

Management of Student Engagement: A Matrix Consolidated

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ABSTRACT

Student engagement has been characterized in literature by a myriad of meanings and a complicated set of research results that are difficult to compare because definitions are often re-configured from one study to the next. Though considered to be an important precursor to student learning and predictor of student achievement, few researchers have attempted to consolidate a reliable measure of student engagement. We approached the concept of engagement through the exclusive lens of the students and, consequently, consolidated a condensed form of the 'Student Engagement Matrix' encompassing the most relevant engagement factors based on a sample of second year International Business Studies Students at different campuses of a university. The objective was to develop a relevant standardized matrix that could be used as a measure to identify the level of engagement across students with different demographic characteristics. Future research is required to validate the measure; once validated, the matrix could be used to benchmark achievement of unit outcomes amongst university students.

Key Words: Student Engagement, Student Engagement Matrix, Unit Outcomes, Educators.

INTRODUCTION

Student engagement first emerged as a concept in the late 1980s when scholars were more inclined to view the precursors of engagement almost exclusively through the filters of a set of demographic and social risk factors attributed to individual students. However, of late, the concept has been receiving increasing attention by higher education scholars and practitioners (Zhao & Kuh 2004) and there have been many variations to the idea of student engagement with efforts to make effective the learning environment. The concept is in mainstream education discussion and debate, but is also suffering from the fact that each discourse produces its own distinct definition and understanding of student engagement (Carini, Kuh & Klein 2006; Steele & Fullagar 2009; Zyngier 2008).

The description of student engagement is varied depending on the perspective taken; i.e., that of the lecturers or of the students in the higher education setting. In the case of lecturers, engaging pedagogies can be regarded as ways of teaching that “generate high quality learning because they encourage students to be active learners, persuade students to be involved learners, harness student interest, channel student energy, promote understanding, motivate students to learn and discourage passive learning” (Field, 2009, p. 2).

However, for the current paper, it was considered necessary to develop a blended model of student engagement that would be student-centred and outcome-focused to motivate students in making high level cognitive connections and developing skills that would promote self-sufficiency. By listening to the students’ voice about their experiences at university (Hu, Kuh & Li 2008) and looking at student engagement in the context of modern-day higher education, we

can extend its potential as a powerful construct for engaging students, as well as their educators, in the pursuit of achieving intended outcomes.

In spite of a few existing measures on student engagement such as the U.S. National Survey on Student Engagement (NSSE 2009), we found that the definitions and measures of student engagement in literature were rather limited. Specifically, engagement often was tied to general theories of motivation (Kuh 2003), research evolved around the NSSE instrument and majority of student engagement studies focused on elementary schools.

Often, students were left out of the discourse on engagement as they were considered to be the products of formal education systems. Rather, the students' voices need to be central in shaping our paradigms of the modern learning environment. The current research is seen as an effort to give a say to students in order to reduce the incidence of de-coupling between pedagogical practice and real-life learning. Mosenthal (1999, p. 12) and Skinner et al. (1990, p. 24) described student engagement as a concept that reflects the cognitive and affective systems of learners and readers, represented by their initiation of action, effort, and persistence on work, as well as their ambient emotional states during learning activities. In the current research, engagement is taken to be the "active involvement, commitment and sense of belonging that dictates the time and effort students devote to educationally purposeful activities" (Cleary & Skaines 2005, p.2).

STUDENT ENGAGEMENT RESEARCH

Practitioners and academics use a wide variety of definitions of the term 'engagement'. In addition, there is significant overlap of the definitions with those of other more established organisational constructs such as affective commitment to organisations (Steele & Fullagar 2009). Research by Umbach and Wawrzynski (2005) on faculty practices such as collaborative learning techniques and their impact on student engagement, has built upon widely cited theory on engagement by Tinto (1993) as well as Chickering & Gamson's (1987) seminal publication on Principles of Good Practice for Undergraduate Education. Five of the principles advanced by Chickering & Gamson were adopted by Umbach and Wawrzynski (2005) who confirmed that faculty behaviors and attitudes have a remarkable impact on student engagement.

While the importance of engagement has been well documented, the underlying sub-components and the items measuring them remain a contentious gray area, particularly for institutions that endeavour to investigate the impact on students' development and learning. Especially within the policy area, in Australia there has yet to be developed an instrument that has garnered agreed attention to assess student engagement at universities. The National Survey of Student Engagement (NSSE), as the main instrument used in North America to chart the progress of students, uses five benchmark components. La Nasa, Cabrera and Transgud (2009) took a step forward in respect to proposing an alternative eight dimensions to the student engagement concept using a confirmatory factor analysis approach. Although the results would render more insights for institutions utilizing the NSSE, their findings are expected to shed more light to understanding the dimensions within the student engagement rubric.

On a related note, research by Handelsman, Briggs, Sullivan and Towler (2005) presented a four-dimension college student engagement with each dimension very distinct from the others; the proposed dimensions were skills engagement, participation and interaction engagement, emotional engagement, and performance engagement. The research results displayed high internal consistency for the measure and, more importantly, they suggested initial evidence for high discriminant validity.

A variation in the conceptualization of engagement was used by Steele and Fullagar (2009) in their study on the relationship of engagement to psychological and physical health. The construct 'flow' was used as a proxy for engagement measured by Jackson and Eklund's (2004) Flow State Scale-II; the authors found that engagement (flow) mediated the relationship between academic work characteristics and psychological well being and physical health.

An Australian academic has contested the mainstream definitions of engagement. Zyngier (2008) argued that the psychological definitions of engagement are often a mixture of behavioural aspects, emotional aspects and cognitive engagement and, consequently, is against treating the concepts as the same. Also, he argued that engagement may not necessarily be a predictor of academic success and, vice versa, academic achievement may not necessarily equal engagement. Summarizing the engagement concept, therefore, Zyngier (2009) proposed the 'CORE' principle whereby Connecting, Owning, Responding and Empowering are at the heart of all pedagogy to guide both educators and students.

METHODOLOGY

Based on a set of engagement concepts, the current study seeks to identify the level of student engagement from the students' perspective, and to investigate any prevalent differences between the different groups of students based on gender, age groups, subject-areas, and campuses. Hence, 'student engagement' was broadly defined as the students' perspective of their learning experience at university assessed on the basis of the nine different facets of engagement noted in Figure 1.

Figure 1: Basic 'Engagement' Concepts

Relevance	Curriculum	Academic Discipline
Environment	Adaption	Worker Attributes
Cultural Diversity	Adult Learning	Work Flow

Stage 1

In order to test whether or not students enrolled in a university unit recognized the range of 'engagement' concepts, a comparison was made between the concepts listed in Figure 1 and the ideas contained within students' informal, end-of-semester unit summaries. Following is the list of items included under each concept and, where appropriate, a related, qualitative student comment. Comments were selected by locating relevant information in a student's summary, then moving to the next student's summary to seek a comment on the next identified factor. Initially, interest focused on whether or not a particular factor was mentioned; as long as a factor

was mentioned, the placement of that factor on the 'engagement' list was justified. Whether or not the students' response to the engagement factor was good or bad was important feedback only for future planning.

(a) **Relevance** – Items associated with relevance were adapted from material by Kift (2009) and Krause et al. (2005).

- Preparedness – *being prepared each week made me interested, thoughtful, concentrating, confident, satisfied.*
- Motivation – *this unit stimulates our creativity; has totally changed my perception and expectations – it is so much fun.*
- Finances – *only one accounting person in our team; we found out how much we relied on her for information on financial risk and the business finances; made us more careful to identify each team member's abilities.*
- Peers – *very different working with students doing majors other than your own; develop strong friendships outside of class and learn more about the subject and other people.*
- Student Support – *team members from different cultures helped me learn about business etiquette in other countries; learned much more from other students in this unit.*
- Program Choice – *learning how I behave towards others and try to influence them was exciting and very good for my future career.*
- Unit Design – *lectures quite structured, tutorials very flexible – good variety.*
- Assessment – *some oral presentations too repetitive.*
- Feedback – *learning how to give constructive feedback to team members enhanced my own self-awareness, of giving and taking it.*

(b) Curriculum – Specific curriculum items were adapted from Kift (2009) who was concerned that the generic items also been seen as interconnected through research and guides that moved students from principles to practice.

- Transition – *the unit doesn't necessarily focus too much on your specified major; may not really complement your other units.*
- Diversity – *different lecturer each week is fun; very enthusiastic; keeps students interested.*
- Design – *interesting to learn about finance and laws from an international viewpoint; doesn't happen in my major subject.*
- Connection – *necessary to retouch on forgotten units or lines of study to familiarize yourself with different perspectives and an international business point of view.*
- Assessment – *emphasis on skill building and reflective practice; can you introduce site visits to international businesses?*
- Evaluation – *surprised how much I had to learn about basic communication skills, presentation skills and skills of negotiation, analysis and research; helps in my future job.*

(c) Academic Discipline – The very nature of multi-disciplinary learning suggests engagement across various work sectors and academic disciplines. However, to check that assumption, the following factors have been adapted from the work of Kift (2009).

- Partnerships Crucial – *team members helped a lot during the semester ... shared ideas and work load ... teamwork a very important skill at university and in the workplace.*
- Partnerships Hard Work – *I was inspired about my work because team members worked hard together.*
- Massification – *strength of the unit is in small classes with more interaction between the*

staff and students; tutorial & learning support is fundamental and students understand the importance of various disciplines interacting.

- *Discipline Integration – when we started the class we didn't want to work together or communicate with each other; once we learned to work together the work was more interesting and we did a better job on our presentation.*
- *Normal Validating – it was a very challenging unit but I grew personally as well as in technical knowledge once team members began to respect each other's opinion and compromise to achieve the best result.*
- *Personal Interaction – no criticism of gender, race, language etc in our team, even though we were all very different.*
- *Professional Interaction – with team members from different majors, we found it best to ask questions before making decisions; different knowledge by analyzing other team members.*

(d) Environment – Field (2009, p.3) has argued that the 'engagement' principle is that "students must be engaged as learners if they are to have a successful university experience". Consequently, her idea of creating appropriate learning environments has been adapted and extended to include the following.

- *Student-Centred (Active) – tutorial activities helped us become a real team and kept us motivated.*
- *Outcome Focussed (Campus Support) – the tutorial class gets more interesting each week ... I learned how to avoid demerits and use more successful presentation skills.*
- *Cognitive Connection (Challenge) – the style of this unit is different ... I learn about theory in a relaxed mode ... easier to solve problems with a mix of classmates from different countries.*

- Self-Sufficiency (Enriching) – *first hand accounts and stories are often the best way to learn ... teamwork has been the most important positive for me ... but I have learned to be more organized for myself and my team.*
- Teamwork (Collaborative) – *I didn't expect this part of the activities in international business –it's really interesting to understand and practice.*

(e) Adaption – No university unit can afford to be static; as a result, the following items are suggested as being relevant to the adaptability of a unit.

- Quality – *high quality of presentations by different lecturers showed me the value of using more preparation time and spending more time in summarizing.*
- Improvement – *activities in tutorials increased my understanding about business, special business language and how to overcome obstacles.*
- Accountability – *the way teams were formed gave us a contrast of ideas ... we compared notes before and after class every week to make sure we understood.*
- On-Line – *the unit would be better if more detailed information was provided about assignments on-line.*
- Staff/Student Interaction – *having a different lecturer each week made the topics interesting; our tutor was friendly and helpful, but very strict about referencing.*
- Learning Communities – *my team has helped me demonstrate interpersonal communication skills in working in a multi-cultural team; gave me an opportunity to apply critical thinking skills, to analyze and interpret information, express my opinions and solve problems with others.*

(f) Worker Attributes – Treleaven and Voola (2008) have suggested that there are a number of attributes that a graduate must develop. Moreover, units teaching business education need to

integrate the development of graduate attributes through constructive alignment. Based on their work, the following types of attributes have been suggested as necessary for graduates to take into the workforce.

- Personal/Intellectual Development – *I have learnt to be more tolerant of other people’s culture, to accept the ignorance around me and communicate more without being frightened.*
- Research/Inquiry – *What motivated me was the research and watching the DVD case study ... interesting, fascinating how different the answers were.*
- Information Literacy – *I hate referencing but I learnt how to do it and why in this unit.*
- Communication – *I am more confident when speaking and working with my classmates ... I feel more supported when making presentations.*
- Understanding
 - Ethics: *In the DVD, trust and reliability were emphasized; they encouraged us in our teamwork.*
 - Social: *Opened my eyes as to what is discrimination.*
 - Professional: *Knowledge of various disciplines and developing professional skills made teamwork more productive.*

(g) Cultural Diversity – By design, the multi-disciplinary, international business unit was designed to be multi-cultural, providing each team of students with a mix of students with national, cultural and linguistic differences. The following items were suggested by Hannon & D’Netto (2007) as related to student experiences and satisfaction with learning technologies. Consequently, they have been used to assist in the identification of students’ engagement with their learning.

- Background – *I have made new friends and understand their cultures better.*

- Program Organisation - *interesting to find business disciplines are inter-connecting and co-dependent; team members self-reflect and improve by sharing feedback.*
- Technology - *information on class work provided on Blackboard at the beginning of each week gave team members time to email ideas and prepare for class.*
- Pedagogy – *this unit has taught me many life skills and lessons for the future; I will use them every day through my life.*

(h) Adult Learning – Many authors have described ‘engagement’ as a multi-dimensional phenomenon (Mosenthal, 1999; Guthrie & Anderson, 1999; Chism, 2003). More recently, Blaylock et al. (2008) have argued that business students will ‘engage’ best when provided with an adult learning environment. Consequently, the following items related to adult learning have been adapted from Knowles (1998) and Knowles et al. (1998) as described by Blaylock et al. (2008).

- Learning a Process – *tutorial classes are more important than lectures because that’s where we practice our learning.*
- Transfer of Learning – *first-hand accounts of experiences of other students in my team have helped me communicate with people in other classes.*
- Personal Responsibility – *I have learned a lot from everyone in my team sharing; I try to use this to my advantage.*
- Affective and Intellectual - *during this semester a lot of feelings appeared as I learned from my team mates and tutor.*
- Learning by Doing – *a huge amount of skills were practiced this semester; students improved their oral and written communication.*
- Realistic/Relevant Examples – *I was surprised that this theory is similar to the practice.*
- Relates to Known Learning - *our team was very diverse culturally, each person from a*

different country; we had to work hard to interact together when we had different experiences and ideas.

- Informal Environment – *I'm not the only one that felt this way as members of my study team often voiced their feelings on the subject.*
- Stimulating Variety – *there is no standardized answer or system and you cannot rely 100% on information; international business is an exciting, continual process of change.*
- Win-Win, Non-Judgmental – *I liked how the unit included all students in the exercises, how they were different ... teams were very good about accepting different ideas.*
- Instructor Facilitates – *using clickers gives us a chance to be part of the lesson each day ... to see what other students think.*

(i) Work Flow – Items related to engaging work flow have been adapted from the work of Steele and Fullagar (2009), mentioned earlier.

- Autonomy – *my multi-national team worked together sometimes ... I still like to work on my own textbook, but there wasn't one in this unit.*
- Role Clarity – *before this unit I found it hard to communicate with students from different backgrounds ... I found opinion differences did not have to mean conflict.*
- Feedback – *a lot of feedback on my report was provided by my tutor ... very helpful as I can see and correct my mistakes ... very ready to assist us.*
- Physical Well-Being – *I felt slightly disheartened because lecturers use humour and jokes but it was very difficult to understand ... I get confused by so much information from different lecturers.*
- Health – [No health issues mentioned].

Stage 2

Having established that the range of potential engagement items was relevant to students enrolled in one cohort of the university unit, the items were placed on a questionnaire and presented to students in the same unit in the following semester. On a five-point Likert scale, students indicated their perception of the value of each item as affecting their engagement with learning in the unit.

PRELIMINARY ANALYSIS: PARTICIPANTS

The questionnaire was distributed to groups of second-year students enrolled in the same unit that used materials planned and prepared by the same unit coordinator and used across six different campuses. In the current paper, a preliminary description of the findings is presented based on a sample of 263 respondents. Table 1 highlights the sample disaggregated by gender, age and location. The Bentley site had the highest number of respondents representing 57% of the overall sample. The lowest number of respondents was from the Metro campus with only 4% of the overall sample. Nevertheless, some mean scores comparisons were conducted to explore surface differences between the various sub-groups within the sample.

Table 1: Respondents' Demographics - Site, Age and Gender

	N	%
Mauritius	32	12.2
Metro	11	4.2
Sarawak	17	6.5
Singapore	32	12.2
Sydney	22	8.4
Bentley	149	56.7
Total	263	100.0

	N	%
18 and under	1	.4
19-20	78	29.7
21-22	106	40.3
Over 22	78	29.7
Total	263	100.0

	N	%
Male	107	40.7
Female	156	59.3
Total	263	100.0

MEAN VALUES COMPARISON

An index for the nine engagement concepts was calculated by obtaining the mean score for the relevant items pertaining to that concept. For instance, for an index for ‘relevance’, questionnaire items 1-9 were aggregated and divided by 9 for each case. The means value was calculated, then, to compare the engagement concept averages against site, age and gender respectively.

Table 2 displays the results for the mean values according to the different sites. The figures in italics are the values that are lower than the overall mean score for all the sites aggregated. Observations that may warrant further investigation are those of students in Mauritius and Singapore which indicate a low adaptability score compared with the other sites; and worker attribute scores are the lowest at the Singapore and Bentley campuses. As far as cultural diversity is concerned, the Metro campus in Malaysia has the lowest score. One of the main causes for concern may be the fact that the Singapore campus had scores lower than average for eight out of the nine engagement concepts, possibly signaling an overall low level of engagement for its students.

Table 2: Site against Mean Values for Engagement Concepts

	Relevance	Curriculum	AcademicDis	Environment	Adaption	WorkerAttr	CulturalDiv	AdultLearn	Workflow
Mauritius	3.87	4.19	<i>4.00</i>	3.66	3.56	3.63	<i>3.41</i>	3.81	3.62
Metro	3.64	4.36	4.09	3.36	3.91	3.45	<i>3.00</i>	4.00	3.27

Sarawak	3.47	3.82	3.94	3.71	3.88	3.59	3.65	3.71	3.41
Singapore	3.59	3.78	3.84	3.62	3.25	3.34	3.63	3.66	3.22
Sydney	3.77	3.82	3.59	3.36	3.64	3.45	3.27	3.82	3.77
Bentley	3.56	3.85	4.15	3.81	3.62	3.40	3.60	3.74	3.63
Total	3.62	3.90	4.03	3.70	3.60	3.44	3.53	3.75	3.56

Eyeballing the results in Table 3, which tabulates the mean values for the engagement concepts according to age, indicates the highest level of engagement amongst students in the 21-22 age category. Possibly, this is due to the fact that the age group represents the majority of the students in the sample of 2nd year university students and, hence, they tend to be more engaged amongst students at their age.

Table 3: Age against Mean Values for Engagement Concepts

	Relevance	Curriculum	AcademicDis	Environment	Adaption	WorkerAttr	CulturalDiv	AdultLearn	Workflow
19-20	3.58	3.86	4.12	3.73	3.56	3.40	3.60	3.81	3.55
21-22	3.65	3.96	4.00	3.70	3.71	3.46	3.50	3.75	3.66
Over 22	3.62	3.86	3.97	3.68	3.49	3.45	3.49	3.71	3.44
Total	3.62	3.90	4.03	3.70	3.60	3.44	3.53	3.75	3.56

Table 4 highlights the engagement mean values against gender. The female students displayed higher scores for relevance, curriculum and academic discipline, whereas the male students surpassed their counterparts in environment, adoption, worker attributes, cultural diversity, adult learning and workflow scores. The gender comparison indicated that, overall, males had a higher mean value for most of the engagement concepts, except for relevance, curriculum and academic discipline.

Table 4: Gender Against Mean Values for Engagement Concepts

Gender	Relevance	Curriculum	AcademicDis	Environment	Adoption	WorkerAttr	CulturalDiv	AdultLearn	Workflow
Male	3.60	3.88	3.96	3.72	3.68	3.50	3.57	3.80	3.68
Female	3.63	3.92	4.08	3.69	3.54	3.40	3.50	3.72	3.48
Total	3.62	3.90	4.03	3.70	3.60	3.44	3.53	3.75	3.56

Among immediate steps that can be taken from these preliminary results are that the university can narrow down with the intention of identifying students who are essentially disengaged and try and involve them in educationally purposeful activities. Besides that, efforts could be channeled to campuses with lower scores with concentration on the specific facets of engagement that call for immediate attention.

CONCLUSION

In the current paper, the concept of establishing a student-centered learning environment formed the basis for examining the nature and presence of student engagement with the task of studying, and developing skills related to, a unit in international business.

Nine basic 'engagement' concepts were identified and expanded to 58 factors allied to engagement as noted in extant research. The concepts and related factors can be taken as a very preliminary examination of the 'engagement' issue; certainly they are not a complete articulation of the topic, nor are they necessarily independent of each other. Other topics in research literature that may be considered relevant could be those of 'self-fulfilling prophecy' (Eden, 1984) or the Kano model of customer satisfaction (Kano et al., 1984) that is concerned with customer needs, satisfiers and delighters. Similarly, the enhancement of 'mental thinking' (Lorenzo & Moore, 2002; Conrad & Donaldson, 2004) may be considered relevant, or the Griffith University Student Engagement 10 Strategies for Success (adapted from Krause, 2005). As presenting lecturers, staff may be interested in the amount of 'in-class' time compared with 'out-of-class' learning time used by students.

Nevertheless, the identification of numerous indicators of 'student engagement' in their learning has been sufficient to suggest that further research be undertaken. Studies of a more quantitative nature may be undertaken in relation to the level of 'student engagement' found in other tertiary units. Similarly, the specific value (using a Likert-type scale) placed on each factor in relation to

the learning of international business could be researched, as well as the relative value of each factor in tertiary learning as compared to that of its practice in the actual world of international business.

LIMITATIONS AND SUGGESTION FOR FUTURE RESEARCH

As with any studies, the research has some limitations. First, data are from different campuses of a university, with study participants being a captive audience, so there may be unknown effects due to differences in sampling and administration procedures across campuses. As is also the case with other surveys at tertiary institutions, females tend to be over-represented. Next, although a few students and institutional variables are included in the analyses, we did not have access to any outcome variables such as overall learning satisfaction or individual student performance scores, which could enable additional statistical analyses such as establishing predictive power of engagement scores from multiple regressions. Finally, there is the expected trade-off between usage of pre-established instruments developed overseas, such as the National Survey of Student Engagement (NSSE) or College Student Engagement Questionnaire (CSEQ), and having an instrument developed solely for the purpose of the study. As with any new measure, ongoing research will be necessary to refine construct validity because scale development is an iterative process.

There is much to learn about student engagement and educational effectiveness. There is great breadth in possible future research to probe further into student engagement measures, and combine them with other academic indicators to extend the body of knowledge. Despite the

limitations and infancy of the matrix development in the current study, it has potential to be useful tool for researchers and educators.

In the words of George D. Kuh (2003, p. 28), director of the NSSE, “College [university] is a potentially transforming experience, a once in a life-time opportunity to challenge students to examine their previous ways of knowing, thinking and behaving. It’s hard to imagine this happening to a meaningful degree if students don’t devote the time and effort needed to develop the habits of the mind and the heart characteristic of an educated person”. Ideally, we should be able to determine the optimal and minimal levels of engagement necessary to achieve a satisfactory amount of learning for different cohorts of students, at different locations, in different programs and at different levels of the learning institution.

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