, antisocial and affective psychopathy than psychology students. Additionally, these findings noted that based on cross-sectional data, psychopathic traits decreased in psychology students along the course of their studies, providing tentative support for attrition and socialisation processes in educational environments (Litten et al.,

2018). Only two other published studies have directly focused on examining psychopathic personality traits in business and psychology students, with findings suggesting business students in general tend to exhibit significantly lower empathy and higher psychopathic traits than psychology students (Hassall et al., 2015; Vedel & Thomsen, 2017). However, a limitation of previous research on psychopathic personality development in students is the employment of cross-sectional study methodology, which fails to shed light on whether these variations are the result of selection or socialisation processes, or a combination of both. In order to accurately examine the influence of educational environment on the development of student empathy and psychopathic traits, longitudinal research is required.

7.1.7 Present Study

Previous cross-sectional research has yielded strong evidence for significant individual differences between students of different discipline cohorts. However, these studies are subject to cohort bias, limiting examination of individual level changes. Therefore, the present longitudinal study sought to explore the influence of business and psychology educational environments on the development of student empathy and psychopathic personality traits over a one-year period. Specifically, it was hypothesised that length of enrolment would be a significant negative predictor of empathy (cognitive and affective) for business students, but a significant positive predictor for psychology students. It was also hypothesised that length of enrolment would be a significant positive predictor of psychopathic traits (interpersonal, affective, lifestyle and antisocial) for business students, but a significant negative predictor for psychology students. Additionally, as students' perception of themselves and their environment is associated with subsequent behaviour and therefore personality development, the present study also sought to qualitatively examine students' reported changes in their perception of their discipline and of themselves, during the length of enrolment in their degree.

7.2 Method

7.2.1 Participants and Procedure

Participants consisted of a sub-sample of students who previously participated in Study One and agreed to be contacted one year after completing the initial questionnaire to participate in the follow-up survey. The original sample was drawn from across four large Australian universities via advertisements on social media (e.g., Facebook), online communication boards, teaching staff and a psychology student participation pool. Advertisements informed participants of the voluntary,

confidential questionnaire and invited them to click a weblink to complete the online questionnaire. An opportunity to win one of five \$50 gift certificates via lottery was offered for participation. Psychology students in the participant pool were offered partial course credit for their participation in the study.

A total of 602 participants completed the first questionnaire in Study One. Of these, 518 participants consented to being contacted again in 12 months' time to complete the second questionnaire. Subsequently, recruitment emails were sent to participants who had consented to participate in the second questionnaire and provided a valid email address ($N = 506$). Of the 506 follow-up emails sent, eight were returned as undeliverable, leaving a total of 498 potentially valid responses. Participants were invited to click on the weblink in the email and complete the second questionnaire online. Another chance to win one of five \$50 gift certificates via lottery was offered for participation. A total of 209 T2 responses were received, with 163 able to be matched to the corresponding T1 response. Responses with large amounts of missing data (4), and students studying both business and psychology (3) were excluded from further quantitative analysis, leaving a final sample of 156 (47 Male, 109 Female) with a mean age of 23.61 years ($SD = 7.95$).

To assess possible attrition effects and examine whether the characteristics of respondents and non-respondents significantly differed with regard to, empathy, psychopathic traits and demographic variables, independent sample t-tests were conducted between participants who completed T1 and T2 ($N = 159$) and those who only completed T1 with sufficient data for comparison ($N = 316$), using a conservative adjusted alpha of .01 for multiple comparisons. Results indicated (with small effect sizes) significant differences between respondents and non-respondents on several variables including, the erratic lifestyle and antisocial facet, factor two and total psychopathy scores, with non-respondents reporting higher levels than respondents. Additionally, findings indicated that respondents were significantly older than non-respondents, on average. A summary of findings and measure of effect size (Cohen's d) is presented below in Table 7.1. The final sample included 69 business students and 87 psychology students. An a-priori power analysis conducted prior to data collection indicated a sample size of 87 participants was required for an 80% chance of detecting a moderate association between variables at an alpha-level of .05.

Table 7.1 *Empathy, Psychopathy and Demographic Differences for Respondents and Non-Respondents.*

	T1 & T2 Respondents (N = 159)		Non-Respondents (N = 316)		<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	23.55	7.89	21.43	6.31	0.30**
Extraversion	8.34	3.12	8.65	2.91	0.10
Agreeableness	10.09	2.32	9.77	2.29	0.14
Conscientiousness	10.31	2.78	9.98	2.77	0.12
Emotional Stability	8.73	3.22	8.91	2.96	0.05
Openness	9.96	2.18	10.34	2.21	0.17
SRP Interpersonal	14.59	4.94	15.26	5.15	0.13
SRP Affective	13.00	4.48	13.78	4.95	0.16
SRP Lifestyle	15.72	5.17	17.06	5.28	0.25**
SRP Antisocial	10.20	3.56	11.14	4.13	0.24**
SRP Factor 1	27.59	8.76	29.03	9.36	0.15*
SRP Factor 2	25.92	7.31	28.21	7.84	0.30**
SRP Total Score	53.51	14.57	57.23	15.66	0.24**
Social Desirability	9.44	2.90	9.44	2.90	0.01
Cognitive Empathy	37.94	4.57	37.21	4.89	0.15
Affective Empathy	41.09	7.09	39.91	7.37	0.16
Total Empathy	79.03	9.66	77.13	10.51	0.18*

Note: * $p < .05$, ** $p < .01$ (corrected for multiple comparisons)

7.2.2 Materials

Trait psychopathy was measured with the Hare Self-Report Psychopathy Scale 4-Short Form (SRP-4SF; Paulhus, Neumann & Hare, 2016). The SRP-4SF is a 29-item measure that yields a total score, two factor (Factor 1 & Factor 2) scores, and four 7-item facet (Affective, Interpersonal, Antisocial and Lifestyle) scores. Participants respond to items on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), with T-scores ranging from 30 (low psychopathy) to 80 (elevated psychopathy). The four-facet model of psychopathy has been supported across community, forensic and student samples with acceptable internal and test-retest reliability (Paulhus et al., 2016).

Empathy was measured using the Basic Empathy Scale (BES; Jolliffe and Farrington, 2006), a 20-item self-report inventory with a total score and two factor subscales; cognitive and affective empathy. Cognitive empathy is comprised of nine items (e.g., “I can often understand how people are feeling even before they tell me”) and affective empathy is comprised of 11 items (e.g., “I tend to feel scared

when I am with friends who are afraid”). Participants respond to each item on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree), with scores ranging from 20 (deficit in empathy) to 100 (high empathy). The BES has been found to have adequate internal and test-retest reliability (Carré, Stefaniak, et al., 2013).

As deception has been previously noted as a core psychopathic trait, there is potential for response bias to occur when using self-report psychopathy measures (Ray et al., 2013). This risk was mitigated in the present study by using a brief and valid measure of socially desirable responding – the Social Desirability Scale-17 (SDS-17; Stöber, 2001). The SDS-17 consists of 16 items (e.g., “I occasionally speak badly of others behind their back”) which participants respond to with either ‘true’ or ‘false’.

Two open-ended questions were also included to explore observed changes in students’ perception of their discipline or themselves as a result of their educational experience;

- (1) Over the last 12 months, how has your perception of this discipline changed, if at all?
- (2) How do you think you’ve changed, if at all, as a result of this course?

7.3 Quantitative Analysis and Results

A correlation matrix of the covariates, dependent variables and internal consistency coefficients is displayed in Table 7.2. Empathy and psychopathic trait descriptives for the total sample and by student discipline is displayed in Table 7.3. In order to examine the influence of business and psychology educational environments on the development of student empathy and psychopathic traits, quantitative data was analysed in SPSS (v. 24) using a series of Generalised Linear Mixed Models (GLMM). Each GLMM included one nominal random effect (student), two binary fixed effects (time of enrolment and student discipline), one binary covariate (gender), two scale covariates (social desirability and age) and the Time x Discipline interaction effect. GLMM assumed a normal probability distribution for each dependent variable and linked it to the predictors with an identity function. The conventional per-test alpha level of 0.5 was corrected to 0.1 in order to control for any familywise error rate inflation.

Table 7.2 Spearman's Correlation Coefficients and Internal Consistency Coefficients between Academic Discipline, Age, Gender, Social Desirability, Empathy and Psychopathy Facets.

	α	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Discipline			.35**	.31**	-.09	.28**	.23**	.30**	-.19**	-.23**	-.06	-.04	-.18**
2. Gender				.10	.08	.22**	.41**	.41**	-.35**	-.45**	-.12*	-.25**	-.37**
3. Age					.07	.18**	.09	.15**	-.02	-.06	-.04	-.06	-.05
4. SDS						.17*	-0.9	.02	.27**	-.21**	-.29**	-.15	-.29**
5. Cognitive Empathy	.76						.37**	.73**	-.28**	-.29**	-.05	-.19**	-.26**
6. Affective Empathy	.85							.88**	-.32**	-.47**	-.10	-.24**	-.34**
7. Total Empathy	.86								-.36**	-.48**	-.10	-.27**	-.37**
8. Interpersonal Psychopathy	.81									.71**	.48**	.40**	.85**
9. Affective Psychopathy	.68										.49**	.44**	.85**
10. Lifestyle Psychopathy	.77											.39**	.77**
11. Antisocial Psychopathy	.68												.61**
12. Total Psychopathy	.88												

Note: * = $p < .05$; ** = $p < .01$. Discipline: Business = 0, Psychology = 1. Gender: Male = 0, Female = 1. SDS = Social Desirability Scale.

Table 7.3 Age, Social Desirability, Empathy and Psychopathy Descriptives for the Total Sample and by Business and Psychology Cohorts.

	Total T1		Total T2		Business T1		Business T2		Psychology T1		Psychology T2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	23.61	7.95	24.60	7.76	20.74	4.58	21.84	4.59	25.89	9.24	26.74	8.97
SDS	9.44	2.90	9.20	3.10	10.01	2.95	9.96	3.16	9.00	2.80	8.61	2.93
Cognitive Empathy	38.07	4.51	38.26	4.34	36.54	4.65	37.07	4.53	39.29	4.02	39.18	3.99
Affective Empathy	41.11	7.24	41.31	7.45	39.06	8.07	39.40	8.22	42.74	6.07	42.80	6.47
Total Empathy	79.18	9.76	79.58	9.94	75.59	10.88	76.47	10.60	82.02	7.73	81.98	8.73
SRP Interpersonal	50.12	9.89	49.72	10.58	52.88	10.72	51.37	10.87	47.92	8.63	48.45	10.23
SRP Affective	48.28	9.74	48.54	10.18	51.13	10.23	51.15	10.83	46.02	8.76	46.53	9.21
SRP Lifestyle	49.73	10.44	48.77	10.73	50.80	10.48	48.91	10.42	48.89	10.40	48.66	11.02
SRP Antisocial	47.44	7.93	47.90	8.36	48.07	8.44	47.97	8.25	46.94	7.51	47.84	8.49
SRP Total	48.97	9.74	48.85	9.79	51.28	10.41	50.28	9.86	47.15	8.80	47.75	9.65

Note: Total sample N=156, Psychology N=88, Business N=68. SRP = Self-Report Psychopathy Scale-4:SF. SDS = Social Desirability Scale.

7.3.1 Empathy

A summary of the empathy GLMM results is displayed in Table 7.4. The hypothesised Time x Discipline interaction effect was not supported by the cognitive or affective GLMM results. The main effect for discipline was significant for cognitive empathy only, indicating that psychology students reported significantly higher levels of cognitive empathy than business students at both T1 and T2 (small effect size). The main effect for time (length of enrolment) was not significant for cognitive or affective empathy. Controlling for all other covariates, there were significant gender differences in affective empathy, indicating that female students reported higher levels of affective and total empathy than male students, regardless of academic discipline (medium effect sizes). Social desirability was significant for affective empathy only (small effect size), with higher scores on the SDS being associated with higher levels of affective empathy. Age was not significant for any of the empathy GLMMs.

Table 7.4 Summary of Covariates, Main and Interaction Effects for the BES Empathy GLMMs.

Facet		Age	Gender	SDS	Discipline	Time	Interaction
Cognitive	F	2.47	3.85	0.23	6.87**	0.13	1.01
	η_p^2	0.01	0.01	0.00	0.02	0.00	0.00
Affective	F	0.22	23.52**	3.88*	3.63	0.20	0.09
	η_p^2	0.00	0.07	0.01	0.01	0.00	0.00
Total	F	0.11	21.37**	3.03	7.12**	0.28	0.55
	η_p^2	0.00	0.07	0.01	0.02	0.00	0.00

Note: * $p < .05$, ** $p < .01$; Effect size reported as partial-eta squared.

7.3.2 Psychopathy

A summary of interpersonal, affective, lifestyle, antisocial and total psychopathy GLMM results is presented in Table 7.5. The hypothesised time x discipline interaction effect was not significant for any of the psychopathy facets or total psychopathy score. The main effect of student discipline was significant for the affective psychopathy facet GLMM only, indicating that business students reported significantly higher levels of affective psychopathy than psychology students at both T1 and T2 (small effect size). The main effect for time was not significant for any of the psychopathy facets or total psychopathy analyses.

After controlling for all other covariates, gender was significant for the interpersonal, affective and antisocial psychopathy facets as well as total psychopathy score, with male students reporting significantly higher levels of psychopathy compared to female students (medium to large effect size). Social desirability was significant for interpersonal, affective, lifestyle and total psychopathy, with higher scores on the SDS associated with lower levels of psychopathic traits (small – medium effect size). Age was not significant for any of the psychopathy GLMMs.

Table 7.5 Summary of Covariates, Main and Interaction Effects for SRP Psychopathy GLMMs.

Facet		Age	Gender	SDS	Discipline	Time	Interaction
Interpersonal	F	0.00	14.30**	11.64**	1.99	0.03	1.44
	η_p^2	0.00	0.04	0.04	0.01	0.00	0.00
Affective	F	0.01	30.53**	13.41**	4.14*	0.95	0.01
	η_p^2	0.00	0.09	0.04	0.01	0.00	0.00
Lifestyle	F	0.00	2.12	7.16**	0.22	0.94	1.12
	η_p^2	0.00	0.01	0.02	0.00	0.00	0.00
Antisocial	F	0.10	9.22**	1.31	0.52	0.53	0.28
	η_p^2	0.00	0.03	0.00	0.00	0.00	0.00
Total	F	0.00	16.63**	10.62**	1.39	0.07	1.07
	η_p^2	0.00	0.05	0.03	0.00	0.00	0.00

Note: * $p < .05$, ** $p < .01$; Effect size reported as partial-eta squared.

Given the significant gender effects observed in both the empathy and psychopathy GLMMs, possible 3-way gender x time x discipline interactions were also analysed using GLMM in order to examine whether any of the hypothesised interaction effects were gender specific. However, results were non-significant for both empathy and psychopathy facets and total scores.

7.4 Qualitative Analysis

Qualitative data was analysed in NVivo v. 12 (QSR International Pty Ltd., 2018) using content analysis. Of the total sample ($N = 156$), 86.5% provided qualitative data for question one and 85.2% provided qualitative data for question two. The first level of coding involved a summative analysis of whether students reported

perceived changes in themselves or their discipline during the previous year of enrolment. An initial constrained matrix was developed consisting of 3 broad categories; “Change”, “No Change”, and “Ambiguous”. A statistical descriptive analysis was then conducted via frequency count of responses that fell into each of main these categories. A summary table of these initial broad categories by discipline and question is presented in Table 7.6.

Table 7.6 Frequency Summaries of Major Thematic Categories for Business and Psychology Students.

		Responses	
		Business (N = 61)	Psychology (N = 74)
<i>Perception of Discipline</i>	Change	33 (54%)	41 (55%)
	No Change	27 (44%)	30 (41%)
	Ambiguous	1 (2%)	3 (4%)
		Business (N = 59)	Psychology (N = 74)
<i>Perception of Self</i>	Change	47 (80%)	69 (93%)
	No Change	12 (20%)	5 (7%)
	Ambiguous	0 (0%)	0 (0%)

For question one, results indicated that for both business and psychology students, just over half reported perceiving a change in the way they viewed their respective discipline over one-year of enrolment. For question two, the majority of business and psychology students reported perceiving a change in themselves as a result of engaging with their studies over a one-year period. Additionally, findings indicated that psychology students were more likely to perceive a change in themselves than business students. Taken together, results from the summative analysis suggest that both business and psychology students were more likely to report a perceived change in themselves than a change in the way they viewed their discipline.

To examine the nature of the changes perceived by students, an inductive approach to coding was adopted to allow categories to emerge from the data itself (Elo & Kyngäs, 2008). All responses within the ‘Change’ category were read, coded and analysed by student discipline. Codes were grouped into categories reflecting commonalities emerging from the data. A random sample of 10 responses for each question was cross-coded by an independent party and inter-rater reliability was

found to be strong for the four emergent categories for question one ($\kappa = .68 - .81$) and the seven emergent categories for question two ($\kappa = .84$).

Four main themes relating to the nature of changes in discipline perception emerged from the data; 'Personal', 'Discipline Specific', 'Interest' and 'Course Specific'. For both business and psychology student samples, responses most frequently reflected changes in the way students viewed elements related to their course or course material (course specific category), and changes in their perception of their respective discipline (discipline specific category). A visual summary of the thematic abstraction process and example responses for the main categories of perceived discipline change reported by business and psychology students is presented in Figure 7.1.

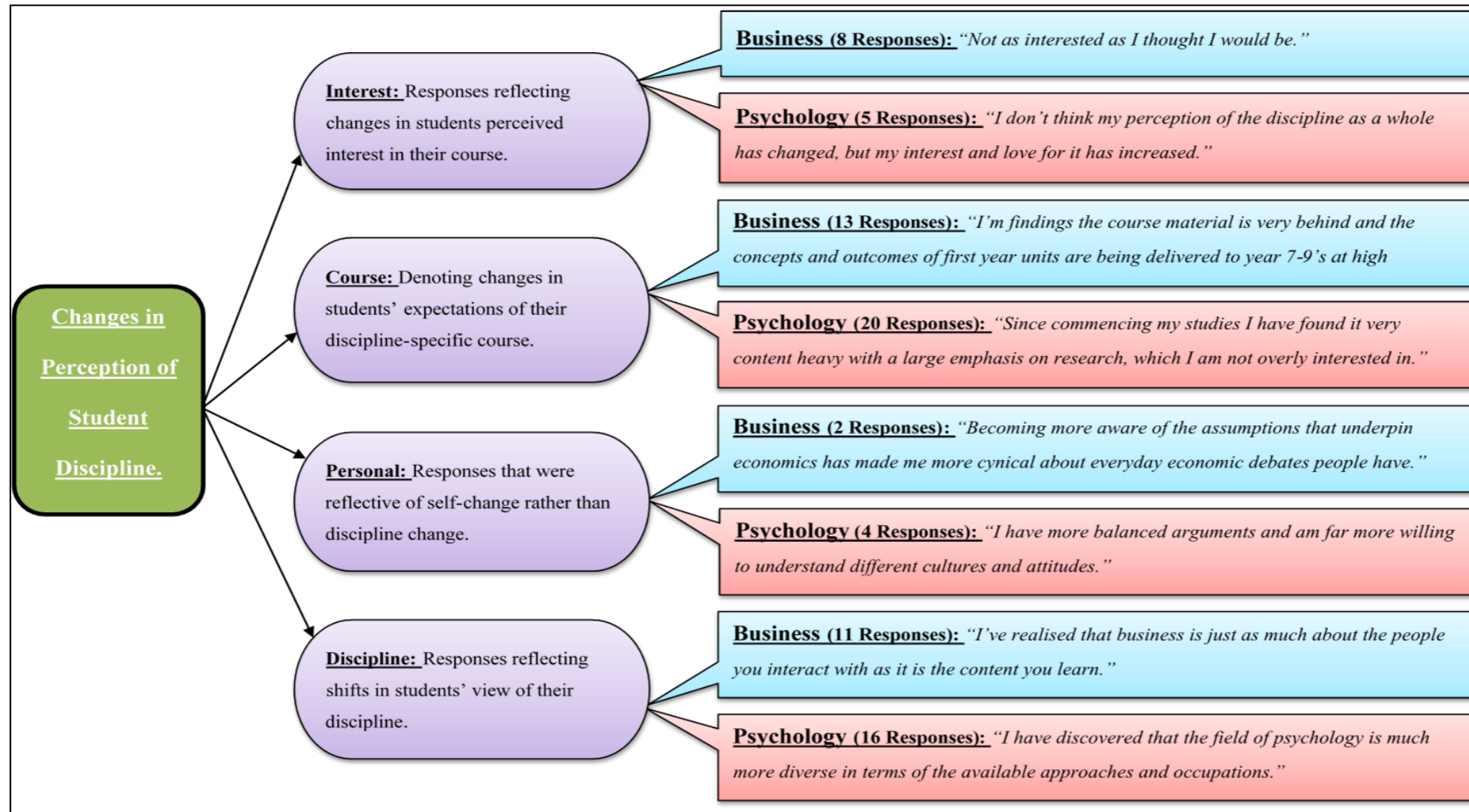


Figure 7.7.1 Main Category Thematic Abstraction Process for Changes in Discipline Perception

For the second qualitative question, two main categories of perceived self-change were extracted from the data for both business and psychology students: 'Skill Development' and 'Self-Change'. The most frequently reported changes for both business and psychology students were within the 'Self-Change' category, with responses in this category indicating perceived internal self-changes not associated with those typically expected as the result of prolonged exposure to educational environments more broadly (e.g. increases in discipline specific knowledge).

To explore the nature of these perceived self-changes and examine possible differences between business and psychology students' educational experiences, responses within the self-change main category were further delineated into five thematic sub-categories. Responses in the skill development category clustered into two thematic sub-categories. A visual summary of the sub-thematic abstraction process for both skill development and self-change categories is presented below in Figures 7.2 and 7.3 respectively.

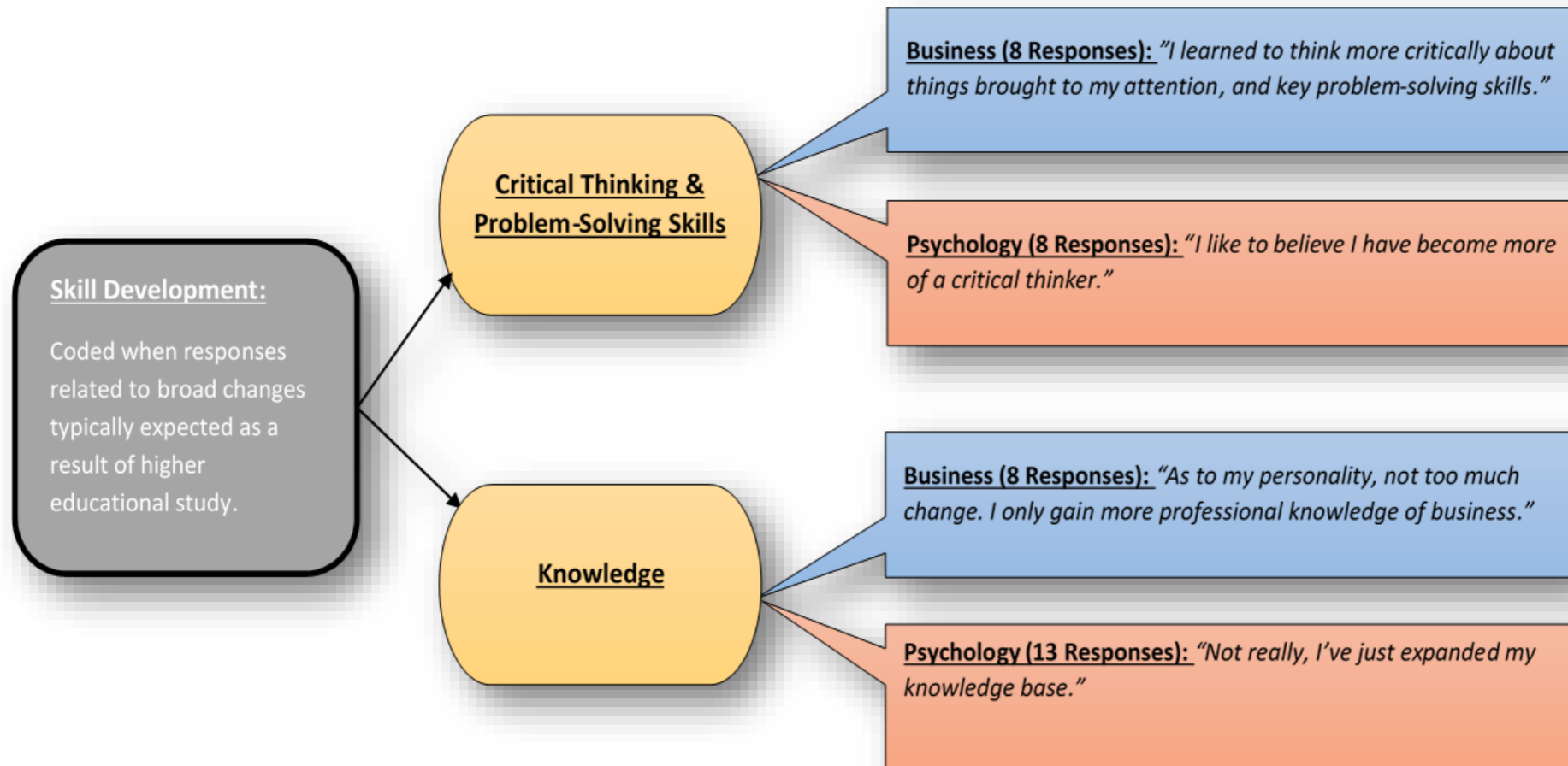


Figure 7.2 Sub-Thematic Abstraction Process and Example Responses for Skill Development.

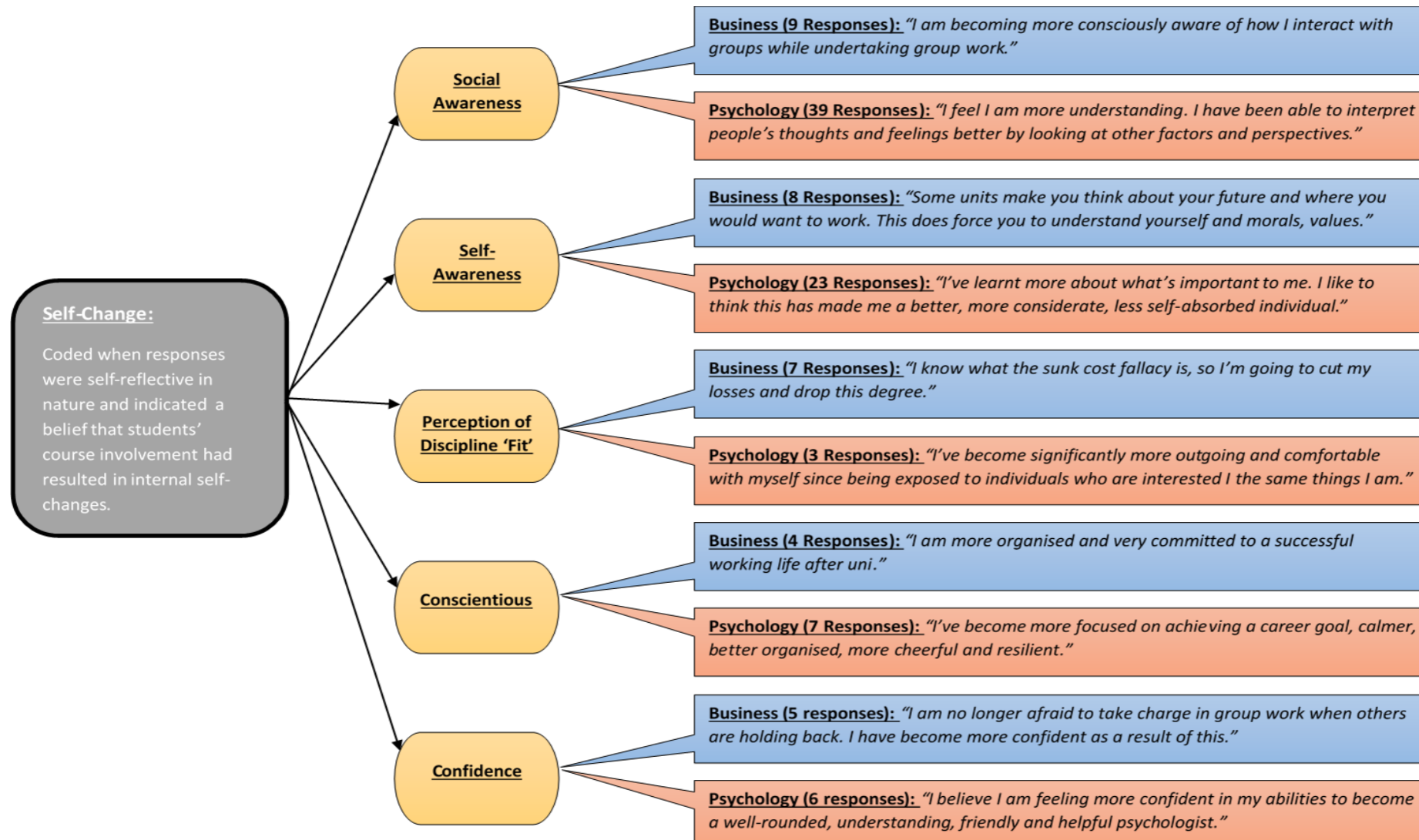


Figure 7.3 Sub-Thematic Abstraction Process and Example Responses for Perceived Self-Change

7.5 Discussion

The present study aimed to longitudinally examine the impact of contextual factors in business and psychology tertiary educational environments on student perceptions and the development of empathy and psychopathic personality traits. Quantitative findings indicated significant discipline effects, with business students reporting higher levels of affective psychopathy and lower levels of cognitive empathy than psychology students, albeit with small effect sizes. However, the hypothesised time x discipline interaction effect was not supported in either the empathy or psychopathy analyses, suggesting that the unique educational environments of business and psychology disciplines did not significantly interact with time to impact on the development of student empathy (cognitive and affective) or psychopathic traits (interpersonal, affective, lifestyle and antisocial). Additionally, the main effect of time (T1 and T2) was not significant for empathy or psychopathic facets, indicating that these characteristics remained relatively fixed for students over a 12-month period, regardless of academic discipline. The present quantitative findings therefore indicate that attraction, rather than socialisation processes are responsible for the observed personality variation between business and psychology students.

7.5.1 Empathy

Consistent with previous cross-sectional research (Litten et al., 2018), the present quantitative findings suggest that psychology students are more cognitively empathic than business students (medium effect size differences at T1 and T2). This finding is theoretically consistent with the attraction and selection components of the ASA model, suggesting that students who are naturally more empathic than others are more likely to be attracted and selected into a psychology discipline (Litten et al., 2018; Toto et al., 2015). However, the present study did not find evidence to suggest that student empathy development was influenced by exposure to psychology or business learning environments over a period of 12 months, using quantitative measures.

Previous research has established age and gender as factors contributing to empathy variation amongst populations, with females and middle-aged individuals typically possessing higher levels of empathy than males and younger peers (Toto et al., 2015). The present findings indicated, with medium effect size, that female students were significantly more empathic than male students, regardless of

academic discipline choice; contributing further evidence to support previously established gender differences in empathy (Harton & Lyons, 2003; Jolliffe & Farrington, 2006; Konrath et al., 2011). Additionally, previous research has indicated a significant, negative association between empathy and age (Toto et al., 2015), however age was not significant for any of the empathy GLMMs in the current study, possibly due to the restricted age range typically expected when utilising student samples in research. Finally, social desirability was significant for the affective GLMM only, indicating, with small effect size, that affective empathy was positively associated with a tendency to respond in a socially desirable manner. In summary, the present findings suggest that attraction, rather than socialisation processes are responsible for the observed empathy variation between business and psychology students.

7.5.2 Psychopathy

The psychopathy GLMM findings indicated significant discipline effects for the affective psychopathy facet only, with business students reporting higher levels than psychology students at both time points (medium effect sizes). This finding is consistent with previous research suggesting business students demonstrate significantly higher levels of psychopathic traits than psychology and other non-business students (Vedel & Thomsen, 2017). However, the present findings did not support the hypothesised time x discipline interaction effects, suggesting that students' levels of interpersonal, affective, lifestyle and antisocial psychopathic traits remain relatively stable over a 12-month period, regardless of academic discipline choice.

The present findings provide further support to previously well-established gender differences in the psychopathy literature (e.g. Paulhus et al., 2016, p. 79), suggesting, with medium to large effect size, that male students exhibit significantly higher levels of interpersonal, affective and antisocial psychopathic traits than female students, regardless of academic discipline choice. Significant negative correlations were observed between social desirability and the interpersonal, affective, and lifestyle psychopathy facets, suggesting individuals with elevated levels of psychopathic traits may be relatively unconcerned with being perceived in a socially desirable manner, especially when the nature of the questions ensures anonymity. Lastly, age was not found to be significant in any of the psychopathy facet GLMMs. This is consistent with the empathy findings and is likely a reflection of the restrictive age range in the present undergraduate sample ($M = 24$ years; $SD = 7.95$).

Taken together, the present findings indicate that students with higher levels of psychopathic traits are more likely to be attracted to and selected into a business rather than psychology discipline; providing theoretical support for the attraction and selection components of the ASA model in an educational context (Schneider et al., 1995). Further, as individual levels of psychopathic traits remained relatively consistent over length of enrolment, findings validate the conclusions of earlier cross-sectional research in proposing that psychopathic trait variation between business and psychology student cohorts is primarily the result of selection processes that occur during the attraction/selection stages of academic discipline choice, and upon enrolment, tend to be impervious to socialisation pressures occurring within the unique educational environments of business and psychology schools (Krick et al., 2016).

7.6 Qualitative Findings

As the choice of academic discipline is understood to be influenced by a number of variables in addition to personality traits (Guimond & Palmer, 1990), the present study also qualitatively explored whether students' perceptions of themselves and their academic discipline had been influenced by their length of enrolment in the degree. Qualitative analysis highlighted the impact of discipline-specific contextual factors on students' educational experience, with 80% of business student and 93% of psychology student respondents reporting a perceived change in themselves as a result of their educational experience. Additionally, 55% of psychology students and 52% of business students reported changes in the way they viewed their discipline over one year of enrolment in their respective degrees. Qualitative findings indicate that students are more likely to change their perceptions of themselves to better align with their perception of the discipline than they are to change their initial perceptions of the discipline.

7.6.1 Changes in Students' Self-Perception

The majority of business (80%) and psychology student respondents (93%) reported perceiving a change in themselves as a result of educational experience, allowing for speculation around the influence of socialisation effects on students' self-concept that may not be accurately captured by the quantitative personality measures of psychopathy and empathy measured in this study. The nature of self-changes reported by business and psychology students were related primarily to elements of social and self-awareness. Business student responses suggested perceived changes in students' interpersonal abilities, social dominance and

maturity. Comparatively, the nature of psychology student responses was indicative of changes in students' awareness of their own and others' thoughts, feelings and behaviour.

According to self-categorisation theory, changes in self-perception occur when individuals adopt a new way of defining themselves (Good, Rattan, & Dweck, 2012). Identifying with a new group, such as being considered part of a business or psychology school, involves students' internalising group attitudes, norms and values. For example, Business and Psychology schools aim to train their students to identify and comply with the norms and professional values of the field (i.e., professional socialisation; Cornelissen & van Wyk, 2007). Subsequently, students' values and personality characteristics are likely influenced by socialisation processes within the educational environment and the extent to which they identify with the values and norms of their academic discipline.

Findings of the present study support this view, indicating that psychology students reported developing a more accommodating and less judgemental worldview as a result of their educational experience. Responses in the social awareness category were primarily suggestive of students' developing increased interpersonal consideration for others, respect for others' experiences and emotional responses, and reflected an openness towards alternative views. In contrast to the quantitative findings, psychology student qualitative responses also specifically indicated a belief that their educational experience was associated with increased empathy and improved perspective taking ability. These findings suggest evidence of socialisation effects and are consistent with the idea that psychology schools are social environments which aim to promote benevolent and universalistic values, focused on the care and consideration of others and encourage acceptance, tolerance and concern for others (Arieli et al., 2016).

The desire to dominate or be in control of social situations has previously been associated with interpersonal psychopathy (Foulkes et al., 2014). Consistent with this, improved social confidence, extraversion and elements of social dominance were prominent themes amongst business students, with responses reflecting perceived improvements in students' interpersonal communication skills and a newfound comfort with adopting leadership roles in group work activities as a result of their educational experience. This finding speculatively provides support for socialisation processes within business schools influencing student behaviour consistent with interpersonal psychopathy. Additionally, self-awareness changes reported by business students related to increased maturity and emotional stability as a result of educational experience. This finding is consistent with the notion of

business schools being considered enterprising environments which involve leading and directing individual's actions in order to obtain self-interested and collective goals (Arieli et al., 2016).

Value socialisation is desirable at a disciplinary level as it encourages personal investment and increased engagement, which in turn reduces attrition and maximises retention (Arieli et al., 2016). On the other hand, business student findings highlighted the impact of poor perceptions of student discipline-fit on student satisfaction and wellbeing, with students who perceived poor fit between themselves and their discipline reporting an intention to withdraw from their degree, supporting the attrition component of the ASA model (Schneider, 2001).

Psychology student responses in the self-awareness sub-category reflected a perception that their educational experience had resulted in an increased ability to self-reflect on their own behaviour and emotional responses, including acknowledging pre-conceived biases and prejudices. Additionally, as a result of their educational experience, psychology students perceived an increased ability to apply learnt psychological principles to personal and social relationships and reported experiencing increased self-confidence and emotional stability. Further, findings suggest that the educational experience provided by psychology schools may have an influence on the development of students' self-concept, as several students noted changes in their beliefs, values and thinking styles as a result of engagement with their studies. Psychology responses indicated a good perception of fit in the context of being around like-minded peers, highlighting the importance of social factors in assessments of perceived fit and the impact of perceived social fit on student wellbeing. This finding is consistent with the processes of socialisation and may be attributed to the development of students' psychological literacy.

Psychological literacy refers to students' ability to apply learnt psychological concepts, theories and principles to meet personal, professional and social needs (Green, Conlon, & Morrissey, 2017), and aligns with the psychology graduate attribute of 'learning and the application of psychology' outlined by Cranney et al. (2009). In order to develop psychological literacy, students must demonstrate insight into their own emotions, motives and attributes by reflecting on and learning from their experiences in order to identify personal, sociocultural and professional values (Green et al., 2017).

Additionally, findings suggested that both business and psychology students perceived an increase in conscientious behaviours as a result of their educational experience. Findings indicate that increases in conscientious behaviour may not be

specific to business and psychology educational environments but rather may be a result of higher educational study more broadly.

7.6.1.1 Skill Development Category

The skill development category encapsulated students' perceived development of higher-order cognitive knowledge and skills that are more closely aligned with learning outcomes as opposed to changes in student's self-concept. For example, both business and psychology schools aim to develop graduate attributes associated with students' understanding of discipline specific knowledge, critical thinking and problem-solving skills (Green et al., 2015; Hancock, Freeman, Watty, Birt, & Tyler, 2016). Consistent with this, the present findings suggested that business and psychology students both reported increasing their discipline related knowledge over one year of enrolment and reflected that their educational experience had encouraged further development of critical thinking and problem-solving skills.

7.6.2 Changes in Perception of Discipline

Although the main categories of perceived change extracted from the data were the same for both business and psychology students, thematic differences were observed when examining the nature of changes reported. For psychology students, the most frequently reported changes pertained to elements associated with the study of their discipline (e.g., course materials and teaching quality), followed by perceived changes in the way students viewed the field of psychology more broadly. Comparatively, changes in the way students viewed their discipline more broadly were the most frequently reported by business students, followed by perceived changes associated with their studies.

7.6.2.1 Course Specific and Interest Categories

Students' retrospective perceptions of course expectations are associated with their current levels of course satisfaction (Appleton-Knapp & Krentler, 2006). For example, when students' educational experience exceeds their initial expectations, high satisfaction is likely. Conversely, student dissatisfaction occurs when their initial expectations exceed their actual educational experience (Green et al., 2015). Consistent with this, the present findings indicated that some business and psychology students found their studies to be more difficult than initially expected and expressed a view that course materials were lacking in real-world applicability, which was subsequently associated with decreased interest and student dissatisfaction.

For business students, responses were suggestive of decreased interest in the course material since T1, unless it was being applied to relevant work undertaken outside of university. Additionally, some students also indicated an intention to change majors as a result of the heavy theory content and perceived lack of practicality, supporting an association between student dissatisfaction and lowered rates of retention. Taken together, findings indicate that student satisfaction and subsequently retention, is dependent, in part, on students' ability to understand the applied value of course content. For business students, the ability to transfer classroom learning across different applied workplace contexts has previously been found to significantly improve business graduates' chances of gaining employment by 10% (Jackson, 2014). Business schools can assist students in developing their ability to transfer learning to applied workplace contexts by integrating projects for real organisations throughout the undergraduate curriculum and partnering with industry stakeholders to provide opportunities for students to undertake work placements or internships (Larson, 2018).

Psychology students tended to report an increased awareness of the role of the scientific method in psychology, with responses indicating that course content was more research focused than initially anticipated and lacked applicability to counselling. These findings are consistent with prior research suggesting that the heavy focus on research methods is often unexpected by new psychology students, who are primarily attracted to the degree due to interest in the applied practice of psychology (Green et al., 2015; Holmes, 2014). This mismatch between psychology student expectations and their actual educational experience has been previously associated with increased student dissatisfaction (Freng, Webber, Blatter, Wing, & Scott, 2011). Further, previous research has provided evidence that increased interest over the duration of undergraduate study is one of the strongest predictors of psychology student satisfaction (Olivares, 2001). Consistent with this, present findings indicated that psychology students were more likely to increase or maintain interest in their studies after being exposed to course materials that were more directly associated with the applied practice of psychology (e.g. more specialised psychopathology units).

In order to be accepted into a postgraduate degree which provides training in this applied psychological practice, students must first complete a four-year undergraduate Australian Psychology Accreditation Council (APAC) accredited course (Cranney et al., 2009). However, the fourth year of undergraduate psychology programs in Australia tend to be highly competitive, with less than half of third year students progressing into this final year of study (Cranney, Botwood, &

Morris, 2012). Consistent with this, psychology students in our study reported perceiving their studies to be significantly more competitive than initially anticipated in the context of limited post-graduate placement opportunities, with students expressing concerns about obtaining future employment in the field.

Previous research has indicated that psychology students' interest in applied-practice areas and aversion to research methods is likely to remain unchanged without intervention (Hills & Pettijohn II, 2010). Present findings suggest that to improve student satisfaction and retention rates, it would be beneficial for psychology schools to focus on assisting new students to develop accurate expectations of the undergraduate curriculum, and associated career pathways, with an emphasis on the central role of applied research in professional psychology (i.e., evidence-based practice). For example, the experience of publishing a student-run academic journal is one method that has previously been suggested as means of increasing psychology students' interest and engagement in applied research (Antonius, Brown, Todman, & Safran, 2007; Doran, Somerville, Harlem-Siegel, & Steele, 2014). If students are unable to develop an awareness of the importance of research methods in psychology, the integrity of future professional psychologists may be undermined, as graduates' ability to integrate practice with research knowledge is compromised (Holmes & Roberts, 2019; Maher, 1999).

7.6.2.2 Discipline Specific Category

The nature of the discipline changes reported by business students related primarily to the perceived importance of developing people and networking skills in business, perceived changes in future career goals/opportunities and generally reflected an increased appreciation for the diverse scope of available business professions. Similarly, psychology student responses predominantly reflected an increased awareness of students' future career goals and expectations following graduation and indicated increased insight into the vast scope of the field.

In general, business students expressed a belief that the discipline would offer good opportunities for employment and was more versatile than initially anticipated, with responses highlighting a shift from conceptualising business roles as conventional and repetitive to acknowledging the impact of technological change on the business world, allowing for constant growth and innovation in the field.

Previous research has accused business education of endorsing self-enhancement values consistent with self-interest, financial success and achievement (Arieli et al., 2016). Subsequently, empirical evidence has indicated that business students are more narcissistic and motivated by financial self-

interested goals than students in other academic disciplines, behaviour that is consistent with psychopathic personality traits (Brown et al., 2010; Knafo & Sagiv, 2004). In contrast, the present findings indicated that business students held a negative perception of the current finance industry, with responses indicating a desire to positively contribute toward addressing the perceived issues in their future career via engaging in moral and authentic behaviour. This finding is inconsistent with elevated psychopathic traits and may be reflective of business schools responding to previous criticism by increasingly focusing curriculum development around social responsibility and emphasising ethical and prosocial values (Baden, 2014; Koljatic & Silva, 2015).

Business schools have also been criticised in previous research for failing to adequately prepare graduates for the workplace, specifically in the context of favouring a curriculum which emphasises cognitive skill development and discipline specific knowledge over non-technical, interpersonal skills (Jackson & Chapman, 2012; Marques, 2019). In contrast, the present findings indicated that as a result of their educational experience business students had developed an increased awareness of the importance of interpersonal skills and networking in business success. It is possible this finding is reflective of Australian undergraduate business schools' recent efforts to emphasise the development of graduates' interpersonal skills (e.g. negotiation, decision-making, and communication) to prepare them for entry into organisational cultures which are becoming increasingly team-orientated and service-based in nature (Hogan, Chamorro-Premuzic, & Kaiser, 2013).

As a result of their educational experience, psychology students in our study regarded the discipline as community and social action focused and more complex, diverse and widely integrated into many other aspects of daily living than initially anticipated. Responses highlighted psychology students' preference for pursuing a career in the applied practice of psychology as opposed to in research or academia. Despite being one of the most popular undergraduate courses in Australia, it has been estimated that less than 25% of undergraduate psychology students will continue on to become professional psychologists (Green et al., 2017). Findings suggest that to improve student interest and retention rates, first year Australian psychology education should focus on developing students' understanding of the importance of psychological concepts in the broader public arena and acknowledge alternative career pathways outside of applied practice (Green et al., 2015).

7.6.2.3 *Personal Category*

Lastly, responses that indicated a perceived self-change or were of a self-reflective nature were coded under the personal category. Business student responses in this category reflected a perceived increase in cynicism towards economics and a view that their educational experience had encouraged the development of conscientious behaviour. Comparatively, psychology student responses reflected themes of increased openness and willingness to understand alternative views.

7.7 Limitations and Future Directions

Although empathy and psychopathic personality trait development was not found to be influenced by socialisation processes within business and psychology learning environments, it is important to note the existence of such processes cannot be ruled out. The present study examined students longitudinally over a period of 12 months, however professional training often spans over several years and the effects of socialisation on personality variables may not become apparent until after graduation or once students enter the workforce (Arieli et al., 2016). Future longitudinal research should therefore focus on investigating students' personality and shifts in self-concept throughout their undergraduate and postgraduate training through to professional career entry in order to gain a clearer understanding of the influence of socialisation within educational training. Additionally, where previous research has primarily been limited to examining student cohorts from a single institution (e.g. Hiatt, 2018), a strength of the current study was that the sample was drawn from four different universities. Subsequently, the present research assumes that business students are homogenous in regard to personality profile. However, the field of business is heterogenous, with students specialising in various business majors (e.g. marketing, finance, accounting etc.). It is likely that students within these specific business majors may differ in their personality characteristics, and exploration of these major level personality differences poses an interesting direction for future research.

7.8 Conclusions

The present findings contribute to further understanding personality and contextual differences between students enrolled in either a business or psychology discipline, with psychology students tending to be significantly more cognitively empathic than business students, who in turn demonstrate higher levels of affective

psychopathy. Quantitative findings indicated that selection, rather than socialisation processes were responsible for the observed personality variation between disciplines. On the other hand, qualitative analysis suggested that discipline-specific contextual factors within business and psychology school environments shaped students' self-concept and perception of their discipline, allowing for speculation around possible socialisation. Specifically, findings suggest that students are more likely to change their self-perception as a result of their educational experience as opposed to change their initial perception of the discipline.

Overall the present findings provide insight into differences between business and psychology students' personality characteristics and perceptions of their respective disciplines as well as highlighting inaccurate perceptions held by students. This information may prove useful for faculty and career advisors in identifying key motivators associated with student retention and attrition as well as inform changes to course advertising in order to clarify student expectations and attract students of desirable fit.

Chapter 8: General Discussion

The present research was the first to apply the Attraction, Selection, Attrition model of organisation behaviour (Schneider, 1987) to a higher educational context to explore the influence of selection and socialisation processes on student personality homogenisation within business and psychology students. The following chapter begins with a summary of key findings from the each of the studies as they relate to the three overarching aims of the thesis as well as an overview of the distributions of psychopathic traits as measured by the SRP-4:SF. Following this is a discussion of both theoretical and applied implications which can be drawn from the combined findings as well as an overview of the strengths and limitations of the research. The chapter then concludes with some final remarks and provides recommendations for potential future research directions. A visual summary of the overarching research aims, key findings and implications is presented in Table 8.1.

Table 8.1 Summary of Research Aims, Key Findings and Implications.

Research Aim	Study	Key Findings	Implications
Provide cross-cultural validation of the four-factor model of psychopathy by examining the psychometric properties of the SRP-4:SF, including factor structure, gender differences and associations with empathy and the big-five personality traits in an Australian student population.	1	<ul style="list-style-type: none"> • A four-factor model demonstrated the most optimal fit for the total sample as well as for males and females when compared to a one- and two-factor model. • Findings indicate that psychopathy in student populations is primarily associated with deficits in affective, not cognitive empathy. • Low agreeableness was uniquely associated with the affective and interpersonal facets, whilst low conscientiousness was uniquely associated with the lifestyle facet. 	Findings support a four-factor model of psychopathy underpinning the SRP-4:SF items and provide validation for its use with an Australian student population, allowing for future Australian based psychopathy research and cross-cultural comparisons. Further, findings provide evidence to support cross-cultural construct validity of the SRP-4:SF in an Australian sample.
Examine the attraction and selection processes within the ASA framework by exploring differences in empathy, psychopathic traits and motivation for discipline selection between newly enrolled business and psychology students.	2*	<ul style="list-style-type: none"> • Student gender (being female) and cognitive empathy were predictive of attraction and selection into a psychology, rather than business discipline. • Psychopathic traits were not predictive of academic discipline selection. 	Findings provide support for the Attraction and Selection components of the ASA model being applicable to a higher educational context in explaining personality variation between business and psychology students. Additionally, findings suggest the choice of pursuing a business or psychology discipline is influenced in part by personality traits in combination with differing motives and external influencing factors. Thus, both personality factors and external motivating influences should be considered by vocational and career counsellors when advising students and making assessments of student-discipline fit.
	3	<ul style="list-style-type: none"> • Males and highly conscientious students are more likely to be attracted and selected into a business discipline, whilst females and highly agreeable students are more likely to be attracted and selected into a psychology discipline. • Business students' choice of academic discipline was primarily motivated by self-interested financial goals, self-efficacy, career opportunities and family influences. Business students perceived extraversion and conscientiousness to be the most important big-five traits for success in their field. • Psychology students' choice of academic discipline was primarily motivated by altruistic perceived gains, level of interest in the area and prior experiences with mental health issues. Psychology students perceived agreeableness to be the most important big-five trait for success in their field. 	

Examine attrition and socialisation effects by investigating the influence of business and psychology educational environments on the development of student self-perceptions, empathy and psychopathic personality traits.	4*	<ul style="list-style-type: none"> • Cross-sectional findings did not support the hypothesised discipline x time interaction effect, indicating that levels of empathy and psychopathic personality traits did not significantly increase or decrease over the duration of business and psychology students undergraduate training. 	<p>The unique educational environments of business and psychology disciplines did not significantly influence the development of student personality traits over one year of enrolment, suggesting that socialisation processes did not significantly impact student personality development.</p> <p>Qualitative findings allow for speculation around the influence of socialisation effects on students' self-concept that may not be captured by personality measures alone. Future research in this area should therefore attempt to capture both quantitative and qualitative measures of socialisation in order to draw definitive conclusions.</p>
	5	<ul style="list-style-type: none"> • Business students reported higher levels of affective psychopathy and lower cognitive empathy than psychology students. However, these traits did not significantly differ between T1 and T2. • Qualitative findings indicated 80% of business students and 93% of psychology students reported a change in their self-perception as a result of educational experience. Both business and psychology students were more likely to change their perception of themselves to better align with their perception of the discipline than they are to change their initial perceptions of the discipline. 	

Note: * = study has been published in a peer-reviewed academic journal.

8.1 Summary of Findings

8.1.1 Psychometric Properties of the SRP-4:SF in an Australian Student Sample

The measure of psychopathic traits used in the present research was only recently published, resulting in limited previous validation studies having been conducted, and none within Australia. Therefore, Study one aimed to determine the cross-cultural validity of the Self-Report Psychopathy Scale – 4: Short Form (SRP-4:SF; Paulhus et al., 2016). Specifically, the study sought to examine the psychometric properties and underlying factor structure of the SRP-4:SF in a large Australian student population ($N = 602$) and cross-culturally explore how particular psychopathic traits are associated with key external correlates in the understanding of psychopathy, namely empathy and the big-five general personality factors.

The findings from Study One were largely consistent with previous validation studies and supported sound psychometric properties (i.e., internal consistency and scale dimensionality) of the SRP-4:SF in an Australian student sample (Dotterer et al., 2017; Paulhus et al., 2016). Further, a four-factor solution was found to be a superior fit to either a one-factor or two-factor solution for the SRP-4:SF items in both the total sample and for males and females separately. Thus, findings suggest the SRP-4:SF is best represented by four correlated latent facets which capture unique characteristics of the psychopathy construct and provides validation for its use with both men and women in an Australian population.

Gender differences in psychopathic traits is becoming a growing area of research interest, with previous findings indicating that men tend to score higher on psychopathy measures than women. A possible explanation for these differences is that psychopathic traits may manifest and present differently in men and women as a result of gender-role socialisation (León-Mayer et al., 2019; Nicholls & Petrilă, 2005). In order to determine whether male and female psychopathy scores in the present sample significantly differed from one another, independent sample t-tests were conducted for the SRP-4:SF factor and total scores using a conservative adjusted alpha of .01 to account for multiple comparisons. Findings indicated (with medium to large effect sizes) that males reported significantly higher levels of psychopathy than females in the present sample. These differences were most noteworthy for the callous affect ($d = 0.80$, $p < .001$) and interpersonal manipulation ($d = 0.57$, $p < .001$) factors. Moderate effect size differences were also observed for the erratic lifestyle factor ($d = 0.44$, $p < .001$), and total psychopathy score ($d = 0.63$, $p < .001$). No significant differences were found between male and female scores for

the SRP antisocial factor. Additionally, visual inspection of SRP-4:SF item mean scores indicated that males endorsed all of the items at a higher level than females. These findings are theoretically consistent with gender-role socialisation and may also indicate support for León-Mayer et al. (2019)'s recent proposition that a gender-based modification of the SRP-4:SF may add robustness to the assessment of psychopathic features in women. Future research might build on the present findings to examine the utility of modifying the SRP-4:SF items to improve their ability to accurately capture how psychopathic traits are expressed in women.

As psychopathy is characterised by deception and dishonesty, some have raised concerns about the ability of self-report measures to accurately capture psychopathic traits in non-clinical populations (Patrick, 2018). The present research addressed this concern by including the SDS measure to account for possible effects of socially desirable responding. Findings indicated that social desirability scores were weakly negatively associated with psychopathic traits. These findings provide evidence that psychopathic individuals in the community are not as susceptible to engaging in impression management tactics as their forensic counterparts (Miller & Lynam, 2015; Ray et al., 2013). Therefore, the SRP-4:SF is considered to be a valid and reliable standalone self-report measure of psychopathy which does not need to be administered in conjunction with social desirability tools.

8.1.2 Distribution of Psychopathic Traits

Previous international research by Neumann et al. (2012) has indicated that psychopathic traits can differ as a function of world region. For example, their findings indicated that interpersonal psychopathic traits were more prevalent in individuals from the Middle East, Africa and Asia, whilst individuals from Oceania and North America have some of the lowest interpersonal manipulation scores. Oceania and North America were also found to have some of the highest lifestyle factor scores, suggesting psychopathy may manifest similarly within these cultural contexts.

Total psychopathy scores in Study One were significantly higher than those reported in previous American student validation studies of the same psychopathy measure (see Chapter 3), albeit with small effect size ($d = 0.23$). Significant differences were also observed at a factor level, with findings indicating that Australian students tended to report higher levels of interpersonal manipulation ($d = 0.21$) and erratic lifestyle ($d = 0.37$), than Midwestern and Southern United States university students ($N = 2111$). Additionally, interpersonal manipulation and erratic lifestyle scores for the total sample in Study One were also significantly higher than

the Texas-based college reference sample reported in the SRP-4:SF technical manual (Paulhus et al., 2016; $N = 788$; $d = 0.10$) which had a similar number of females to the present study (65.2% and 65.7% respectively). Although small in magnitude, these findings allow for some speculation around the possibility of cultural influences on psychopathic trait expression. This speculation is further strengthened by findings from Study Two (see Chapter 4), which indicated (with medium to large effect size) that international business students reported significantly higher levels of antisocial psychopathic traits and significantly lower levels of cognitive empathy than domestic business students. As of 2018, over one third of all international student enrolments at Australian universities were Chinese students (Norton & Cherastidham, 2018). Thus, findings may theoretically support Neumann and colleagues' (2012) finding that antisocial psychopathic traits (as measured with the SRP-4:SF) tend to be most elevated in individuals from East Asian countries. However, as the present research did not focus on collecting detailed cultural demographic information, further research is required to support these conclusions.

For the total sample in Study One, 13% of participants reported total psychopathy scores classified as 'elevated', whilst 4% reported scores classified as extremely elevated, according to the guidelines provided in the SRP-4:SF technical manual (Paulhus et al., 2016). Previous research has estimated that the prevalence of clinically elevated levels of psychopathy within the general population is 1 – 2% (Hare & Neumann, 2008), however psychopathic traits are non-normally distributed throughout the population and thus may be particularly prevalent in some sub-groups compared to others (Paulhus et al., 2016). For example, consistent with well-established gender differences (Hare & Neumann, 2008; Vedel & Thomsen, 2017), the present findings indicated 7% of the male ($N = 206$) student sample reported extremely elevated levels of psychopathic traits, compared to only 2% of the female sample ($N = 396$). Further, as highlighted in Study One when SRP-4:SF factor scores were examined by academic discipline, psychology students' scores were relatively comparable with those previously reported in other validation studies (e.g., Dotterer et al., 2017), however significant differences were observed for business students' scores. Specifically, business students reported (with small to moderate effect size) significantly higher levels of interpersonal manipulation, callous affect and erratic lifestyle than a large sample of American university students ($N = 2111$). When raw scores were converted into T-scores, 15% of the Australian business students in Study One reported 'elevated' levels of interpersonal manipulation, whilst 5% reported extremely elevated levels. Comparatively, 10% of the psychology

students in Study One reported elevated levels of interpersonal manipulation, with only 2% being high enough to be classified as extremely elevated. Previous research has estimated the prevalence of elevated psychopathic traits in the business arena to be higher than the general population, approximately 4% (Boddy, 2015), the present findings therefore provide evidence to suggest that the prevalence of elevated psychopathic traits in business student cohorts is equitable to that of the corporate world.

The present research therefore provides empirical evidence to suggest that business student cohorts are more densely populated with individuals who exhibit elevated and extremely elevated levels of psychopathic traits compared to cohorts of psychology students and possibly student populations more broadly. Further, findings highlight specific factor level distributional differences in sub-populations which may assist in identifying particular variants or subtypes of psychopathy. Although still an emerging area of research, studies on subtypes or variants of psychopathy can contribute important knowledge regarding the manifestation and expression of particular psychopathic propensities within the general population. One way to understand variants of psychopathy is by examining differences in facet profiles and exploring unique associations with known external correlates of psychopathy. The present research contributed to this underdeveloped area by examining unique psychopathy facet distributions in various student sub-populations. However, distributions of T-score classifications have not readily been reported using uniform classification criteria in previous research. Subsequently, it cannot be concluded with certainty the extent to which the present findings are indicative of meaningful homogeneity comparative to student populations more broadly. In order to contribute to this gap in literature, a complete summary of SRP-4:SF factor T-score distributions for SRP-4:SF facets for the total sample, business and psychology samples and by gender is presented in Table 3.4 (See Chapter 3).

8.1.3 Attraction and Selection

The studies included as part of this thesis were the first to apply Schneider's (1987) Attraction, Selection and Attrition (ASA) model of organisational behaviour to a higher educational setting. Specifically, the present research sought to determine the applicability of the ASA framework to a higher educational context in explaining differences in empathy, psychopathic, and big-five personality traits between business and psychology student cohorts. Further, the present research explored selection and socialisation as potential processes responsible for increased personality homogeneity within these academic disciplines. By examining the

influence of both selection and socialisation processes on personality homogeneity within a singular theoretical framework such as the ASA model, the present research provides a more comprehensive understanding of the transactions between person and environment than previous research in this area, which has predominantly been limited to examining person-environment transactions from either a person-centred (selection) or socialist (socialisation) perspective.

Study Two and Three (see Chapter 4 and 5) aimed to examine the extent to which attraction and selection processes contributed toward personality homogeneity within psychology and business students. Specifically, Study Two investigated whether pre-existing empathy and psychopathic personality differences were predictive of academic discipline selection. Study Three adopted a mixed methods approach to determine the predictive value of the broader big-five personality traits and qualitatively explore how new students conceptualise the influences that motivated them to study within their chosen discipline as well as examine the personality characteristics new business and psychology students believe will assist them in being successful within their respective fields.

Overall, findings provide evidence to suggest that cognitive empathy, agreeableness and being female are significant predictors of attraction and selection into a psychology degree, whilst conscientiousness and being male are significant predictors of attraction and selection into a business degree. In contrast, psychopathic traits, extraversion, emotional stability and openness were not found to be predictive of academic discipline. Interestingly, despite psychopathic traits not being predictive of academic discipline, significant discipline effects were observed in Studies One, Two, Four and Five, with business students reporting significantly higher levels of psychopathic traits than psychology students. This finding is consistent with the attraction and selection components of the ASA model. It is possible that psychopathic traits do in fact influence students' choice of academic discipline, however once other predictor variables were controlled for (i.e., gender, age and social desirability), psychopathic traits no longer accounted for a significant amount of unique variance in academic discipline selection.

Additionally, findings from Study Three highlighted that attraction toward a business vocation is primarily driven by self-interested perceived gain, self-efficacy, career opportunities following graduation and external family influences. Business students endorsed a belief that being highly extraverted and conscientious were the most important big-five personality characteristics required for success in their field. In contrast, psychology students reported being primarily motivated in their discipline choice by altruistic perceived gain, interest in the area and prior experiences with

mental health, either through personal experiences or via supporting others with mental health issues. Psychology students reported being highly agreeable as the most important big-five personality characteristic required for success within their field. Taken together, findings indicated support for attraction and selection processes as outlined by the ASA framework and highlight the complex interplay of internal and external factors which contribute to students' initial choice of vocational pathway in higher education.

8.1.4 Socialisation and Attrition

Study Four and Study Five (see Chapters 6 and 7) sought to examine attrition and socialisation effects by cross-sectionally and longitudinally exploring the influence of business and psychology educational environments on students' perceptions and personality development. Overall, quantitative findings indicated that individual levels of empathy and psychopathic traits tend to remain consistent for business and psychology students over the duration of their undergraduate training. This suggests that generally speaking, socialisation processes occurring within the unique educational environments of business and psychology schools do not appear to have a significant influence on the development of these traits. Thus, the observed personality homogeneity within these student cohorts is likely primarily a result of person-centred selection processes occurring during the attraction and selection stages of academic discipline choice. This conclusion is supported by findings from Study Four, which indicated that year of study was not a significant predictor of empathy or psychopathic trait scores (with the exception of psychology students and the erratic lifestyle facet). Additionally, quantitative findings from Study Five supported significant personality differences between the types of students attracted and selected to business or psychology disciplines. Specifically, at both timepoints, business students were found to report significantly higher levels of affective psychopathic traits than psychology students, who in turn, reported significantly higher levels of cognitive empathy (small effect sizes).

It is important to note here that whilst empathy and psychopathic traits remained stable over one year of enrolment, this does not suggest that socialisation processes within the educational environment can be ruled out. For example, qualitative findings from Study Five suggests evidence of both informational and normative socialisation processes occurring within discipline-specific educational environments. Specifically, findings highlighted the influence that discipline-specific contextual factors in business and psychology schools have on students' self-perception and perception of their discipline. The majority of business and

psychology students reported perceiving changes in themselves as a result of their educational experience, with thematic differences observed in the nature of changes reported by both cohorts. This finding is consistent with the early stages of professional socialisation (normative influences), whereby students are exposed to the ideal values, norms and expectations of their chosen discipline and through engaging with their studies, begin to adopt and integrate these into their personal identity as they become increasingly invested and committed to their future profession (Cornelissen & Van Wyk, 2007). Additionally, 26% of business students and 28% of psychology students in Study Five overtly identified changes in their discipline-specific knowledge, indicating evidence of informational socialisation processes.

Further, in Study Four, findings indicated that for the SRP-4:SF erratic lifestyle factor and total psychopathy scores, year of study was significant for psychology students, but not for business students. This suggests that there was a significant decrease in impulsive psychopathic traits across years of study for psychology students only, consistent with psychopathic traits declining with maturation. However, if there is a maturational process at play as students' progress through their respective areas of study, then the absence of a decline in erratic lifestyle psychopathic traits for business students supports the possibility of discipline-specific socialisation, likely through informational influences.

Finally, longitudinal findings from Study Five provided some evidence of attrition processes consistent with the ASA framework in higher education. Specifically, results highlighted that non-respondent students (i.e., completed the first survey, but not the follow-up) reported significantly higher levels of psychopathic traits compared to students who completed both surveys. Additionally, the sample size of higher-level students in Chapter Four was relatively smaller and comprised of a subset of the students who made it to second year, who are subsequently the students who successfully completed first year. In the present research it is likely that the less psychopathic business students and the more psychopathic psychology students would have been first to 'attrit' (e.g., by dropping-out or transferring to another discipline which is considered to be of better fit).

This is consistent with ASA and P-E theory, however, a challenge that often presents itself with cross-sectional research such as this is the inability to know what those students who 'attrit' from the business or psychology cohorts (i.e., by dropping out or changing disciplines) would have reported had they remained with their initial choice of academic discipline. Therefore, it may be beneficial for future socialisation research in higher education to expand on the present attrition findings by following-

up with students who may have changed disciplines or withdrawn from their studies at university in pursuit of other vocational interests.

In summary, the present research represents the first attempt to explore the utility of the ASA framework and its underlying processes in a higher educational context. Quantitative findings suggest that selection processes occurring at the attraction and selection stages of discipline entry are primarily responsible for the observed homogeneity within business and psychology student cohorts. Comparatively, qualitative findings highlight the significant influence that business and psychology educational environments have on students' self-image and perception of their discipline, providing evidence of socialisation processes not previously captured with sole quantitative methodology. Findings from this research provide insight into the type of students attracted and selected into business and psychology disciplines as well as furthering insight into how the particular educational environments of these disciplines interact with students' personal characteristics.

8.2 Theoretical Implications

8.2.1 Psychopathy as a Multidimensional Construct

The present findings hold important implications for understanding the manifestation of psychopathic traits in student populations and represents a substantial contribution to the sparse literature examining psychopathy in an Australian community context. Further, findings contribute new cross-cultural knowledge to the nomological net of psychopathy and highlights possible gender differences in the development and manifestation of psychopathic traits as reflected by the SRP-4:SF in an Australian student population. Specifically, Study One highlighted how particular psychopathic propensities were uniquely associated with cognitive and affective empathy as well as the big-five personality traits, supporting a dimensional view of psychopathy and indicating that each of the SRP-4:SF facets (interpersonal manipulation, callous affect, erratic lifestyle and antisocial behaviour) uniquely contributes to the superordinate psychopathy construct.

Although considerable headway has been made in the past two decades concerning psychopathy in non-forensic samples, substantial debate continues among researchers and theorists alike regarding the core characteristics and expression of the construct in the general population and how well these translate to traditional forensic and clinical presentations of psychopathy. Subsequently, several theoretical models have been proposed in the literature to conceptualise differences between community and forensic/clinical psychopathy (Hall & Benning, 2006). The differential-severity model simply suggests that psychopathic traits occur in lower

levels within the general population than in forensic samples (Hare & Neumann, 2008). Comparatively, the moderated expression model of psychopathy posits that etiological and environmental interactions result in variations in the manifestation and expression of psychopathic traits (Steinert, Lishner, Vitacco, & Hong, 2017). According to this model, the behavioural expression of psychopathic traits is moderated by a complex interplay of personal dispositional and environmental factors. For example, previous research has indicated that parental characteristics (e.g., low maternal warmth), harsh discipline, physical or emotional neglect, gender and socio-economic status may all contribute to the manifestation and expression of psychopathic traits (Gao & Raine, 2010; Masui & Ura, 2016). Recently, in line with social-cognitive and functionalist approaches to personality, an elaborated version of the moderated expression model was proposed which argues for the importance of considering the role of situational context as a moderating variable of psychopathic traits (Steinert et al., 2017). This updated perspective proposes three categories of psychopathic trait moderators; structural (e.g., personal characteristics, gender, intelligence), environmental developmental experiences (e.g., antisocial peers) and contextual (e.g., current factors which determine a behaviours functionality in a given situational context; Steinert et al., 2017).

By examining the manifestation and distribution of psychopathic traits, as well as unique facet level differences with relevant external correlates such as empathy and the big-five general personality traits, the present research holds implications for identifying possible moderating factors which may assist in attenuating the negative behavioural expression of psychopathic traits in student populations. Framed within a moderated expression model, the present findings suggest that for business students, normative cognitive empathy and conscientiousness may buffer the negative behavioural effects of maladaptive psychopathic traits, allowing students to successfully navigate through higher educational settings.

8.2.1.1 Psychopathy and the Big-Five Personality Traits

Previous research has argued that the popularity of the PCL-R and the conceptualisation of psychopathy underpinning it has resulted in empirical research drifting away from attempting to uncover the fundamental elements of the psychopathy construct itself and instead moved toward further repeating factor analysis of Hare's (2003) conceptualisation of psychopathy (Lynam & Widiger, 2007). In response to this, recent community-based research has begun to propose conceptualisations of psychopathy based within empirically grounded frameworks of general personality, such as the five-factor model (Lynam & Widiger, 2007; Miller &

Lynam, 2015). Miller and Lynam (2015) note that across multiple theoretical conceptualisations of psychopathy, low levels of agreeableness and low levels of conscientiousness are the most frequent commonalities. For example, low agreeableness is characterised by low altruism, empathy and modesty as well as a lack of compliance, whilst low conscientiousness encompasses a lack of self-discipline, low dutifulness and a lack of planning or forethought (Seara-Cardoso et al., 2019). These characteristics are also core features of psychopathy as measured by the SRP-4:SF (i.e., lack of concern for others, difficulty adhering to rules, and impulsivity; Paulhus et al., 2016).

Consistent with this perspective, the present findings indicated that psychopathy was moderately negatively associated with agreeableness, and weakly negatively associated with conscientiousness. Further, findings indicated the SRP-4:SF factors shared unique and gender-specific associations with the big-five personality traits, allowing for speculation around their potential moderating effect on the expression of psychopathic traits. Specifically, findings suggested that low agreeableness was uniquely associated with the callous affect and to a lesser extent, interpersonal manipulation factors of the SRP-4:SF, whilst conscientiousness was uniquely associated with the erratic lifestyle factor (small effect sizes). This is largely consistent with recent research (Lynam et al., 2018; Seara-Cardoso et al., 2019) and provides further evidence to suggest that interpersonal/affective psychopathic traits are primarily associated with low levels of agreeableness, whilst the erratic lifestyle/antisocial behavioural psychopathic traits are associated with low levels of conscientiousness.

Previous research has also suggested that extreme variants of extraversion and emotional stability also feature within the psychopathic personality however, their role appears to be more complex, operating at a facet level with both high and low levels being associated with psychopathy. For example, high levels of aggression and poor behaviour controls are indicative of low emotional stability (high neuroticism), whilst glibness, lack of anxiety and shallow affect are indicative of high emotional stability (Boduszek & Debowska, 2016). Further, individuals with elevated levels of psychopathic traits are superficially charming and in constant need of stimulation (high extraversion) whilst also displaying blunted affect which is characteristic of low extraversion (Miller & Lynam, 2015). The present findings contribute new evidence that openness to experience may be differentially associated with psychopathic traits as a function of gender. Previous research adopting a 2-factor model of psychopathy has suggested that Factor 2 traits (i.e., erratic lifestyle and antisocial behaviour) are significantly positively associated with

openness to experience for women, but not men (Miller, Watts, & Jones, 2011). The present research builds and expands on this previous work by suggesting that behavioural psychopathic traits, specifically those associated with the erratic lifestyle facet of the SRP-4:SF share significant gender-specific associations with openness for both men and women. Specifically, findings from Study One indicated that the erratic lifestyle facet was positively associated with openness for women, and negatively associated with openness for men (small – moderate effect sizes). Significant gender differences in external correlates of psychopathy speculatively suggests support for the concept that gender-role socialisation may moderate behavioural expressions of psychopathic traits in men and women (Nicholls & Petrila, 2005). For example, the present findings may reflect a greater propensity for risk-taking, sensation-seeking and impulsive or irresponsible behaviour in women with elevated levels of psychopathic traits.

Understanding psychopathy within a generalised and empirically grounded model of personality such as the big-five model provides a universal language for conceptualising a particularly complex personality construct. This is beneficial for encouraging trans-disciplinary research collaboration and understanding. The present findings contribute further evidence that elements of the psychopathic personality can be characterised by low levels of agreeableness and conscientiousness, as well as contribute new evidence to suggest openness may share unique associations with behavioural psychopathic traits as a function of gender. However, conceptualising psychopathy within the five-factor model of generalised personality is still an emerging area of research and further evidence using more comprehensive measures of the big-five traits is required to support these conclusions.

8.2.1.2 Psychopathy and Empathy

The present findings support a view that psychopathy in student populations is characterised by deficits in affective empathy, suggesting that the association between cognitive empathy deficits and psychopathy may be unique to forensic and clinical populations (Seara-Cardoso et al., 2013; Watt & Brooks, 2012). Consistent with this interpretation, Brooks (2016) recently found emotional recognition (associated with cognitive empathy) was negatively associated with psychopathy in a sample of offenders, but not in a community sample or sample of business working professionals. Further, a recent study using the Psychopathic Personality Traits Scale (PPTS) found that cognitive empathy was significantly higher in community and student samples than in a forensic sample (Boduszek et al., 2019),

with students also exhibiting significantly higher levels of interpersonal manipulation and egocentricity compared to that of adult offenders (Boduszek et al., 2019). Taken together, there is increasing empirical evidence to support a view that psychopathic individuals in the community are capable of cognitively understanding the emotional states of others, however, as a result of diminished affective empathy, they are unable to share in those emotional states (Pechorro et al., 2015).

Consistent with the moderated expression model of psychopathy, it is possible that normative levels of cognitive empathy may act as a structural moderator of psychopathic trait manifestation and expression in community samples (Steinert et al., 2017). Cognitive empathy encompasses the ability to accurately interpret another's emotional state (i.e. perspective taking) and decide on the most appropriate reaction, and is considered to be a skill which could be learnt and improved upon over time (Toto et al., 2015). Affective empathy is believed to play an important role in the development of morality and acts as a motivator for engaging in prosocial behaviour, whilst also inhibiting antisocial behaviour (Seara-Cardoso et al., 2013). Thus, as a result of possessing adequate levels of cognitive empathy, individuals with elevated levels of psychopathic traits in the community are able to appear superficially charming and demonstrate adequate social functioning, which allows them to avoid contact with the justice system, whilst continuing to engage in covert forms of antisocial behaviour (e.g., academic misconduct and fraud) in order to achieve self-interested goals (Lockwood et al., 2013).

In regard to the present findings, it is possible that possessing adequate cognitive empathic ability in addition to elevated levels of interpersonal/affective psychopathic traits may have adaptive utility in achieving the financial self-interested goals reportedly driving business students' motivation for academic discipline selection. For example, in the context of business negotiations, previous research has highlighted the importance of cognitive empathy in understanding client's motives and anticipating their behaviour in order to achieve optimal self-serving outcomes (Galinsky et al., 2008). Comparatively, the ability to connect emotionally with clients (i.e., affective empathy) is thought to impede objective-decision making and compromise the obtainment of self-interested goals (Galinsky et al., 2008). Therefore, individuals with elevated levels of interpersonal/affective psychopathic traits and intact cognitive empathy may self-select into a business discipline as they believe these traits will assist them in achieving self-interested financial goals. Further, once enrolled, these individuals may be more likely to use their cognitive empathic ability to manipulate and coerce others for their own benefit without feeling any guilt or remorse. The present interpretations are consistent with recent research

indicating individuals with elevated levels of psychopathic traits do not demonstrate impairment in their ability to cognitively understand what is expected of them in social contexts, however they do not tend to consider other's expectations of them in their decision-making process (Gong et al., 2019). This tendency to understand, but disregard others' emotions and act in self-interested ways is consistent with adequate cognitive empathy, but deficits in affective empathy (Lockwood et al., 2013).

8.2.2 The ASA Framework, Selection and Socialisation

The ASA framework has traditionally sat in contrast to other theories of P-E fit (e.g., career theory models; see Lent, Brown & Hackett, 2002) in that it emphasises the individual agency of people as being responsible for homogenisation within organisational groups (Schneider, 1987; Schneider et al., 1995). According to the ASA framework, individuals will self-select environments based on unconscious assessments of 'fit', that is, how well suited they consider their personal attributes will be in a given environmental context, with people tending to select environments which maximise their chances of being successful. Comparatively, other person-environment fit theories tend to adopt a more interactionist approach, suggesting that individual behaviour is a function of both internal personal characteristics and external environmental influences (Sekiguchi, 2004).

Working within this integrated framework, findings from the present study indicated that psychology students were significantly more empathic than business students, who exhibited significantly higher levels of psychopathic traits than psychology students, providing theoretical support for the attraction and selection components of the ASA framework contributing to personality homogenisation within these two cohorts. Additionally, qualitative findings from Chapter 7 indicated that both business and psychology students were more likely to shift their self-perceptions to better align with the perception of their respective discipline than to change their initial views of the discipline. This is theoretically consistent with previous research indicating that an individual's personality will adapt to meet the needs of their vocational environment as they became committed and emotionally invested in their chosen vocation (Bleidorn, 2012; Hudson et al., 2012). Therefore, findings from the present research may provide further support for social investment theory.

Good P-E fit is generally considered to be when both the person and organisation share similar characteristics and fulfil the needs of one another (Kristof, 1996). Theories of P-E fit therefore tend to operate on the assumption that how well

someone fits with their work environment is associated with positive outcomes for both the individual and the wider organisation (King et al., 2017). For example, Social Investment Theory suggests that good fit between the person and their external work environment results in the individual becoming socially invested in their work (Hudson et al., 2012; Lodi-Smith & Roberts, 2007). Previous research has suggested that when individuals become socially invested in their work roles they contribute positively to the organisational environment (e.g., increased job performance) and usually embody the overall goals of the organisation (King et al., 2017; Lodi-Smith & Roberts, 2007).

Given the higher prevalence of psychopathic traits in business students, consistent with P-E fit, one might expect these traits to be associated with improved chances of success. However, this is inconsistent with previous findings from corporate settings (Babiak et al., 2010). For example, longitudinal findings from ten Brinke et al. (2018) indicated a negative relationship between psychopathic traits and financial investment performance. To the best of the author's knowledge, the only previous research to directly examine the association between psychopathic traits and academic success in business and psychology students was the UK study conducted by Hassall et al. (2015). Findings indicated that all four psychopathy facets accounted for a significant 11% of variance in academic achievement. However, antisocial traits were the only unique predictor of academic success, with students scoring higher on this facet tending to achieve poorer grades than their less antisocial peers (Hassall et al., 2015). Therefore, it would be useful for future research to build on the present findings by including a measure of academic performance or some form of evaluative data to determine whether psychopathic traits and empathy are associated with academic success for business and psychology students.

Further, as psychopathy is characterised by patterns of interpersonal manipulation, it is unlikely that employees with high levels of these traits will become socially invested in their work environment. These individuals are particularly effective at falsely presenting themselves as ideal management material in order to achieve self-interested goals and are unlikely to have any interest in contributing to those of the organisation (Babiak et al., 2010; Lilienfeld et al., 2014; Pavlić & Međedović, 2019). Other research has provided evidence that political leaders who display psychopathic behaviours tend to yield less political influence and receive less support from their peers compared to their non-psychopathic counterparts (Ten Brinke et al., 2016). It is possible that psychopathic traits are adaptive in the sense that they assist individuals in quickly rising to leadership or managerial positions in

particular workplace contexts. However, they also undermine the collaborative efforts required for a successful work environment, which can result in suboptimal outcomes and contribute to the creation of toxic organisational cultures (Gervais et al., 2013; Hildreth & Anderson, 2016; Porath et al., 2015; ten Brinke et al., 2015; ten Brinke et al., 2018).

High levels of sub-clinical psychopathic traits have previously been associated with increased likelihood of occupying a leadership or managerial position (Lilienfeld et al., 2014). However, it appears as though these individuals are also less likely to become socially invested in their work environment. Consequently, these leaders or managers do not tend to embody the goals of their respective organisations or contribute positively to the organisational culture. In other words, when it comes psychopathic traits in the workplace, the concepts underpinning theories of P-E fit may not necessarily 'fit'.

Previous prospective-longitudinal research has suggested that personality change can occur within very short time periods if triggered by major life transitions, such as graduation from school (Bleidorn, 2012), beginning tertiary training or undertaking an international student-exchange year (Zimmermann & Neyer, 2013). The present findings support this assertion and also indicated that the nature of perceived self-changes reported by students varied between business and psychology cohorts, suggesting the possibility of unique socialisation processes occurring within these two educational environments. Specifically, business students reported becoming more socially confident, emotionally stable, extraverted, and socially dominant as a result of their educational experience. Comparatively, as a result of their educational experience, psychology students reported becoming more empathic, considerate, and respectful of others' experiences and emotions as well as developing a more accommodating and less judgemental worldview. This is consistent with previous literature suggesting that business schools tend to emphasise self-enhancement values that promote self-interest by focusing on gaining control over other people and resources as well as demonstrating competence and success, whilst psychology schools tend to foster values of acceptance and tolerance which promote altruistic care and concern for others' wellbeing (Arieli et al., 2016). Therefore, it appears the present findings support the hypothesis that university students will adopt a set of group norms and beliefs consistent with their academic discipline within the initial six months of enrolment (Guimond & Palmer, 1990).

Taken together, findings from the present research indicate that homogenisation within business and psychology student cohorts is a function of attraction and

selection processes, driven by pre-existing individual differences, in combination with socialisation processes occurring after enrolment which serve to enhance levels of student-discipline fit by shaping students' characteristic adaptations (e.g., skills, attitudes, values, social roles) to align with those typically expected by professionals within their respective fields.

8.3 Applied Implications

The present research furthers understanding about the types of individuals who are attracted and selected into business and psychology degrees in Australian higher education and thus, the types of people who are likely determined to form the future workforce of these professions. It is anticipated that the findings may have utility for business and psychology educational stakeholders in informing future recruitment, selection and teaching practices in Australian business and psychology higher education.

8.3.1 Business Education

It has previously been suggested that some psychopathic traits may have functional adaptivity in business professions (Smith & Lilienfeld, 2013). Individuals with higher levels of psychopathy are thought to excel in environments which value objective, emotionless decision-making, a willingness to take risks and are constantly focused on achievement (O'Boyle Jr et al., 2012). Affective callousness and interpersonal manipulateness are positively associated with one's ability to persuade and influence others and may therefore be adaptive in business negotiations (Babiak et al., 2010). Recently, Pavlić and Međedović (2019) also found ruthless manipulation (e.g., interpersonal manipulation, self-interest, grandiose sense of self-worth, insincerity and deception) to be positively related with employee salary. However, despite university training being a pre-cursor to a future vocational pathway and the beginning of one's professional socialisation, very little research has focused on examining psychopathic traits in business students.

Consistent with the concept of person-environment fit and the ASA framework, the present findings provide support for previous literature indicating students with elevated levels of psychopathic traits demonstrate a preference for educational environments which emphasise social dominance and an aversion to those that focus on empathy and concern for others' wellbeing (Clow & Scott, 2007). Further, findings from Study One indicated that business students not only reported significantly higher levels of psychopathic traits than psychology students, but also demonstrated significantly higher scores on the interpersonal manipulation ($d = .31$),

callous affect ($d = .22$) and erratic lifestyle ($d = .37$) SRP-4:SF facets than a large American normative student sample (Dotterer et al., 2017; $N = 2111$).

Taken together, the present research suggests that Australian undergraduate business students tend to exhibit average to above average cognitive empathic ability and significantly higher levels of psychopathic traits than normative student populations in other countries. Specifically, collective findings indicated that business students exhibit significantly higher levels of interpersonal and affective psychopathic traits than psychology students. This finding is consistent with previous research suggesting that 'successful' psychopathy (i.e., presentations of elevated levels of psychopathic traits in community settings) is characterised by elevated levels of interpersonal and affective psychopathic traits, rather than elevated levels of behavioural characteristics (e.g., erratic lifestyle and antisocial behaviour; Bailey, 2019). It has been suggested that this presentation is what permits individuals with elevated levels of psychopathic traits in the community to exhibit adequate impulse control and subsequently excel in strategic, more covert antisocial behaviour which violates social norms yet facilitates opportunities for attaining self-interested goals (Pavlič & Međedović, 2019; Skeem et al., 2011).

Findings also support previous research by Wilson and McCarthy (2011) who found that business and commerce students exhibited significantly higher levels of interpersonal and affective psychopathic traits than students in other disciplines. This suggests that business students may be more prone to act in superficially charming, but interpersonally manipulative and deceptive ways in order to achieve self-interested goals than students in other academic disciplines. It is possible that possessing higher levels of these particular psychopathic traits assists business students in presenting themselves as strong candidates for corporate leadership and managerial roles. For example, interpersonal manipulation and grandiose sense of self-worth could be perceived as self-confidence and charisma, whilst shallow affect and a lack of guilt or remorse could be interpreted as having the emotional stability required to remain objective and rational under pressure (Pavlič & Međedović, 2019). However, the negative implications of elevated levels of psychopathic traits within non-forensic/clinical settings should not be underestimated. For example, although previous research has suggested that individuals with elevated levels of psychopathic traits in the workplace were perceived as having strong communication skills and being strategic in their thinking by their colleagues, they were also seen as being poor team players and having poor managerial skills (Babiak et al., 2010). Additional organisational research has indicated that elevated levels of psychopathic traits are positively associated with

antisocial workplace behaviour including; bullying, fraud and anti-authoritarian attitudes (Gudmundsson & Southey, 2011).

The present findings therefore hold several important implications for business educators. The nature of a business school is to equip individuals with an academic and social skill set which will assist them to succeed in a competitive corporate environment (Brown et al., 2010). These educational environments tend to emphasise success, self-interest and achievement (Arieli et al., 2016). In line with power and achievement values, business educators typically focus on teaching analytical skills aimed at maximising financial profit that allows students to achieve personal and organisational success. Business students are subsequently exposed to an economically based model of human behaviour which posits that people are; “*rational maximisers of individual utility*” – (Elegido, 2014, p. 16). This model is thought to minimise, if not completely ignore the role of human emotionality in business decision-making, subsequently resulting in students becoming increasingly competitive and likely to prioritise their own needs over others (Elegido, 2014). Business schools Indeed, previous studies have indicated business students tend to be more narcissistic (Brown et al., 2010) and motivated by financial self-interested goals than students in other disciplines (Arieli et al., 2016). Consistent with this, the present research indicated that business students tend to be primarily drawn to the discipline for self-interested financial motives and expressed a view that agreeableness was the least important characteristic required for success within their future vocation. This may indicate that Australian business schools are advertising the discipline in such a way that attracts prospective students who do not tend to value the needs of others and are more likely to engage in deceptive and interpersonally manipulative behaviour in order to attain self-interested goals.

Previous empirical research has illustrated that students with higher levels of psychopathy (as measured by the SRP) are more likely to engage in forms of academic misconduct such as exam cheating (Nathanson, Paulhus, & Williams, 2006), and plagiarism (Williams, Nathanson, & Paulhus, 2010). Specifically, Coyne and Thomas (2008) suggest that elevated levels of interpersonal and affective psychopathic traits positively predict cheating behaviour in university students. Therefore, the present findings suggest that business students may be more likely to engage in academic misconduct and other dissocial behaviour than students from other academic disciplines. However, as illustrated by Frank (2004), engaging in cheating and other forms of unethical behaviour is influenced in part by dispositional student characteristics in combination with the educational experience provided and underlying ideology being taught within the discipline. As a result, adopting an

empathic, people-centred approach to business education and emphasising the importance of morality plays a crucial role in developing good ethical decision-making skills amongst students (Frank, 2004).

The importance of integrating ethical and prosocial values into business school curricula has become a popular topic of interest in management and organisational research in the last decade. Previous literature has criticised business schools for failing to foster the development of ethical behaviour and business practices amongst its business graduates (e.g., Brown et al., 2010). As behaviour is a function of personality, business schools could elicit desirable behavioural change in students by influencing personal attributes (e.g., attitudes and goals), which are significantly less stable than personality traits and therefore more susceptible to the influence of external environmental pressures (Arieli et al., 2016). For example, undergraduate business curriculums could consider incorporating mandatory community-based volunteer work for first year students to encourage self and other awareness and foster the development of altruistic, and prosocial behaviour. Such an immersive practical experience early on in the undergraduate business curriculum introduces a broader, more holistic view of human nature and provides an opportunity for business students to develop greater insight into the complexity of human nature in the context of 'real-world' business decision-making (Elegido, 2014).

8.3.2 Psychology Education

The present research contributes further understanding to the types of students attracted and selected into undergraduate psychology degrees in Australian universities and provides an in-depth examination of student motivations for discipline selection as well as perceptions of their educational experience. Consistent with previous research (Harton & Lyons, 2003), the present findings provide evidence that females, highly agreeable and empathic students are more likely to be attracted and selected into a psychology discipline than a business discipline. Further, psychology students were found to be primarily motivated in their discipline choice by an interest in the applied practice of psychology, with over one third of all psychology students in Study Three reportedly self-selecting psychology because of a strong interest for learning about human behaviour and emotion in order to gain further insight into their own and others behaviours. This finding is largely consistent with previous research indicating students tend to pursue psychology primarily out of a desire to become practicing psychologists (Green et

al., 2017) and deepen self-insight, a term recently coined 'Mearch' by Holmes and Roberts (2019).

Despite being one of the most popular undergraduate courses in Australia, due to post-graduate programs being highly competitive, it has been estimated that less than 25% of undergraduate students will go on to become registered psychologists (Green et al., 2015). This competition was also reflected in the present longitudinal findings, with students reportedly finding their studies more competitive than they had initially anticipated in the context of limited post-graduate placements.

Subsequently, several students also expressed concerns about being able to obtain future employment in the field. Psychology programs in Australia are underpinned by the science-practitioner model; an approach which integrates science, theory and applied practice into psychology training programs. However, the science and theory components of this model saturate the undergraduate curriculum, with post-graduate programs focused on providing opportunities for previously learned theoretical knowledge to be applied to the professional practice of psychology (Green et al., 2017). Previous research has indicated that new first year psychology students enter the discipline largely unaware of the level of research and statistical methods training involved in completing an undergraduate psychology degree (Freng et al., 2011; Green et al., 2015). Specifically, previous research has provided evidence that psychology students often enter their undergraduate training with the expectation that much of their learning will centre around clinical skills with applied practicality to professional psychologists (Gaither & Butler, 2005; Goedeke & Gibson, 2011). Consistent with this, the present research indicated that psychology students perceived the course content to be significantly more research focused than initially anticipated and lacking in applicability to professional psychology. Further, this perceived lack of applicability was reportedly associated with decreased interest in the discipline and dissatisfaction with course content. These findings are consistent with previous evidence suggesting students' retrospective perceptions of their course expectations are associated with current levels of satisfaction with their studies (Appleton-Knapp & Krentler, 2006; Green et al., 2015). Therefore, the present research indicates that psychology student satisfaction and subsequently retention, is dependent, in part, on students' ability to understand the applied value of course content.

Australian undergraduate psychology education has been recently criticised for failing to provide adequate opportunities for applied skill development (Golding, Breen, Krause, & Allen, 2019). Coincidentally, concerns have begun to emerge regarding undergraduate psychology graduates' lack of applied skill and work

readiness (Hamilton et al., 2018). Previous research has indicated that psychology undergraduate students report a lack of practical and professional skills after completing their degree (Martin, Ginns, Brackett, Malmberg, & Hall, 2013). This concern has also been echoed by both psychology school faculty and employers of psychology graduates (Dzidic, Breen, & Bishop, 2013; Pachana, Sofronoff, Scott, & Helmes, 2011; Sheen, McGillivray, Gurtman, & Boyd, 2015). As highlighted in the present research, if students are unable to comprehend the applied utility of the science and theory-based knowledge taught in undergraduate curriculums, they are likely to lose interest and satisfaction with the discipline. As future university funding is likely to be dependent on graduate employability, the higher education literature has seen a renewed focus on emphasising work readiness of graduates (Hamilton et al., 2018). Previous Australian research has provided evidence for the utility of implementing capstone courses and work integrated learning experiences in other academic disciplines (e.g., engineering), suggesting these experiences are effective in improving students' perceived sense of employability (Jollands, 2015). Capstones and work integrated learning experiences provide students with opportunities to apply their theoretical knowledge with practice (Hamilton et al., 2018). These activities are associated with a number of beneficial student outcomes including; enhanced self-esteem, social skill development and increased networking opportunities, as well as, providing an opportunity to gain practical experience in the field (Hamilton et al., 2018). There is an increasing body of research indicating that the implementation of work integrated learning experiences into undergraduate psychology curricula may present a viable method for addressing work readiness concerns as it provides students with opportunities to consolidate their psychological literacy, apply learning to a practical setting, and improve research interest (Golding et al., 2019; Hamilton et al., 2018; Kent, Allen, Harding, & Fielding, 2019).

Recent research has indicated that psychology graduates of Bachelor's programs who do not continue on to further post-graduate study often feel their training is irrelevant and have difficulty describing their transferable knowledge and skillsets to other occupational fields (Hamilton et al., 2018). Despite being equipped with a range of knowledge and skills relevant to other professions (e.g., teamwork, problem-solving, critical thinking and reasoning skills and effective communication), 55% of psychology undergraduate students in Australia are reported to be still seeking professional employment within six months of graduation (Graduate Careers Australia, 2015). The range of knowledge and skills developed by students during their undergraduate psychology training are considered to be applicable to a variety of industries and professions, however students and employers alike are

often unaware of how best to articulate these skillsets (Hamilton et al., 2018). In response to this, psychology schools have focused on developing a set of graduate attributes for undergraduate psychology training programs. Graduate attributes are considered the skills, discipline-specific knowledge and qualities that educational faculties aim to develop in their students throughout the course of their degree. Subsequently, these attributes determine the contribution students are able to make to their field of study upon graduating (Cranney et al., 2009). Recently, the Australian Psychology Accreditation Council (APAC; 2019), outlined six competencies expected of students who complete a 3-year undergraduate psychology program. These were; “(1) *Understand and apply a broad knowledge of psychology, including relevant theories and concepts, using a scientific approach;* (2) *Apply knowledge and skills of psychology in a manner that is reflexive, culturally appropriate and sensitive to the diversity of individuals;* (3) *Critically analyse psychology theory and research and effectively communicate these in both oral and written formats;* (4) *Demonstrate an understanding of appropriate values and ethics in psychology;* (5) *Demonstrate interpersonal skills and teamwork;* (6) *Demonstrate self-directed pursuit of scholarly inquiry in psychology.*” (APAC Accreditation Standards for Psychology Programs, 2019; p. 11). Morris, Cranney, Jeong, and Mellish (2013) have also proposed several associated psychology graduate attributes encompassing more generalised skills (e.g., communication and interpersonal skills, critical and creative thinking), as well as students’ ability to apply learnt discipline-specific knowledge, theories, and concepts to their wider life-context to meet life-long personal, professional and societal needs – coined ‘psychological literacy’ (Morris et al., 2013). Psychological literacy is emerging as a popular topic of interest amongst psychology researchers and educators alike, as it encompasses many elements of the desired graduate attributes (e.g., knowledge, attitudes and skills) considered important for psychology graduates’ work-readiness (Hamilton et al., 2018).

In accordance with the process of professional socialisation, progressive development of psychology graduate attributes is expected as students transition through each year of the undergraduate program (Cranney et al., 2009). However, in order to establish whether desired graduate attributes, such as psychological literacy, are being adequately developed, it is important to consider students’ perceptions and expectations as they continue through their educational training (Green et al., 2017). Very little evidence to date has explored the development of psychology graduate attributes in Australian higher education and thus, the present research represents a substantial contribution to the literature on Australian

psychology graduate attributes and holds several important implications for psychology educators. Longitudinal qualitative findings indicated that psychology students perceived their educational experience had resulted in improved confidence to apply learnt psychological concepts and theories to personal and social relationships outside of the educational context. Further, as a result of being able to apply previously learnt knowledge to wider personal contexts, students reported experiencing increased self-confidence and emotional stability.

Green et al. (2017) suggests that in order to develop the graduate attribute of psychological literacy, students must be able to identify and develop personal values consistent with the field of psychology by demonstrating self-insight and being willing to reflect and learn from experiences. The present qualitative findings also provided evidence to suggest that as a result of their educational experience, psychology students developed a more accommodating and less judgemental world view. Responses reflected an openness toward alternative views, highlighting an increase in interpersonal consideration for others and respect for others' experiences and emotional responses, psychology student responses also specifically indicated a belief that their educational experience was associated with increased empathy and perspective-taking. These findings are theoretically consistent with the process of socialisation and contrast previous research suggesting that empathy declines over the course of study in health-related disciplines (Kelm et al., 2014). The present research therefore provides evidence to suggest that educational experiences provided by undergraduate Australian psychology programs are positively associated with students perceived psychological literacy development and beneficial student outcomes.

If undergraduate psychology education in Australia is to be improved, it is necessary to ascertain whether students' perceptions and expectations of the discipline are realistic upon enrolment. For example, in order to achieve good student-discipline fit, consistent with the ASA framework, students' initial assessment of fit must be based on accurate perceptions and realistic course expectations (Green et al., 2017). The present findings indicate that despite current efforts by Australian psychology schools to provide accurate course information and expectations, students are continuing to enter the discipline primarily driven by an interest in becoming practicing psychologists, with an expectation they will experience more practical and skills-based training. Subsequently, students are confronted with a mismatch between their initial expectations and actual educational experience of the undergraduate psychology curriculum, resulting in decreased student interest, dissatisfaction and potentially, higher rates of attrition. Thus, the

effective communication of course content and promotion of a variety of associated career pathways outside the realm of practicing psychologists is highlighted as an important area for psychology educators to focus on in their recruitment and advertising of undergraduate programs to prospective students (Green et al., 2015). This will provide students with the required information to make accurate assessments of student-discipline fit, subsequently improving retention rates and maximising student satisfaction. An additional benefit of this approach is that it may increase student diversity, as it increases the general public's knowledge of the many desirable and transferable skills an undergraduate psychology degree can offer which may be applicable to other disciplines and occupations.

8.4 Strengths of the Research

No previous research has provided evidence for the interplay of both selection and socialisation processes in higher education within a singular theoretical framework such as the ASA model. The present research is, therefore, the first to apply the ASA framework of organisational behaviour to an educational setting to explore processes influencing student personality homogeneity prior to organisational entry. The studies included as part of this thesis were characterised by several strengths. A significant sampling strength of the present research was that participants were drawn from across four separate Australian universities, increasing the generalisability of findings to Australian business and psychology education more broadly as opposed to being influenced by particular institutional factors. Further, previous research investigating the influence of student personality on academic decision-making has largely focused on measuring broad personality traits such as the big-five factors, however, it is likely lower-level (i.e., facet) characteristics may provide better behavioural predictions such as choice of academic discipline (Vedel et al., 2015). Therefore, another strength was that the present research included broad general personality traits (extraversion, agreeableness, conscientiousness, emotional stability and openness) as well as differentiated between facet-level empathy (i.e., cognitive and affective) and psychopathic traits (i.e., interpersonal manipulation, callous affect, erratic lifestyle and antisocial behaviour). This allowed for exploration of unique facet-level associations and further clarification of the relationship between psychopathic traits and empathy in non-clinical populations.

The present research also included several methodology strengths. The inclusion of cross-sectional and longitudinal methodology enabled the present research to examine the relative importance of attraction and selection as well as socialisation

processes in the context of both group-level and individual-level change. Further, the mixed-methods approach adopted in the present research built on previous findings by providing a more in-depth examination of the complex interplay between student personality factors and external environment influences which contribute to Australian business and psychology students' choice of academic discipline and educational experiences. Finally, the present research represents the largest Australian sample to use the SRP family of measures to date and therefore, provides foundational normative data for Australian psychology and business student populations. Although there were significant strengths to the current thesis, the findings and interpretations offered must be considered in the context of research design and methodological limitations.

8.5 Limitations of the Research

8.5.1 Sampling Issues

The generalisability of interpretations and conclusions drawn in several of the studies included as part of this thesis were limited by relatively small and unequal sample sizes (see Chapter 5 and Chapter 6). This subsequently reduced the likelihood of detecting the hypothesised significant interaction effects generalisable to a wider student population. Future longitudinal research with larger and more normally distributed data is, therefore, required to bolster support for the present conclusions. Additionally, in order to further examine empathy and psychopathic trait expression in higher education, it would be useful for future studies to expand the scope of academic disciplines beyond those included in the present research. Although efforts were made to maximise participation retention, the longitudinal study included as part of this thesis included notable levels of attrition. Attrition not an uncommon feature of longitudinal research designs (Mroczek, 2007), and is not typically considered to be problematic unless respondents and non-respondents are significantly different in terms of key variables. Findings from Study Five (Chapter 7) indicated there were only four (out of a possible 15) significant differences between participants who only completed T1 and those who completed both T1 and T2 questionnaires. These differences were not considered to endanger the validity of the conclusions as they could be explained as being consistent with the personality trait in question (e.g., erratic lifestyle).

8.5.1.1 Assuming Homogeneity

The present research assumes that business and psychology students are relatively homogeneous cohorts in regard to personality profiles. However, in reality,

this is not likely to be the case. For example, undergraduate business education in Australia is heterogeneous, with students choosing to specialise in majors associated with a variety of business occupations (e.g., marketing, finance, accounting). Further, undergraduate psychology degrees in Australia offer the opportunity to pursue either a career in academia/research or specialise in a variety of practicing areas during post-graduate studies (e.g., clinical, organisational or community psychology), likely attracting a heterogeneous student cohort. As previous research has indicated that personality homogeneity is stronger at an occupational, rather than organisational level (Bradley-Geist & Landis, 2011; King et al., 2017), it is likely that specific business majors and post-graduate psychology programs attract different personality types and thus examination of homogeneity within these areas may pose an interesting direction for further research. Further, the present research assumed homogeneity regarding the degree of exposure to socialisation within the educational environment and degree of potential previous exposure to socialisation influences. For example, mode of enrolment (e.g., full-time or part-time, face-to-face or online) may influence the level to which students are exposed to socialisation effects and thus the impact on personality development. Additionally, although students in Study Three (see Chapter 4) were classified as being 'newly enrolled' in their current degree, it is possible that students were previously exposed to socialisation processes in different educational or vocational environments (e.g., if students had previously studied in another area).

8.5.2 Methodology Considerations

The present research utilised both cross-sectional and longitudinal methodology to examine the influence of socialisation processes in business and psychology educational environments on students' empathy and psychopathic personality trait development. Therefore, there is the potential for the findings from Study Two (see Chapter 4) to be subject to cohort bias and should be interpreted accordingly with caution. To examine the effects of individual-level socialisation as a result of educational experience, the present research also included a longitudinal study (see Chapter 7), which examined empathy and psychopathic traits at two separate time points over a one-year period. However, business and psychology undergraduate training in Australia lasts on average 3 – 4 years for a student enrolled full-time. Therefore, it is possible that the one-year time frame adopted in Study Five (see Chapter 7) was too short to capture the effects of socialisation on student personality variables. Subsequently, in order to reliably determine the effects of educational socialisation on student personality, future research should attempt to

longitudinally track students throughout the duration of their training up until entry to their professional career. Additionally, whilst the present research provides important insight into the types of people who are attracted and selected into business and psychology vocations, the possible advantages of possessing such a personality profile was not examined, limiting the conclusions that can be drawn regarding whether these characteristics are representative of optimal student-discipline 'fit'. Therefore, future research might be directed at exploring the adaptive functionality of facet-level empathy and psychopathic traits and the implications for academic success within psychology and business disciplines, respectively.

The present research provides some evidence to support the homogeneity hypothesis underpinning the ASA framework as proposed by Schneider (1987). However, it should be noted that as no measures of personal or group success were included in the studies included as part of this thesis, no comment can be made regarding the potential benefits or disadvantages of such homogeneity. This remains an interesting avenue for future research to explore.

8.5.3 Measurement Limitations

8.5.3.1 Psychopathy Self-Report Measures

Self-report measures of psychopathy have succeeded in advancing our knowledge and understanding of psychopathic traits in non-clinical contexts and offer a more economic approach to assessment than the standard PCL-R clinical interview. However, concerns regarding the ability of self-report measures to accurately capture a construct that is inherently characterised by dishonesty and a lack of self-insight are well documented in the literature (C. J. Patrick, 2018). To account for possible effects of impression management, the present research included a measure of social desirability. Consistent with meta-analytic findings (Ray et al., 2013), the present research indicated that social desirability scores are weakly negatively associated with psychopathic traits. This finding supports a view that individuals with elevated levels of psychopathic traits in the community are not as susceptible to socially desirable responding as their forensic counterparts (Miller & Lynam, 2015; Ray et al., 2013).

8.5.3.2 Ten-Item Personality Inventory

Contrary to previous research (Boduszek & Debowska, 2016), the present findings failed to support any unique associations between psychopathic traits and extraversion or emotional stability. It is likely this is due to the measure of big-five personality traits used in the present research being designed to capture the broad big-five domains. Further, the TIPI factors demonstrated low internal consistency,

which is to be expected due to only containing two items for each factor. This choice of measurement limited the ability for lower-level facet analysis and subsequently opens a future avenue for further research using a more comprehensive measure of big-five personality traits and associated lower-level facets.

8.6 Concluding Remarks and Future Research Directions

The present research makes a substantial, original and significant contribution to the growing body of literature regarding the stable vs. fluid nature of personality traits in social contexts by providing insight into the influence unique educational environments have on shaping students' personality and perceptions. Contrary to expectation, findings from Chapter 4 indicated that psychopathic traits were not significant predictors of student's academic discipline. As the regression analysis was run on the sample as a whole, it is possible there may be gender-specific differences in predictors of student academic discipline which were not detected in the present analysis. Thus, a useful avenue for future research may be to replicate the current research using a larger sample size, where regression models are able to be run for males and females separately. Related to the issue of sample size, students studying both business and psychology were excluded from the present research as the numbers were too low to analyse them as a separate group. This could also pose an interesting area for future research. Theoretically, it might be expected that this group would score in-between strictly business or psychology students on empathy and psychopathic traits. For example, they may demonstrate higher empathy than business students, but lower levels of psychopathic traits.

Finally, it could be argued that the level of immersion in a formal academic environment is not equitable with that of a full-time job (i.e., 8-12 hours a day) with regard to the amount of time spent engaged in academic related activities (e.g., attending classes, labs, lectures etc). However, as the academic environment tends to be more variable than a traditional workplace, students are more likely to spend time 'after hours' with peers in their same respective discipline completing group activities and projects. This would presumably have an influence on behaviour, similar to that of being in the formal academic environment. Future research might look to collect data on a range of academic related activities in order to fully gauge the level of student engagement with their respective academic discipline.

Taken together, findings highlight significant individual differences between business and psychology students and provide support for the utility of the ASA theoretical framework in understanding processes contributing to within group homogeneity in higher educational contexts. Specifically, findings provide evidence

that a complex interplay of attraction, selection and socialisation processes contribute to increased personality homogenisation within business and psychology disciplines.

Chapter 9: References

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Licensed Content Title	Empathy and psychopathic traits as predictors of selection into business or psychology disciplines
Licensed Content Author	Robert Kane, Emily Castell, Richard K. Ladyshevsky, et al
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Type of use	Dissertation/Thesis
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Title of your thesis / dissertation	Psychopathic Personality Traits and Empathy in Business and Psychology Students
Expected completion date	Dec 2019
Expected size (number of pages)	246
Requestor Location	Ms. Verity Litten 121 Manning Road Manning Perth, WA 6152 Australia Attn: Ms. Verity Litten
Publisher Tax ID	EU826007151

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The influence of academic discipline on empathy and psychopathic personality traits in undergraduate students

Author: Verity Litten, Lynne D. Roberts, Richard K. Ladyshevsky, Emily Castell, Robert Kane

Publication: Personality and Individual Differences

Publisher: Elsevier

Date: 1 March 2018

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Appendix C

Chapter 6 Publication – Journal Personality and Individual Differences

Personality and Individual Differences 123 (2018) 145–150



Contents lists available at ScienceDirect

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The influence of academic discipline on empathy and psychopathic personality traits in undergraduate students



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ARTICLE INFO

Keywords:
Empathy
Psychopathic traits
Business
Students
Attraction, Selection, Attrition

ABSTRACT

The Attraction, Selection and Attrition (ASA) model posits that people are attracted to organizations that embody similar personality traits and values to their own. These traits are thought to be further shaped by the organization's culture, ultimately creating a homogenous workforce within the organization (Schneider, 1987). This research applies the ASA model to investigate whether specific university disciplines have an impact on the development of psychopathic traits and empathy in students. An online survey collected data on levels of psychopathic traits and empathy from 259 psychology and business undergraduate students to examine whether group level variations were present across years and disciplines. Generalized Linear Mixed Modelling analyses supported the hypothesized interaction effects of year of study and discipline for psychopathic traits only. Moderate-large discipline effect sizes were noted, with psychology students reporting significantly higher levels of cognitive ($d = 0.77$) and total empathy ($d = 0.74$) than business students. Additionally, business students reported significantly higher levels of affective, antisocial, interpersonal and total psychopathic traits than psychology students ($d = 0.36$ – 0.45). Findings provide support for the attraction and selection components of the ASA model. Implications of these findings are discussed in the context of the model and self-selection.

1. Introduction

The personality literature has established that external environments play a pivotal role in personality trait development (Roberts, Walton, & Viechtbauer, 2006). Changes in personality traits tend to be most dramatic during young adulthood; a period of time when many are in university and/or starting a career (Roberts et al., 2006). The present study investigated the impact university discipline may have on students' personality trait development, situated within Schneider's (1987) Attraction, Selection, Attrition theoretical framework.

Schneider's (1987) Attraction, Selection, Attrition (ASA) model posits that people will be attracted to organizations that they perceive as aligning with their own personality traits, values and interests. Organizations will select employees in a similar fashion, resulting in the individual traits of the employee continuing to be accentuated by the organizational environment as well as their unique life experiences. Employees who do not fit the organization culture over time either resign or are terminated by the organization, resulting in a homogenous workforce (Schneider, 1987).

The ASA model is underpinned by the self-selection and indoctrination hypotheses. The self-selection hypothesis, congruent with the attraction and selection components of the ASA model, posits that

individuals will be attracted to vocational choices that they believe to embody their own personality characteristics. The indoctrination hypothesis, congruent with the final attrition component of the ASA model, suggests that particular vocational environments will influence or enhance the development of personality characteristics which may be advantageous to that environment (Elegido, 2014). Previous literature has found strong support for the self-selection hypothesis however evidence for the indoctrination hypothesis is sparser (Elegido, 2014).

It should be noted however that attraction, selection and attrition are also influenced by genetic factors (see Scarr & McCartney (1983) for an overview of this work), certain environmental demands and expectations such as income and societal pressures. The 'Plasticity Principle', coined by Roberts, Wood, and Caspi (2008) posits that personality trait change can also be brought about by repeated exposure to reward and punishment schedules which aim to shape behaviour to align with social roles (Roberts et al., 2008). Workplace environments are capable of influencing personality trait changes due to the operant conditioning of employees via punishment and reward within the workplace environment (Le et al., 2014).

It is a small inferential leap to apply the ASA model to a university setting. For example, Vedel and Thomsen (2017) found that students who were motivated by power, self-interest and financial gain were

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more likely to enrol in a business degree as this leads to a career which encourages and rewards self-interested behaviour (psychopathic alignment). Comparatively, psychology students reported the highest levels of openness and agreeableness (empathy alignment; Vedel & Thomsen, 2017) which are appropriate for working in this field. Therefore, drawing on the ASA model, it is proposed that empathic and psychopathic personality traits which initially attract students to a course in psychology or business are the same ones that may be influenced and accentuated as they progress through their degree.

1.1. Empathy

The construct of empathy is the single most researched variable in relation to psychotherapeutic processes (Camarano, 2011; Marangoni, Garcia, Ickes, & Teng, 1995), with psychologists thought to rely heavily on the emotional ability to exhibit empathy – to cognitively understand another's perspective, co-experience their emotional state or ideally, both (Camarano, 2011). Additionally, empathy is considered a core component of engaging in ethical and other prosocial behaviours. It is not surprising then to think that psychology training programs might place strong emphasis on improving interpersonal communication skills and empathic understanding (Marangoni et al., 1995).

Business schools are designed to equip students with skills for success in a traditionally competitive field. It has been argued that business degrees often lack an empathic, person centred approach and in-depth focus on moral and ethical behavioural practice (Frank, 2004). The literature yields mixed results on the efficacy of increased empathy for therapists, as well as the extent to which empathy skills training, built into psychology and business courses, is effective in furthering the development of this particular construct (Marangoni et al., 1995; Toto, Man, Blatt, Simmens, & Greenberg, 2015). Therefore, further investigation into the development of empathy in both psychology and business students is warranted.

1.2. Psychopathy

A deficit or lack of empathy is associated with antisocial behaviour and is a defining feature of psychopathy (Camarano, 2011). Other features of psychopathy include superficial charm, egocentricity, dishonesty, risk-taking and manipulative behaviour as well as a lack of guilt and remorse, masked by normalcy (Wilson & McCarthy, 2011). Traditionally, psychopathy has been conceptualized as a dyadic and fixed personality disorder used primarily as a psychiatric diagnosis in forensic settings. However, there is a growing body of literature focused on psychopathy within community settings, specifically in the workplace (Wilson & McCarthy, 2011), with research suggesting around 4% of corporate leaders meet the threshold for a psychopathic pathology, considerably higher than the 1% reported prevalence in the general population (Babiak, Newman, & Hare, 2010).

This shift in research focus has been accompanied by an updated conceptualization of the construct which evaluates psychopathy as a collection of personality traits, existing on a spectrum, displayed in varying levels of severity (Babiak et al., 2010; Boddy, 2015). Further, research suggests that these traits tend to cluster into four unique areas of personality, namely: the interpersonal, affective, antisocial, and lifestyle psychopathy facets (Paulhus, Neumann, & Hare, 2016). This view of psychopathy is in line with current personality development research, emphasizing the role of both genetics and environment, and as such was adopted for the purposes of the present study.

Despite increased interest, research investigating the role of psychopathic traits in the business world remains in its infancy (Babiak et al., 2010; Boddy, 2015), resulting in limited knowledge of the manifestation and longer-term implications these traits may have within this sector. Even sparser literature exists which has examined the development of psychopathic personality traits in business students, a pre-cursor to the business world (Brown, Sautter, Littvay, Sautter, &

Bearnes, 2010; Frank, 2004; Hassall, Boduszek, & Dhingra, 2015; Vedel & Thomsen, 2017; Wilson & McCarthy, 2011). Two previous studies have directly examined levels of psychopathy in business and psychology students, reporting business students possess higher levels of psychopathic traits than psychology students ($d = 0.32-0.75$) (Hassall et al., 2015; Vedel & Thomsen, 2017). Cross-sectional and longitudinal research is required to understand the influence university courses may have on the further development of empathy and psychopathic traits (Wilson & McCarthy, 2011).

1.3. Present study

The relationship between empathy and psychopathy has produced some mixed findings. Whilst much of the previous forensic literature supports an inverse relationship between psychopathy and empathy, new findings are emerging which suggest that empathy levels tend to be higher in non-incarcerated psychopathic individuals (Mullins-Nelson, Salekin, & Leistico, 2006). For example, Mullins-Nelson et al. (2006) found psychopathy was negatively correlated with affective empathy ($r = -0.406$), but not significantly correlated with cognitive empathy, suggesting that psychopathic individuals in the community may possess normative levels of cognitive empathy, allowing them to exhibit adequate social skills to evade detection from the judicial system. These mixed findings highlight the need for further research into the relationship between facet level empathy and psychopathic traits.

Investigation of psychopathic traits and empathy in a university student population would provide valuable information regarding the prevalence of these traits in non-clinical populations and identify possible external perpetuating factors involved in their development. Previous cross-sectional research has established that different personality types will be attracted to different academic environments, what remains unknown is whether these traits are further developed from exposure to these learning environments. Further, the two previous studies that have directly compared business and psychology students on levels of psychopathic traits used a UK sample of 3rd year students and a Dutch sample of 1st year students. The present research provides an Australian comparison of these traits and adds to the sparse literature in this area.

Therefore, working within an ASA framework, the present research was the first to examine the influence university course discipline has on the manifestation of psychopathic traits and empathy in business and psychology students. As empathy deficit is considered a core feature of psychopathy and empathy is a possible predictor of selecting a helping profession discipline (Marsh, 1988), it was hypothesized that after controlling for age, gender, and social desirability, year of study and discipline would interact in predicting levels of empathy and psychopathic traits. Specifically, year of study would be negatively related to levels of empathy (cognitive and affective) for business students, but positively related for psychology students; and year of study would be positively related to levels of psychopathic traits (Interpersonal, Antisocial, Affective and Lifestyle facets) for business students, but negatively related for psychology students. Findings can provide insight into the influence university courses may have on the development of these personality traits.

2. Method

2.1. Participants

The sample was comprised of 135 (64 = male, 71 = female) business and 124 (26 = male, 98 = female) psychology undergraduate students from four Australian universities with a mean age of 24 years ($SD = 8.35$). A summary of participant demographics is presented in Table 1.

Table 1
Participant demographics ($N = 259$).

Sample	Covariate	1st year ($N = 157$)	2nd year ($N = 49$)	3rd year ($N = 53$)
Business students	Female	46	11	14
	Male	50	8	6
Psychology students	Female	48	24	26
	Male	13	6	7

2.2. Materials

2.2.1. Self-report Psychopathy Scale (SRP-4: SF); (Paulhus et al., 2016)

Psychopathic personality traits were measured using the SRP-4: SF; a 29-item self-report measure designed to emulate the item-to-factor relations in the current gold standard psychopathy measure, the Psychopathy Checklist Revised (PCL-R). Items are scores on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) and yield a total T-score and four 7-item facet (affective, interpersonal, lifestyle and antisocial) T-scores. T-Scores range from 30 (low psychopathy) to 80 (elevated psychopathy). The four-facet model of psychopathy has good fit across community, forensic and student samples and acceptable internal and test-retest reliability and validity (Paulhus et al., 2016). Cronbach's alphas for the total score ($\alpha = 0.89$) and four facets ($\alpha = 0.68$ – 0.75) were acceptable in the present sample.

2.2.2. Basic Empathy Scale (BES; Jolliffe & Farrington, 2006)

Empathy was assessed using BES, a 20-item self-report measure of both cognitive and affective empathy, scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with scores ranging from 20 (deficit in empathy) to 100 (high empathy). The BES demonstrates good construct, convergent and divergent validity (Jolliffe & Farrington, 2006) and adequate internal and test-retest reliability (Carré, Stefaniak, D'Ambrosio, Bensalah, & Besche-Richard, 2013). Cronbach's alphas for the facets ($\alpha = 0.79$ – 0.82) and total BES score ($\alpha = 0.86$) were adequate in the present sample.

2.2.3. The Social Desirability Scale-17 (SDS-17; Stöber, 2001)

Deception is considered a core psychopathic trait and, as such, the potential for response bias when using self-report psychopathy measures forms a concern (Ray et al., 2013). Findings from a recent meta-analysis suggest that this concern is often exaggerated within community and student samples, however, the potential effect can be statistically controlled for using a measure of social desirability (Ray et al., 2013). The SDS-17 is a brief and valid measure of socially desirable responding, comprised of 16 true or false items with raw scores ranging from 0 to 16 (Stöber, 2001). The SDS-17 has demonstrated sound internal and test-retest reliability as well as adequate convergent and discriminant validity (Stöber, 2001). Cronbach's alpha for the present sample was 0.62.

Table 2
Correlation matrix of dependent variable outcomes and covariates by discipline ($N = 259$).

DV	Facet	Age		Gender		SDS	
		Discipline	B	P	B	P	B
BES	Cognitive	0.020	0.100	0.083	0.172	0.192*	0.174
	Affective	−0.053	0.002	0.273**	0.229*	−0.140	−0.112
	Total	−0.026	0.047	0.224**	0.251**	0.003	−0.005
SRP 4:SF	Interpersonal	−0.202*	−0.150	−0.221*	−0.238**	−0.289**	−0.183*
	Affective	−0.139	−0.111	−0.317**	−0.275**	−0.238**	−0.140
	Antisocial	−0.105	−0.187*	−0.251**	−0.186*	−0.177	−0.053
	Lifestyle	−0.070	−0.062	−0.317**	−0.076	−0.210*	−0.150
	Total	−0.151	−0.160	−0.329**	−0.241**	−0.264**	−0.181*

Note: * correlation is significant at the 0.05 level (2-tailed). ** correlation is significant at the 0.01 level (2-tailed).

2.3. Procedure

Following Human Research Ethics Committee approval, the study was advertised through social media, university online communication boards, teaching staff, and a psychology student participant pool. Business and psychology undergraduate students were invited to complete an online survey titled 'Personality Traits in Students' via a password protected link. A chance to win one of five \$50 gift certificates (lottery) was offered to students as incentive for participation. Students in the psychology participant pool were provided with partial course credit. A total of 345 students across 3 years of undergraduate study were recruited, however, responses with large amounts of missing data (50), students identifying as 'other gender' (2) and students studying both business and psychology (11) were excluded from the final sample for analysis. Missing data for a further six cases (2.17%) in the final sample were replaced using Expectation Maximization.

2.4. Analysis

Data was analysed in SPSS (v. 24) using a series of eight Generalized Linear Mixed Models (GLMMs) to examine the impact of year and discipline on cognitive, affective and total empathy scores and the four psychopathic facets and total psychopathy scores after controlling for age, gender, and social desirability scores. Each GLMM included one nominal random effect (student), one ordinal fixed effect (year of study), one binary fixed effect (student discipline), one binary covariate (gender), two scale covariates (Social desirability and age) and the Year \times Discipline interaction effect. GLMM assumed a normal probability distribution for each dependent variable and linked it to the predictors with an identity function. The slight negative skew shown by the outcomes was accommodated by the GLMM 'robust statistics' option. A correlation matrix of the covariates and dependent variables is displayed in Table 2.

3. Results

A correlation matrix of empathy and psychopathic facets and total scores is presented in Table 3.

3.1. Empathy

A summary of the empathy GLMM results is displayed in Table 4. The hypothesized Year \times Discipline interaction effect was not supported by the cognitive, affective or total empathy GLMM results. The main effect for discipline was significant for all three empathy analyses, indicating that psychology students reported significantly higher levels of cognitive ($d = 0.77$), affective ($d = 0.51$) and total empathy ($d = 0.74$) than business students. A plot of the total empathy score and main effects is presented in Fig. 1.

The other main effect for year of study was not significant for any of

Table 3
Empathy and psychopathic traits Spearman correlation matrix.

Scale facet	BES affective	BES cognitive	BES total	SRP INT	SRP AFF	SRP ANT	SRP LIFE	SRP total
BES affective								
BES cognitive	0.428**							
BES total	0.898**	0.771**						
SRP INT	-0.286**	-0.341**	-0.358**					
SRP AFF	-0.380**	-0.401**	-0.452**	0.597**				
SRP ANT	-0.275**	0.322**	-0.348**	0.433**	0.494**			
SRP LIFE	-0.104	-0.153*	-0.142*	0.477**	0.518**	0.428**		
SRP total	-0.290**	-0.353**	-0.368**	0.794**	0.822**	0.673**	0.811**	

Note: * effect is significant at the 0.05 level. ** effect is significant at the 0.001 level.

Table 4
Summary of covariates, main and interaction effects for BES empathy GLMMs.

Facet	Age	Gender	SDS	Discipline	Year	Interaction
COG	F 1.08	3.84	9.62*	26.26**	0.46	0.00
	η_p^2 0.00	0.01	0.04	0.09	0.00	0.00
AFF	F 0.61	19.74**	3.50	6.15*	0.81	0.64
	η_p^2 0.00	0.07	0.01	0.02	0.00	0.00
Total	F 0.00	16.12**	0.05	16.97**	0.29	0.33
	η_p^2 0.00	0.06	0.00	0.06	0.00	0.00

Note: effect size reported as partial-eta squared. * effect is significant at the 0.05 level. ** effect is significant at the 0.001 level COG = cognitive, AFF = affective.

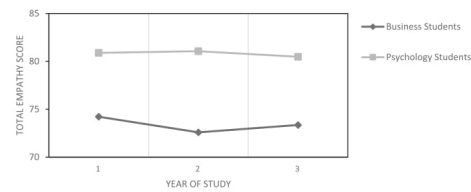


Fig. 1. Plot of total empathy by year of study for business and psychology students.

the empathy GLMMs. After controlling for all other covariates, gender was significant for affective and total empathy, indicating that females reported higher levels of affective and total empathy than males. Social Desirability was significant for cognitive empathy only, with higher SDS scores being associated with higher levels of cognitive empathy. Age was not significant for any of empathy GLMMs.

3.2. Psychopathy

A summary of the SRP facets and SRP total score GLMM results are displayed in Table 5. The hypothesized year \times discipline interaction effect was significant for psychology students for the lifestyle facet ($p = 0.028$) and total psychopathy ($p = 0.030$) scores. The simple main effect was not significant for business students for the lifestyle facet ($p = 0.573$) or total psychopathy ($p = 0.345$) scores. The Year \times Discipline interaction was non-significant for the affective, interpersonal and antisocial SRP facets. The main effect for student discipline was significant for the interpersonal, affective, antisocial and total SRP GLMMs, indicating that business students reported significantly higher levels of these traits than psychology students. The other main effect for year of study was not significant for any of the SRP facets or total scores. A plot of the total psychopathy score main effects is presented in Fig. 2.

Additionally, after controlling for all other covariates, gender was significant for all SRP facets and total SRP score GLMM, with males reporting higher levels of psychopathic traits than females. Age was significant for the total SRP scores and all facets except lifestyle, with

Table 5
Summary of covariates, main and interaction effects for SRP psychopathy GLMMs.

Facet	Age	Gender	SDS	Discipline	Year	Interaction
INT	F 9.95*	15.89**	21.80**	9.78*	0.12	2.45
	η_p^2 0.04	0.06	0.08	0.04	0.00	0.01
AFF	F 4.44*	30.42**	15.91**	9.78*	1.02	2.07
	η_p^2 0.02	0.11	0.06	0.04	0.00	0.01
ANT	F 8.49*	13.32**	4.36*	7.72*	0.71	2.03
	η_p^2 0.03	0.05	0.02	0.03	0.00	0.01
LIFE	F 0.60	12.57**	13.55**	3.44	0.94	3.71*
	η_p^2 0.00	0.05	0.05	0.01	0.00	0.01
Total	F 7.92*	27.28**	22.89**	11.39**	0.41	3.75*
	η_p^2 0.03	0.10	0.08	0.04	0.00	0.01

Note: effect size reported as partial-eta squared. * effect is significant at the 0.05 level, ** effect is significant at the 0.001 level. INT = interpersonal, AFF = affective, ANT = antisocial, LIFE = lifestyle.

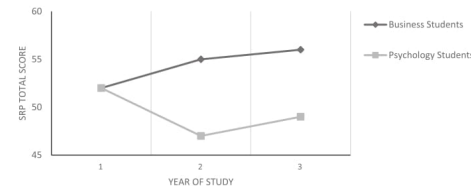


Fig. 2. Plot of total psychopathy scores by year of study for business and psychology students.

higher scores being associated with younger participants. Social desirability was significant for all SRP facets and total scores, with higher SDS scores being associated with lower levels of psychopathic traits.

4. Discussion

The present research aimed to examine the influence university course discipline has on the manifestation of psychopathic traits and empathy in business and psychology students. As empathy deficit is considered a core feature of psychopathy and a possible predictor of selecting a helping profession discipline (Marsh, 1988), it was hypothesized that year of study would be negatively related to levels of empathy (cognitive and affective) for business students, but positively related for psychology students. Findings did not support a year of study and discipline interaction effect for levels of empathy. However, a significant discipline effect was evident, with psychology students reporting higher levels of empathy than business students. It was also hypothesized that year of study would be positively related to levels of psychopathic traits for business students, but negatively related for psychology students. Results supported this hypothesis as a significant year of study and discipline interaction effect was found for the total score as well as the lifestyle facet. However, the other psychopathic

trait scores did not support the hypothesized interaction effect. Further, year of study was not significantly related to any of the psychopathy facets or total score, regardless of student discipline. Findings provide insight into the types of personality traits possessed by individuals whom are attracted to business and psychology disciplines and how these courses might influence the development of these traits.

4.1. Empathy

A prominent finding was the medium to large discipline effect sizes observed for empathy, with psychology students reporting significantly higher levels of cognitive ($d = 0.77$), affective ($d = 0.51$) and total empathy ($d = 0.74$) than business students. This finding is consistent with the attraction and selection components of the ASA model, as it suggests that students possessing greater empathic ability are attracted to the psychology profession. This finding is also supported by Marsh's (1988) research suggesting that increased empathy may be predictive of selection into the study of a helping profession.

In contrast to Elegido's (2014) findings that business schools promote more self-interested behaviour in students, the present results did not support the hypothesis that year of study would be negatively related to cognitive, affective or total empathy for business students but positively related for psychology students. This finding does not support the final attrition component of the ASA model and may be reflective of a more recent emphasis on implementing ethical practice standards in business schools. For example, many universities now adopt an international standard such as Principles of Responsible Management Education (PRME) in order to meet accreditation requirements of ethics learning (UN Global Compact, 2007).

Furthermore, consistent with the findings of Toto et al. (2015), year of study was not found to be a significant predictor of cognitive, affective, or total empathy. This could be interpreted as business and psychology courses not having a significant impact on student empathy development, however, further research examining individual differences over time would be required to support this explanation. It is also likely this finding may reflect the scientific and theoretically based nature of psychology undergraduate degrees (Holmes, 2014). Accordingly, whilst students with high levels of empathy may initially self-select into psychology, the undergraduate course content is not focused on developing the professional clinical skills of students. Similarly, business undergraduate courses are not designed to have an impact on empathy. Instead, business school curricula teach an economically based model of human behaviour which minimizes the role of human emotionality in business decision making (Elegido, 2014).

Future longitudinal research might explore the individual development of student empathy in business and psychology courses at a post-graduate level, when students are engaging in more experiential learning such as fieldwork placements (Elegido, 2014; Holmes, 2014). For example, psychology post-graduate courses aim to prepare students for engaging in psychological practice through clinical placements whilst business post-graduate courses promote student engagement in organizational internships. It is plausible that greater importance would be placed on displays of empathic behaviour and interpersonal skill building during these activities (Marangoni et al., 1995).

Present findings should be interpreted in the context of known factors of empathy variation. The results supported previously established gender differences in empathy (Jolliffe & Farrington, 2006; Konrath, O'Brien, & Hsing, 2011), finding medium-large effect sizes for affective, cognitive and total empathy scores, with females reporting significantly higher levels than males. Prior research has also suggested that older individuals display greater empathy than younger individuals (Toto et al., 2015), however, the present research found no significant age effects for empathy; possibly due to the restricted age range of the university student sample.

4.2. Psychopathy

Findings provide mixed support for the hypothesized year of study x discipline interaction, with a significant interaction evident for the total psychopathy score, however at a facet level; only the lifestyle facet interaction effect was significant. Within the total score and lifestyle facet, year of study was significant for psychology students, but not for business students. This suggests there was a significant decrease in lifestyle psychopathic traits across years of study for psychology students, but no significant change across years of study for business students. The significant interaction effect noted for the total psychopathy scores provides some support for the attrition component of the ASA model and indoctrination hypothesis, and allows for some speculation around the influence student discipline choice has on the development of empathy and psychopathic traits of students. However, it is important to note that due to the limited sample size and unequal distribution of students across years of study, these findings would need to be replicated in a larger sample than that of the present study.

The findings supported significant discipline effects, with business students reporting higher levels across the interpersonal, antisocial and affective facets as well as the total SRP score (medium effect sizes) than psychology students. This finding is consistent with previous research (Hassall et al., 2015; Vedel & Thomsen, 2017; Wilson & McCarthy, 2011). Vedel and Thomsen (2017) suggest the differences between business and psychology students are representative of differing motivations for self-selection into the disciplines. For example, students motivated by self-interest, power and financial gain (psychopathic alignment) may be more likely to enrol into a business degree. Vedel and Thomsen's (2017) conclusions and the present findings can therefore be considered consistent with the initial attraction and selection components of the ASA model (Schneider, 1987).

Year of study was not significant for any of the SRP facets or total score, indicating that these traits did not significantly differ across years of study for either discipline. Interestingly, findings were consistent with the previously established negative correlation between age and psychopathy (Paulhus et al., 2016, p. 79). Significant age effects were noted for the total psychopathy score as well as all facets except lifestyle, indicating that as a student ages, levels of these traits tend to decline as part of normal development. It is also possible that as students' progress through their degree, levels of psychopathic traits decrease due to increased group work in order to succeed academically (Hassall et al., 2015). Business schools may also be more responsive today with greater moral and ethical behaviour practice applied in their curriculum (Frank, 2004). Given the increasing research on theoretical approaches to conceptualizing psychopathy, future research might be directed at further exploring these facet level psychopathic trait variations across academic majors in a larger population and their implications for academic success.

In addition to age, psychopathy findings should be considered in the context of previously identified covariates such as gender. Regardless of student discipline, males possessed higher levels of psychopathic traits than females ($d = 0.74$), consistent with well-established gender differences within the literature and in the initial validation of the SRP 4:SF measure (Paulhus et al., 2016, p. 79; Vedel & Thomsen, 2017).

4.3. Limitations

The magnitude of the present findings should not be over interpreted and interpretations must be considered in the context of several limitations. First, as the research adopted a cross-sectional design which examined group differences over years of study, it is possible the findings are subject to cohort bias. Longitudinal research examining individual differences over time in this population is required to reliably examine all three components of the ASA framework and assess the impact course of study has on individual student empathy and psychopathic trait development. This study was also limited by the

small and unequal sample size distributions across each year of study for both discipline groups, reducing the likelihood of finding a significant interaction effect between discipline and year of study which could be generalizable to a wider population.

5. Conclusions

Notwithstanding the limitations, this research provides support for the attraction and selection components of Schneider's (1987) ASA model, and the self-selection hypothesis. Results suggest that students who possess higher levels of empathy and lower levels of psychopathic traits tend to be more likely to self-select into studying a psychology degree, whilst students with lower levels of empathy and higher levels of psychopathic traits tend to be more likely to self-select into a business degree. Findings also suggest that years of study within a discipline may have an impact on the development of student empathy and psychopathic traits, supporting the indoctrination hypothesis. However, little comment can be made on the extent to which findings support the attrition component of the ASA model as further longitudinal research with a larger sample size is required to determine individual trait development through the course of study. The present study provides an encouraging platform for such future research.

Conflicts of interest

None.

Funding

This research was supported by the Australian Government Research Training Program Scholarship.

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Appendix D


Chapter 4 Publication– Australian Journal of Psychology

Received: 23 January 2019 | Revised: 6 June 2019 | Accepted: 17 June 2019
DOI: 10.1111/ajpy.12263

ORIGINAL ARTICLE

WILEY

Empathy and psychopathic traits as predictors of selection into business or psychology disciplines

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Abstract

Objective: The attraction, selection, and attrition model posits that individuals actively self-select into vocational and educational environments based on their personality traits and values. The present study investigated whether pre-existing empathy and psychopathic personality trait differences in newly enrolled first year undergraduate students predicted selection into psychology and business vocational pathways respectively.

Method: An online self-report survey collected data on levels of psychopathic traits and empathy from 380 newly enrolled first year business and psychology undergraduate students to examine whether these pre-existing personality traits could predict academic discipline attraction and selection.

Results: Binary logistic regression analysis partially supported the proposed hypotheses. Cognitive empathy, gender, and social desirability scores were found to be significant predictors of student discipline, with females, those with higher cognitive empathy and lower social desirability scores more likely to be attracted and selected into a psychology rather than a business degree. Small to moderate effect size differences were observed, with psychology students reporting significantly higher cognitive empathy ($d = 0.53$) and lower interpersonal psychopathy ($d = 0.27$) than business students.

Conclusions: Findings highlight specific personality trait differences present between newly enrolled business and psychology students and the importance of these pre-existing differences in student vocational decision-making. It is anticipated that findings may assist vocational and career counsellors in guiding prospective students in the direction of a vocational pathway that is best suited to their personality, as this is likely to result in increased student satisfaction and self-esteem whilst reducing student attrition.

KEYWORDS

educational psychology, empathy, individual differences, personality, psychology and other disciplines, psychopathy

1 | INTRODUCTION

The choice of tertiary field of study is one of considerable importance for young adults and acts as a pre-cursor to future career pathways. Vocational research has suggested that the repercussions of this decision extend beyond graduation, impacting work satisfaction and productivity, income, and job security (Balsamo, Lauriola, & Saggino, 2013; Porter & Umbach, 2006). A multitude of factors have been found to influence a student's vocational choice, including race, gender, academic ability, socio-economic status, and social and family influences (Porter & Umbach, 2006). However, a large body of research has provided strong support for broad personality traits as significant predictors of academic discipline choice (Lounsbury, Smith, Levy, Leong, & Gibson, 2009; Porter & Umbach, 2006; Vedel, 2016).

Vocational personality theories such as the attraction, selection, and attrition (ASA) model (Schneider, 1987) posit that individuals will actively self-select their environments, such as study and vocational pathways based on their personality traits and values. The initial attraction phase of the ASA model highlights that people's preferences for particular organisations tends to be based primarily on unconscious estimates of the resemblance between self (i.e., personality traits) and the organisation's culture (Slaughter, Stanton, Mohr, & Schoel, 2005). Organisations conduct both formal and informal selection processes in order to ensure they hire individuals who are of good "fit" to their organisational culture, making up the selection aspect of the ASA model (Slaughter et al., 2005). Finally, individuals who turn out not to be a good "fit" for the organisational environment eventually leave the environment, either through dismissal or resignation, resulting in employee attrition.

Consistent with the ASA model, (Roberts & Nickel, 2017) proposed the "niche-picking principle." This suggests people will select environments which match their personality traits and that the attraction effects of personality to a particular environment will result in greater personality trait consistency (Roberts & Nickel, 2017). In other words, good initial "fit" between an individual's personality and their environment will result in continued good fit as personality remains consistent as a result of the environmental experiences (Roberts & Nickel, 2017). Applied to the university context, Roberts and Robins (2004) reported that student fit in a university environment was moderately consistent over a 4-year period, concluding that good student fit was associated with increased self-esteem, emotional stability, and personality consistency.

The ASA framework and niche picking principle suggest that the pre-existing personality trait differences which initially attract an individual to an environment, are primarily responsible for variation in people's fit within an

environment (Schneider, 1987). An alternative explanation is that socialisation processes within the organisation shape individuals' behaviour via reward and punishment schedules, resulting in improved fit and a strengthening of the personality traits most suited to that environment (Balsamo et al., 2013).

The ASA model and niche picking principle can be applied to university students and their choice of academic discipline. Potential students with specific types of personalities may be attracted to certain academic disciplines and in turn academic disciplines may have admission criteria to select particular types of students; ultimately creating a homogenous cohort (Balsamo et al., 2013). It is also possible that socialisation processes strengthen fit between students and disciplines. Previous research comparing group differences in personality factors across academic disciplines has established that significant personality variation exists between different academic disciplines. A review on big five personality differences across academic vocations found lower levels of agreeableness in business, economics, and law students compared with psychology, humanities, and arts students (Vedel, 2016). Recently, [Blinded 2017] reported that undergraduate psychology students as a whole exhibited higher level of empathy and lower levels of psychopathic traits than business students. However, as these studies examined students across all years of study, it is unclear whether these differences are the result of pre-existing individual differences present prior to niche picking into academic disciplines (attraction processes) or whether they developed because of socialisation processes occurring within the educational environment.

To determine the role attraction processes play in observed personality differences across academic disciplines, one must examine newly enrolled first year students who have not yet been exposed to the potential socialisation effects within their discipline-specific educational environment. However, research in this area is lacking as studies using student samples often do not specify what year(s) of study the students are from. Therefore, there is no way to distinguish whether the observed personality differences are a result of attraction processes driven by pre-existing personality characteristics, or whether they develop as a result of the students' exposure to the specific educational environment of their chosen discipline (socialisation effects).

To date, research on newly enrolled tertiary students is limited to a handful of studies (Balsamo, Lauriola, & Saggino, 2012; Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002; Vedel & Thomsen, 2017; Vedel, Thomsen, & Larsen, 2015), with findings largely supporting the presence of pre-existing personality differences predicting student academic discipline choice (attraction processes). Nevertheless, the majority of these previous studies have focused on broad trait measures of personality such as the

Big Five (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness), which are superordinate factors of general personality traits. These traits may therefore be too broad to reliably distinguish between students in different academic disciplines (Vedel et al., 2015). Vedel et al. (2015) suggests that examination of lower-level characteristics, such as facets of broad personality factors may provide unique predictive validity not captured by the use of broad superordinate personality traits. Therefore, it may be more useful to examine lower-level traits which are considered desirable for the academic disciplines of interest, as they may provide better behavioural predictions (Naydenova, Lounsbury, Levy, & Kim, 2012).

Elevated levels of empathy have previously been associated with selection into helping vocations, such as psychology (Marsh, 1988; Toto, Man, Blatt, Simmens, & Greenberg, 2015), whilst research over the last decade has suggested that higher levels of psychopathic traits are present in the corporate world (Smith & Lilienfeld, 2013). However, there has been little research to date focused on examining these traits in higher education disciplines, a pre-cursor to future vocation. Therefore, the present study compared facet level empathy and psychopathic personality traits of newly enrolled business and psychology students in order to examine the impact these traits have on attraction and selection into particular academic disciplines. Directional hypotheses were developed in accordance with the attraction and selection processes outlined in the ASA model (Schneider, 1987).

1.1 | Empathy

Empathy is a lower-level personality trait associated most strongly with the broad personality traits of agreeableness and openness to experience (Bertram et al., 2016). The display of empathy is twofold; initially, it involves affect recognition and emotional contagion and is followed by understanding another's feelings (Seara-Cardoso, Neumann, Roiser, McCrory, & Viding, 2012). Empathy can therefore be conceptualised in two components: perspective taking and affective empathy. Perspective taking is the cognitive component of empathy, where the individual can adopt another's perspective and respond appropriately (Toto et al., 2015). Cognitive empathy is considered a skill, which could theoretically be improved upon through training (Camarano, 2010). Comparatively, affective empathy encompasses empathic concern, or the ability to feel warmth and compassion for others' wellbeing (Toto et al., 2015). Affective empathy is commonly conceptualised as a stable and fixed internal personality trait, not able to be taught or improved upon through training (Camarano, 2010).

Practicing psychologists often rely heavily on the emotional ability to display empathy—to co-experience clients'

emotions or perspective cognitively or ideally, both (Camarano, 2010). Therapist empathy has been found to play an important role in achieving positive therapeutic outcomes such as client satisfaction and treatment compliance and is considered a core component of the therapeutic alliance between client and therapist (Bertram et al., 2016).

Consistent with the ASA model and niche picking principle, it would be expected that people who display higher levels of empathy than others would be more likely to be attracted to a pursuing a helping profession, such as psychology (Toto et al., 2015). Marsh (1988) suggested that the general descriptive factors of a typical "helping career" personality include high levels of concern for the needs of others rather than personal gains as well as higher levels of self-doubt and self-blame. Students often express a desire to pursue a psychology vocation because they have an interest in its applied helping domain and are often shocked when faced with the initial empirical and scientific nature of undergraduate courses (Holmes, 2014).

Empathy in both its affective and cognitive forms is thought to be crucial to the development of positive moral reasoning and prosocial behaviour (Jolliffe & Farrington, 2006). Subsequently, a lack of empathy has been strongly associated with antisocial behaviour and is often considered a core feature of a psychopathic personality (Smith & Lilienfeld, 2015). However, prior research has yielded mixed findings on the relationship between cognitive and affective empathy and psychopathic traits within community samples (Mullins-Nelson, Salekin, & Leistico, 2006). Mullins-Nelson et al. (2006) found total psychopathy to be negatively associated with total empathy ($d = -0.49$). However, individuals who scored high on the interpersonal/affective factor (Factor 1 psychopathy) exhibited normative levels of cognitive empathy, while individuals with elevated levels of the behavioural factor (Factor 2 psychopathy) were found to possess deficits in both cognitive and affective empathy (Mullins-Nelson et al., 2006). These findings suggest that to examine emotional deficits (such as empathy) associated with psychopathic traits, further research exploring the relationship between the two constructs at a factor level is required.

1.2 | Psychopathy

Traditionally, psychopathy has been characterised by superficial charm, egocentricity, dishonesty, risk-taking behaviour, manipulateness, and a lack of empathy, guilt, and remorse, which is masked by normalcy (Smith & Lilienfeld, 2013). The majority of previous research in this area has focused on psychopathy in forensic populations, using a two-factor model to distinguish between the interpersonal and affective (Factor 1) and behavioural (Factor 2)

characteristics of the construct (Hare et al., 1990). However, updated conceptualizations and subsequent measures of psychopathic traits for community populations have begun to emerge in the literature (Paulhus, Neumann, & Hare, 2016). Research with community samples suggests that psychopathy can be understood as a collection of personality traits, present within a normative population in varying levels of severity, which cluster into four unique domains, giving rise to the four facet (Affective, Antisocial, Lifestyle, and Interpersonal) model of psychopathy (Paulhus et al., 2016) adopted in the present study.

Findings from non-clinical psychopathy research suggest that some psychopathic traits may be useful adaptations in community settings such as the business world (Boddy, 2015; Smith & Lilienfeld, 2013). For example, it is thought that people who display psychopathic traits tend to succeed in organisational settings which require a rational and emotionless behaviour style, willingness to take risks, and a consistent focus on achievement (O'Boyle Jr, Forsyth, Banks, & McDaniel, 2012).

Interestingly, despite educational environments acting as a pre-cursor to subsequent vocational environments and career pathways, relatively little research has been conducted on the manifestation and prevalence of psychopathic traits in business school students. From the sparse literature available, findings suggest that business school students possess higher levels of psychopathic traits than other academic disciplines (Hassall, Boduszek, & Dhingra, 2015; Krick, Tresp, Vatter, Ludwig, & Wihlenda, 2016; Vedel & Thomsen, 2017; Westerman, Bergman, Bergman, & Daly, 2012).

Hassall et al. (2015) found that 3rd year business and psychology students in the United Kingdom differed in levels of psychopathy, with business students reporting significantly higher levels of psychopathic traits than psychology students. However, as 3rd year students were used, it remains unknown whether the variations were present prior to discipline selection (attraction processes) or developed from repeated exposure to the specific learning environment and culture of the discipline (socialisation processes), or both. Building on this, Krick et al. (2016) suggested that business and management students possess higher levels of dark triad traits (Psychopathy, Narcissism, and Machiavellianism) than students in other academic disciplines. However, as psychopathy was measured as a unitary construct, findings do not shed light on unique psychopathic personality trait differences present in these cohorts which may be of more applicable value in the educational context.

Recently, Vedel and Thomsen (2017) conducted a comparative study of newly enrolled business, political science, and psychology students. Their results supported previous findings, indicating, with a medium-large effect size, that psychology students reported the lowest levels of

psychopathy, whilst business students reported the highest levels of psychopathy ($d = 0.75$). Vedel and Thomsen (2017) suggest that the observed psychopathic trait variation across academic disciplines was representative of a distinction in motivation for attraction to a specific discipline, with students motivated by self-interest, power, and financial gains (psychopathic characteristics) more likely to select into a business degree which will ultimately lead to a career which encourages and rewards self-interested behaviour. However, this study also treated psychopathy as a unitary construct which does not allow for further speculation around the potential usefulness of particular facet level psychopathic traits in an educational context.

As established previously, the association between psychopathy and empathy is complex but for the most part suggests an inverse relationship in forensic and community samples. Some evidence has emerged suggesting that this pattern is also true for student populations. For example, Holt and Marques (2012) found that empathy was consistently ranked the lowest important trait for successful and effective leadership by business students. Their findings provide insight into business students' concerning belief that empathy interferes with rational decision making (i.e., displays of empathy demonstrate weakness in leadership) and therefore holds no functional place within business settings (Holt & Marques, 2012). Further research examining psychopathic traits and empathy within the academic arena is required to fully understand the complex interaction between the two constructs and the role in which they play in attraction to and selection into particular vocational pathways.

1.3 | Present study

Previous research has established differences in the types of personality traits present in business and psychology professionals and students, with an emphasis on the role of empathy for pursuing helping related vocations and arguably psychopathic traits for the business world. However, it remains unclear whether these personality differences are present prior to choice of academic discipline and subsequently influence a student's decision-making process. By examining the personality trait differences of newly enrolled students who are yet to be exposed to the potential socialisation effects of their chosen academic vocational environments, it is possible to determine the influence which these individual characteristics may have on guiding students' attraction towards a particular academic discipline and subsequent vocational pathway (Balsamo et al., 2013). Additionally, examining empathy and psychopathic trait differences at a facet level remains an unexplored area of research which may provide unique insights into more specific

individual differences and their role in influencing student's choice of academic discipline. Therefore, the present study aimed to examine pre-existing differences in cognitive and affective empathy as well as four facets of psychopathic traits in newly enrolled first year undergraduate business and psychology students. It was hypothesised that after controlling for age, gender, and social desirability, higher levels of psychopathic traits and lower levels of cognitive and affective empathy would predict attraction and selection into a business degree, whilst lower levels of psychopathic traits and higher levels of cognitive and affective empathy would predict attraction and selection into a psychology degree.

Due to the variability of course structure and teaching methods across universities and within academic disciplines, the present research expands on that of Vedel and Thomsen (2017) by examining students from four Australian universities. The present findings will provide a cross-cultural comparison for the only two other published studies (United Kingdom and Denmark) directly comparing psychopathic traits in business and psychology students (Hassall et al., 2015; Vedel & Thomsen, 2017). Further, the present findings will assist in determining the extent to which lower level personality characteristics (empathy and psychopathic traits) influence a student's choice of vocational pathway and provide increased knowledge on the types of student personalities which are drawn to Australian psychology and business schools. Given that psychopathy has previously been associated with academic misconduct and cheating behaviour in students (Coyne & Thomas, 2008) and the strong association between personality and learning styles more broadly (Chamorro-Premuzic, Furnham, & Lewis, 2007), findings may also be of use to higher education stakeholders to better understand the level of diversity, or lack thereof, within these two cohorts.

To date, only two studies have examined self-reported psychopathic traits in an Australian community sample (Watt & Brooks, 2012; Zágon & Jackson, 1994). Further, the psychometric properties of the self-report measure of psychopathy utilised in this study show promise but have yet to be tested on an Australian student sample. Therefore, the present findings may provide important insights into the relevance of psychopathic traits at a facet level within a local higher educational context.

2 | METHOD

2.1 | Participants

A total of 252 newly enrolled, first year undergraduate business (116 = Male, 136 = Female) and 128 (35 = Male, 93 = Female) psychology students with a mean age of 20.92 years ($SD = 6.13$) were included in the final sample.

2.2 | Materials

2.2.1 | Self-Report Psychopathy Scale (SRP-4: SF); (Paulhus et al., 2016)

The SRP-4: SF is a 29-item self-report measure designed to measure psychopathic personality traits in forensic and non-forensic populations. Items are scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) and yield a total score, two factors (Factor 1 and Factor 2), and four facet scores (Affective, Interpersonal, Lifestyle, and Antisocial). The SRP-4: SF emulates the four-factor model of psychopathy which has demonstrated good fit across community, forensic and student samples, and has acceptable internal and test-retest reliability and validity (Paulhus et al., 2016). The SRP-4: SF Cronbach's alphas for the present sample show promise ($\alpha = 0.67-0.75$), although these were expectedly lower than the standard 0.9 level due to the small number of items within each facet. However, the total SRP score demonstrated good overall scale reliability of $\alpha = 0.88$.

2.2.2 | Basic Empathy Scale (BES; Jolliffe & Farrington, 2006)

The BES was used to assess cognitive, affective and total empathy in the present study. The BES is a 20-item self-report measure, scored on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), which yields a total score and two factor scores (Cognitive and Affective empathy). The BES demonstrates good construct, convergent, and divergent validity as well as supporting the popular two-factor conceptualization of empathy (Jolliffe & Farrington, 2006). Scores range from 20 (deficit in empathy) to 100 (high empathy) and the measure has demonstrated adequate internal and test-retest reliability in adult samples for both the affective and cognitive factors (Carré, Stefaniak, D'Ambrosio, Bensalah, & Besche-Richard, 2013). Cronbach alpha's in the present sample's BES factors were adequate ($\alpha = 0.78-0.83$), as was the total BES score ($\alpha = 0.85$).

2.2.3 | The Social Desirability Scale-17 (SDS-17; Stöber, 2001)

Deception is considered a core psychopathic trait and, as such, the potential for response bias when using self-report psychopathy measures forms a concern (Ray et al., 2013). Findings from a recent meta-analysis suggest that this concern is often exaggerated within community and student samples, however, the potential effect can be controlled for using a measure of social desirability (Ray et al., 2013). The Social Desirability Scale-17 (SDS-17) is a brief and valid measure of socially desirable responding (Stöber, 2001).

The current version of the SDS-17 comprises 16 true or false items and has demonstrated sound internal and test-retest reliability and adequate convergent and discriminant validity as displayed by strong correlations with other social desirability measures during initial validation of the measure (Stöber, 2001). Cronbach's alpha for the present sample was lower than expected ($\alpha = 0.61$), however, as social desirability was included as a precautionary control variable in the analysis, it is not considered to weaken the validity of the results.

Participants were also asked to provide demographic information including their age, gender, and academic discipline in which they were enrolled. Additionally, participants were asked questions about whether or not they had previously studied a different discipline, whether they were enrolled full or part-time, whether they were working in addition to study, and how much time, on average, they spent with students from other academic disciplines. These questions were included as they may influence the degree of exposure to possible socialisation effects within the students' current educational environment.

2.3 | Procedure

Following Human Research Ethics Approval, the study was advertised on social media and university online communication boards. Recruitment emails were also sent to a database of first year business and psychology teaching staff at four major universities, requesting that the study be extended to their student cohorts. Additionally, the study was also made available to psychology students from the researchers' home university in exchange for partial course credit. Newly enrolled (within the first 5 weeks of semester) first year business and psychology undergraduate students across four Australian universities were invited to complete a brief anonymous online survey titled "Personality Traits in Students." The survey consisted of a number of short quantitative measures as well as non-identifying demographic information. A chance to win one of five \$50 gift certificates (lottery) was offered to students as an incentive for participation. A total of 562 students participated in the study, however, responses with large amounts of missing data (114), students not in their first year of study (49), and students studying both business and psychology (19) were excluded from the final sample.

To investigate whether empathy and psychopathic personality trait differences predicted selection into business or psychology academic disciplines, data was analysed in SPSS (v. 24) using binary logistic regression models. After removing cases with incomplete measures, students studying both psychology and business and students not in their first year of study, six cases (1.58%) in the final sample had missing

data. Little's missing completely at random (MCAR) test was non-significant, indicating the data was MCAR, $\chi^2(491) = 461.70$, $p = .825$ (Little, 1988). Expectation maximisation (EM) was then performed to estimate the missing values for the six remaining cases.

3 | RESULTS

A summary of demographics, social desirability (SDS), empathy (BES), and psychopathy (SRP-4:SF) facet scores for psychology and business students are presented in Table 1. In order to assess the significance of differences in empathy and psychopathic trait differences at the facet level between business and psychology students, independent sample *t*-tests were conducted using a conservative adjusted alpha of 0.01 to account for multiple comparisons. Findings indicated (with medium effect size) that psychology students reported significantly higher cognitive empathy than business students; [$t(378) = -4.84$, $p < .01$]. Additionally (with small effect size), business students reported significantly higher levels of interpersonal psychopathy than psychology students; [$t(378) = 2.51$, $p < .01$]. Small effect size differences were also noted for affective empathy ($d = 0.24$), with psychology students scoring higher than business students, and affective psychopathy ($d = 0.25$), with business students scoring higher than psychology students.

Spearman's correlation coefficients and internal consistency coefficients for demographic and key variables is presented in Table 2. No issues with multicollinearity were found between the empathy and psychopathy facets. Academic discipline was significantly positively correlated with gender ($r = .18$), cognitive empathy ($r = .24$), and affective empathy ($r = .12$). Discipline was also negatively correlated

TABLE 1 Social desirability, empathy, and psychopathy scores by academic discipline

Outcome measure	Business students ($N = 252$)		Psychology students ($N = 128$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	20.85	6.36	21.04	5.69
SDS Total score	6.11	2.80	6.54	2.68
Cognitive empathy	36.12	4.86	38.61	4.49
Affective empathy	39.37	7.34	41.11	7.23
SRP interpersonal	51.44	10.12	48.70	9.88
SRP affective	50.53	10.63	47.88	10.41
SRP lifestyle	51.95	10.31	50.44	10.63
SRP antisocial	49.33	9.60	48.62	8.06

Abbreviations: SDS, Social desirability scale; SRP, Self-report psychopathy scale, short form, 4th edition.

TABLE 2 Spearman's correlation coefficients and internal consistency coefficients between academic discipline, age, gender, social desirability, empathy and psychopathy facets

Scale	α	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. First degree	0.03	-0.11*	-0.02	0.06	0.07	0.38**	0.03	0.05	-0.01	0.03	0.05	-0.02	0.00	0.00
2. Enrolment status		-0.06	0.21**	0.09	0.08	0.28**	0.10	-0.02	0.03	-0.04	-0.02	0.03	0.01	0.01
3. Work		0.01	0.02	0.01	-0.02	-0.01	-0.02	-0.01	-0.09	-0.03	0.05	-0.01	0.11*	0.11*
4. Time with others		-0.04	-0.03	0.30**	-0.02	-0.02	0.08	0.24**	-0.10	-0.16**	0.02	0.00	0.02	0.00
5. Discipline			0.18**	-0.02	0.08	0.24**	0.12*	-0.13**	0.12*	-0.13**	-0.13*	-0.07	0.01	0.01
6. Gender				-0.07	0.04	0.23**	0.30**	-0.27**	-0.39	-0.20**	-0.39	-0.20**	-0.11*	-0.11*
7. Age					-0.08	-0.13*	-0.04	0.04	-0.01	0.04	0.04	-0.01	-0.04	-0.04
8. SDS	0.61					-0.17**	-0.04	0.36**	0.32**	0.39**	0.32**	0.39**	0.21**	0.21**
9. BES cognitive	0.78						0.42**	-0.39**	-0.41**	-0.21**	-0.15**	-0.15**	-0.15**	-0.15**
10. BES affective	0.83							-0.30**	-0.43**	-0.30**	-0.43**	-0.17**	-0.20**	-0.20**
11. SRP interpersonal	0.75								0.70**	0.59**	0.59**	0.59**	0.45**	0.45**
12. SRP affective	0.72									0.59**	0.59**	0.59**	0.39**	0.39**
13. SRP lifestyle	0.74										0.59**	0.59**	0.39**	0.39**
14. SRP antisocial	0.67											0.59**	0.39**	0.39**

Note: First degree coded as; 0 = Yes, 1 = No, Enrolment Status coded as; 0 = Full-time, 1 = Part-time, Work coded as 0 = Yes, 1 = No, Time with other disciplines coded as; 1 = "A lot," 2 = "A fair deal," 3 = "A moderate amount," 4 = "A little" and 5 = "None at all." Discipline coded as; Business = 0, Psychology = 1, Male = 0, Female = 1.

Abbreviations: BES, Basic Empathy Scale; SDS, Social Desirability Scale; SRP, Self-Report Psychopathy Scale.

* $p < .05$; ** $p < .01$.

with the interpersonal ($r = -.13$) and affective ($r = -.13$) facets of the SRP, indicating that higher empathy was associated with choice of a psychology discipline, whilst higher Factor 1 psychopathy (interpersonal & affective facets) was associated with choice of a business discipline. Cognitive and affective empathy demonstrated significant negative correlations with all of the psychopathy facets.

Cognitive and affective empathy positively correlated with gender, with females reporting higher levels than males, whilst the psychopathy facets negatively correlated with gender, with males reporting higher levels than females. Social desirability was negatively associated with cognitive and total empathy, but positively associated with all the psychopathy facets. Age was negatively correlated with affective and total empathy, but did not significantly correlate with cognitive empathy or any of the psychopathy facets. None of the demographic variables included for their potential to influence the degree of exposure to socialisation effects were significantly correlated with any of the key variables, with the exception of work and time spent with other disciplines. The amount of time spent with students in other disciplines was negatively correlated with affective empathy ($r = -.16$), suggesting students who possess high affective empathy are more likely to socialise with students from academic disciplines other than their own. Work was positively correlated with antisocial psychopathy ($r = .11$), indicating that students who were employed tended to have higher antisocial psychopathic characteristics than students who did not work. The effect sizes for both these findings are small and these variables were not included in further analyses. Binary logistic regression was conducted to determine the likelihood a student would self-select into either a business or psychology discipline based on their cognitive and affective empathy scores, as well as scores on each of the four psychopathy facets, as measured by the SRP 4:SF. Gender, age, and social desirability were controlled for and entered into step 1 of the regression, whilst the empathy and psychopathy facet predictors were entered into step 2. The model included one binary dependent variable (student discipline), six primary predictors (cognitive and affective empathy, interpersonal, affective, lifestyle, and antisocial psychopathy), one binary covariate (gender) and two scale covariates (social desirability and age). A test of the full model against a constant only model was statistically significant, indicating that the predictors and control variables as a set reliably distinguished between students self-selecting into a business or psychology degree ($\chi^2(9) = 38.62(9), p < .001$).

Nagelkerke's R^2 of 0.134 indicated a moderate relationship between prediction and grouping. Prediction success overall was 68.7%, with gender, cognitive empathy, and social desirability scores explaining significant proportions of unique variance, indicating that females, students with

high cognitive empathy and high social desirability were more likely to select into a psychology rather than a business degree. It should be noted that the odds ratios of the significant predictor variables were all below 1.68, which equates to small effect sizes by Cohen's conventions (Chen, Cohen, & Chen, 2010). Interestingly, affective empathy and all four of the psychopathy facets were not found to be significant predictors of student academic discipline. Results of the hierarchical binary logistic regression are summarised in Table 3.

Given these unexpected findings and the known cultural differences in empathy (Cassels, Chan, & Chung, 2010) and psychopathic traits (Neumann, Hare, & Pardini, 2015), it is possible that findings are being influenced by cultural differences within the sample. Seventeen percent of business students reported being international students, compared to less than 1% of psychology students being international students. Therefore, further exploratory independent sample t -tests were conducted to see if there were significant differences between international and domestic business students on affective empathy, cognitive empathy, interpersonal psychopathy, affective psychopathy, lifestyle psychopathy, and antisocial psychopathy. A summary of cognitive and affective empathy and psychopathy facet scores and descriptives is presented in Table 4.

Findings indicated significant differences between international and domestic business students on cognitive empathy; [$t(250) = -4.05, p < .001$], with international students being less empathic than domestic students. Additionally, significant differences were found between international and domestic business students on the antisocial facet of the SRP; [$t(50.35) = 3.04, p < .01$], suggesting that international students were more antisocial than domestic business students. No further significant differences were found. This finding suggests (with medium to large effect sizes) that international business students were significantly higher in antisocial psychopathic traits and significantly lower in cognitive empathy than domestic business students.

4 | DISCUSSION

The present research aimed to examine the impact pre-existing cognitive and affective empathy and psychopathic personality traits have on attraction and selection into psychology and business disciplines. We hypothesised that after controlling for age, gender, and social desirability, higher levels of cognitive and affective empathy and lower levels of psychopathic traits would be predictive of selection into a psychology discipline. Results partially supported the proposed hypothesis, with combined cognitive and affective empathy scores explaining a significant proportion of variance (7.5%) in academic group membership. However, only

TABLE 3 Summary of hierarchical binary logistic regression predicting discipline from cognitive and affective empathy

Predictors	B	SE	Wald	Exp(B)	95% CI		χ^2	Nagelkerke R ²
					Lower	Upper		
<i>Step 1</i>								
Gender	0.82**	0.24	11.94	2.26	1.42	3.59	23.92	0.05
Age	0.01	0.02	0.26	1.01	0.97	1.04		
Social desirability	0.05	0.04	1.78	1.05	0.97	1.14		
Constant	-2.54	0.63	16.24	0.08				
<i>Step 2</i>								
Gender	0.54*	0.26	4.14	1.71	1.02	2.88	38.62	.13
Age	0.01	0.02	0.33	1.01	0.97	1.05		
Social desirability	0.12*	0.05	6.23	1.12	1.03	1.23		
Cognitive empathy	0.12**	0.03	16.17	1.13	1.06	1.20		
Affective empathy	-0.01	0.02	0.05	1.00	0.10	1.03		
SRP interpersonal	-0.02	0.02	1.12	0.98	0.95	1.02		
SRP affective	0.01	0.02	0.22	1.01	0.97	1.05		
SRP lifestyle	-0.01	0.01	0.60	0.99	0.96	1.02		
SRP antisocial	0.02	0.01	1.22	1.02	0.99	1.05		
Constant	-6.64	1.09	12.14	0.01				

Note: Psychology = 1; Business = 0.

Abbreviation: SRP, Self-report psychopathy scale 4:SF.

* $p < .05$; ** $p < .01$.

cognitive empathy was found to explain a significant proportion of unique variance in choice of academic discipline, with higher levels being predictive of selection into a psychology discipline. It was also hypothesised that higher levels of psychopathic traits and lower levels of empathy would be predictive of selection into a business discipline, after controlling for age, gender, and social desirability. Surprisingly, results did not support this hypothesis, as after control variables and empathy scores were included, none of the four psychopathy facets explained a significant proportion of unique variance in choice of academic discipline.

TABLE 4 Empathy and psychopathy scores for domestic and international business students

Outcome measure	International (N = 43)		Domestic (N = 209)	
	M	SD	M	SD
Cognitive empathy	33.47	5.12	36.67	4.64
Affective empathy	38.40	5.58	39.57	7.65
SRP interpersonal	54.02	10.15	50.90	10.06
SRP affective	52.95	11.54	50.03	10.39
SRP lifestyle	52.42	11.97	51.85	9.96
SRP antisocial	54.37	12.53	48.29	8.56

Abbreviations: SDS, Social desirability scale; SRP, Self-report psychopathy scale, short form, 4th edition.

4.1 | Empathy

Medium effect size differences were noted for empathy, with psychology students reporting significantly higher levels of cognitive empathy than business students. This finding is theoretically consistent with the attraction and selection components of the ASA model (Schneider, 1987), suggesting that as empathic skills would be considered advantageous in the applied context of psychology (Toto et al., 2015), more empathic students would be attracted to pursuing a career in psychology as a helping profession (Marsh, 1988).

The present findings are also consistent with those of Harton and Lyons (2003), which indicated cognitive (but not affective) empathy was a significant predictor of selection into a psychology vocation. Understanding alternative perspectives is important for general social skill development and so people possessing high levels of cognitive empathy tend to be more outgoing and social (Jonason & Kroll, 2015). Further, (Wai & Tiliopoulos, 2012) propose that cognitive empathy and the ability to adopt many different perspectives may offer useful functionality in careers such as psychology and counselling.

However, the cognitive capacity to adopt another's perspective is what allows individuals to anticipate how others would react to them and subsequently change their behaviour in order to illicit the desired response. In business, having a knowledgeable understanding of the client's motives and

likely behaviour is crucial in order to obtain the most ideal self-serving outcome. For example, Galinsky, Maddux, Gilin, and White (2008) found that perspective taking skills were advantageous in business negotiations, whereas the ability to connect emotionally (affective empathy) was not. In a business negotiation context, perspective-taking is thought to allow for objective-decision making without compromising self-interested goals and can facilitate the balance between competition and cooperation (Galinsky et al., 2008).

Despite cognitive empathy being important in both business and psychology, the present findings suggest that business students demonstrate lower perspective taking ability than psychology students. Cognitive empathy (including perspective-taking) is thought to be a set of cognitive skills which could be impacted upon by experiences and theoretically taught through exposure to external environments which encourage individuals to take others' perspectives (Harton & Lyons, 2003). Therefore, the present findings highlight a need for learning experiences that enhance student perspective-taking skill development to be incorporated into Australian undergraduate business education.

4.2 | Gender, age, and social desirability correlates of empathy and discipline selection

Consistent with previous findings (Harton & Lyons, 2003; Jolliffe & Farrington, 2006), gender was significantly and positively correlated with both cognitive and affective empathy, with females reporting higher levels of cognitive and affective empathy than males. Gender was also a significant predictor of academic discipline selection, with females more likely to be attracted and selected into a psychology discipline than males. These observed gender and discipline effects are consistent with prior research suggesting females are more likely than males to select into a helping vocation such as psychology (Marsh, 1988). Findings indicated a significant negative correlation between age and affective empathy, indicating that emotional empathy declined with age. However, given the limited age range of the 1st year university student population, this finding should be interpreted with caution. Significant negative correlations were also found between social desirability scores and cognitive and total empathy, indicating that more empathic students tended to be less likely to "fake good" or respond in a socially desirable way.

4.3 | Psychopathy

Business students were found to significantly differ from psychology students only on the interpersonal facet of psychopathy ($d = 0.27$). This finding highlights the utility of examining psychopathy at a multifaceted level rather than as

a unitary construct. The interpersonal facet of the SRP is associated with Factor 1 psychopathy, which encapsulates the affective and interpersonal characteristics of the construct and is the factor most commonly associated with lack of empathy. Individuals high in this facet tend to adopt an arrogant and deceitful interpersonal style in their relationships and have a tendency to lie, manipulate, and charm others in order to get their needs met (Wilson & McCarthy, 2011). Additionally, Factor 1 psychopathy has previously been associated with cheating behaviour in university students (Coyne & Thomas, 2008).

Consistent with the present findings, Wilson and McCarthy (2011) also found business students reported higher levels of Factor 1, but not Factor 2 psychopathy than students in other academic disciplines. However, as highlighted by the results of Wilson and McCarthy (2011) and echoed in the present findings—psychopathic personality traits do not appear to have a significant influence on academic discipline choice.

Recent research suggests that specific psychopathic traits may increase over the course of study for business students (Blinded 2017), suggesting that exposure to the specific environment created within business schools may influence the development of specific psychopathic personality characteristics. In combination, these findings suggest that socialisation, rather than attraction and selection processes account for higher rates of psychopathic traits in business students.

Perhaps the most curious finding in the present study was that none of the four psychopathy facets (interpersonal, affective, lifestyle, and antisocial) were found to be predictive of academic discipline in business and psychology students. There are a number of potential reasons for why this might be the case. For example, it is possible that the image of Australian business schools is different from international business institutions in such a way that they attract different student personality types which are lower in psychopathic traits. This interpretation is supported by the observed differences between domestic and international business students in the present sample. Findings suggest (with medium to large effect sizes) that international business students were significantly higher in antisocial psychopathic traits and lower in cognitive empathy than domestic business students. Importantly, personality characteristics are only one component which contributes to choice of academic discipline with vocational interests and self-efficacy also predictive of vocational choice (Larson et al., 2010).

Students entering university represent a population who are exploring possible vocational pathways and engaging in study to further develop their knowledge and skillset before making a concrete decision on their future career choice (Lüdtke, Roberts, Trautwein, & Nagy, 2011). Therefore,

entry into a psychology or business undergraduate degree is the first stepping stone into a multitude of potential vocational pathways. This may have implications for the present findings as participants were not asked about intended future career aspirations upon completing their education or motivation for selecting their chosen field. For example, whilst empathy is considered an important characteristic for working in an applied psychology role, it may be less so for those students interested in pursuing a research-based career. Business students may have personality traits which would be better suited to a different field of study but had familial expectations and pressures placed on them to pursue a particular educational pathway which will ensure financial stability later in life (Lüdtke et al., 2011). Future research should consider exploring personality traits in conjunction with motivations for selection into academic vocations as these may be more important areas for educational stakeholders to focus on in regard to student ASA.

4.4 | Gender, age, and social desirability correlates of psychopathic traits and discipline selection

Findings indicated significant negative correlations between gender and psychopathic traits, with males scoring higher than females across each of the psychopathy facets. Significant positive correlations were also found between social desirability and each of the four psychopathy facets, indicating that those students reporting higher levels of psychopathic traits tended to be more likely to respond in what they believed to be a socially desirable manner. Lastly, age was not significantly correlated with any of the psychopathy facets, likely due to the limited age range of the present sample.

4.5 | Limitations

The findings and interpretations presented in the current paper should be considered in the context of several limitations. First, the cross-sectional design of the study means that it is possible the findings are subject to cohort bias and caution should be used when generalising these findings to other populations. A useful avenue for future research would be to examine students longitudinally to explore factors which influence student retention and attrition within these disciplines. The present findings offer insight into pre-existing personality trait differences of newly enrolled business and psychology students. However, the potential functionality of these traits to their respective disciplines was not assessed, limiting the comments that can be made about whether or not these personality traits are advantageous for student satisfaction or academic success within their

respective disciplines. The present research assumes that new enrolling student cohorts are relatively homogenous in regard to the degree of exposure to possible socialisation effects and possible previous exposure to socialisation processes. Generalising to a wider population, this is unlikely to be the case. For example, full-time students might experience greater exposure to possible socialisation effects than part-time students. Furthermore, some students may have been “newly enrolled” in their current degree, however, have previously studied a different discipline or have some work experience in which they have been exposed to any associated socialisation effects. Finally, the present research only considered two specific areas of personality as predictors of academic discipline selection, which may be too simplistic when considering the multifaceted nature of this decision-making process. It is likely that additional variables were not considered in the study, such as motivation for selection and future career aspirations, may account for a significant portion of variance in choice of academic vocation. Therefore, it would be beneficial for future research to consider a broader scope of variables which may impact upon vocation selection processes.

5 | CONCLUSIONS

Choosing which vocational pathway to pursue is one of the first big life decisions made by adolescents and young adults, with personality factors playing a role in the decision-making process (Balsamo et al., 2013). The present findings highlight some key personality distinctions between students drawn to Australian business and psychology degrees, specifically, students with lower cognitive empathy and higher interpersonal psychopathic traits tend to be drawn to a business discipline over a psychology discipline. Findings provide limited support for the applicability of the attraction and selection components of Schneider's (1987) ASA model in an educational context.

The findings and interpretations made in the present paper may be used to inform teaching practices within Australian business education. For example, findings highlight that newly enrolled business students exhibit lower cognitive empathy than students in psychology, which may provide rationale for educators to over-emphasise the importance of interpersonal relationships in business and incorporate learning opportunities designed to improve student perspective-taking skills. Future research should explore the impact of additional factors that might influence student academic discipline choice in order to gain a more holistic understanding of the complex interaction of components that influence students' vocational choices and shape their future career pathways.

ACKNOWLEDGEMENTS

This research was supported by the Australian Government Research Training Program Scholarship.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest to declare.

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How to cite this article: Litten V, Roberts LD, Ladyshewsky RK, Castell E, Kane R. Empathy and psychopathic traits as predictors of selection into business or psychology disciplines. *Aust J Psychol.* 2019;1–13. <https://doi.org/10.1111/ajpy.12263>

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