Evaluation of First-Year University Students' Engagement to enhance Student Development

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Abstract: The COVID-19 crisis has dramatically impacted university education as well as created new challenges for tertiary learning institutions. The pandemic has exacerbated graduate unemployment and increased student dropout rates. In response to these unprecedented challenges, universities are formulating more student development initiatives to support new students to transition into university and produce holistic graduates with essential soft skills. Student engagement evaluation can help inform and enhance the implementation of student development programs. In this study, seven domains of first year university students' engagement were evaluated namely Academic Engagement (AE), Beyond-class Engagement (BE), Intellectual Engagement (IE), Online Engagement (OE), Peer Engagement (PE), Student-staff Engagement (SE) and Transition Engagement (TE). This study found that university freshmen's Online Engagement (OE) was the strongest while their Academic Engagement (AE) was the weakest. This study also discovered that first year university students' engagement were weakest with regard to reading of textbooks before attending class, asking questions in class and borrowing books from the university library. Future student development programs targeted at first year university students could be enhanced by increasing the use of ICT in teaching and learning as well as increasing efforts in assisting new students to transition from school to university learning environments by inculcating good reading habits and encouraging active class participation.

Keywords: Academic engagement, First year undergraduates, Student development, Student engagement, Transition to university

1. Introduction

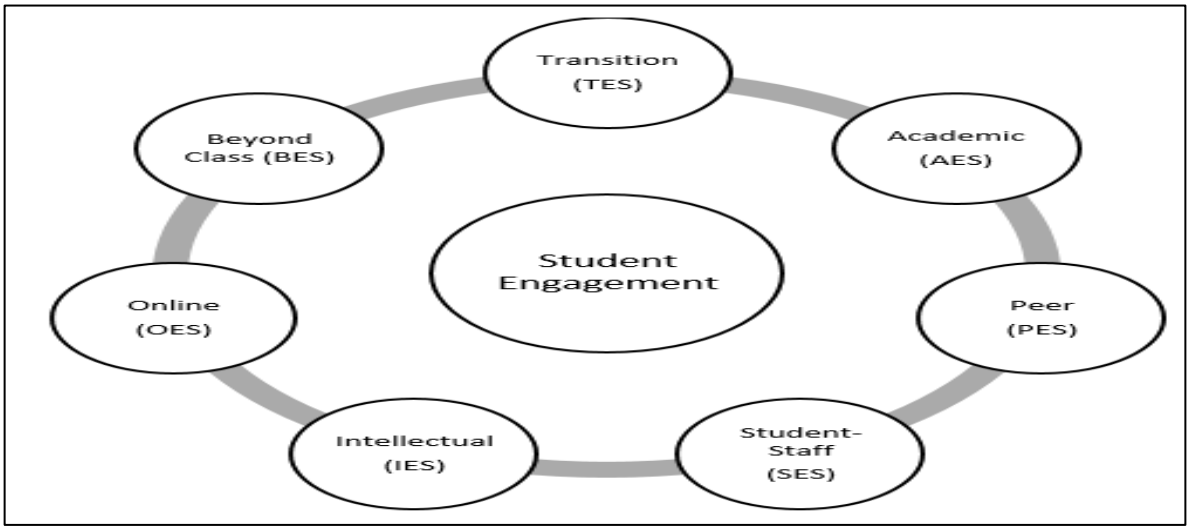
The coronavirus disease of 2019 (COVID-19) crisis has greatly impacted higher education (Marinoni, Van't Land, & Jensen, 2020; Toquero, 2020). The global pandemic has exacerbated graduate unemployment and worsened student dropout rates. As university revenues fall and expenses increase, improving student retention particularly among university freshmen become an issue of increasing concern. In light of the weakening economy and worsening graduate unemployment situation, tertiary institutions face mounting pressures to enhance graduate employability and improving education quality as multiple stakeholders question the value of university education.

Universities are responding to these challenges by implementing student development programs to produce holistic graduates who are equipped with various soft skills (Chong & Hamid, 2016; Chong & Rahman, 2016; Eblen-Zayas & Russell, 2019; Jackson, 2019; Oehme et al., 2020; Rettig & Hu, 2016).

Student development programs are also effective to increase student retention and aid new students to transition from school to university (Coertjens, Brahm, Trautwein, & Lindblom-Ylänne, 2017; Ward-Roof, 2010). The transition from school to university is often challenging for many students due to various issues faced by students involving intrinsic and extrinsic factors (Bowles, Dobson, Fisher, & McPhail, 2009; Brahm, Jenert, & Wagner, 2017). According to Bowles et al. (2009), intrinsic factors are student centered considerations such as student motivation, emotional well-being and self-efficacy while extrinsic factors are university led enablers such as university orientation and development programs. The interaction between intrinsic student factors and extrinsic university factors affect student engagement and transition to university (Kahu, Picton, & Nelson, 2019). Engaging freshman students effectively is one of the keys to successful transition from secondary school to university (Kahu et al., 2019). Research on first year university student engagement is one of the current empirical branches of research on transition into university (Coertjens et al., 2017).

Although student engagement is the strongest predictor of academic success and personal development, there is a lack of consensus on its conception and measurement (Collaço, 2017; Kuh, 2009). Student engagement is a complex construct whose dimensionality is viewed differently by various researchers. Skinner, Kindermann and Furrer (2009) proposed two construct dimensions namely emotional and behavioral engagement whereas LaNasa, Cabrera and Trangsrud (2009) suggested eight dimensions comprising learning strategies, academic integration, institutional emphasis, co-curricular activity, diverse interactions, effort, overall relationship and workload. Meanwhile, Krause and Coates (2008) asserted that student engagement consisted of seven dimensions namely transition engagement, academic engagement, peer engagement, student-staff engagement, intellectual engagement, online engagement and beyond-class engagement, as presented in figure 1 below.

Fig 1: Student Engagement Scale (Krause & Coates, 2008).



Considering that the transition from secondary to tertiary education is especially challenging for Malaysian students due to the "disconnect between secondary schools and universities" in the country (Terpstra-Tong & Ahmad, 2018, p851) as well as the lack of consensus on the student engagement construct which warrants more research to examine its dimensionality, instruments and concurrent validity (Christenson, Reschly, & Wylie, 2012; Fredricks & McColskey, 2012), this study aimed to examine first year university student engagement domains and also assess the student engagement measurement developed by Krause and Coates (2008) for use in the Malaysian context. The

measurement of first year university student engagement can help inform and enhance universities' student development programs (Coertjens et al., 2017; Krause & Coates, 2008).

2. Methodology

This study employed the research instrument developed by Krause and Coates (2008) as it was the most appropriate since it was specifically developed to measure first year university student engagement. The instrument has seven dimensions or sub-scales namely Transition Engagement Scale (TES), Academic Engagement Scale (AES), Peer Engagement Scale (PES), Student-Staff Engagement Scale (SES), Intellectual Engagement Scale (IES), Online Engagement Scale (OES), and Beyond-class Engagement Scale (BES). Each of the seven dimension probes diffferent qualities of student engagement.

The Transition Engagement Scale (TES) measures student engagement as they transition into university life, the Academic Engagement Scale (AES) measures students' study behaviours and class participation, the Peer Engagement Scale (PES) probes the extent of students' collaboration with peers, the Student-staff Engagement Scale (SES) relates to students' perceptions on support from lecturers, the Intellectual Engagement Scale (IES) investigates the extent of students' intellectually stimulation, the Online Engagement Scale (OES) sheds light on the use of information and communication technologies (ICTs) and the Beyond-class Engagement Scale (BES) measures student participation in the university community beyond the classroom.

This study employed a cross sectional quantitative research design. The research questionnaire containing close ended items is fully bilingual. Both English and Bahasa Melayu were used to facilitate respondents' understanding of the questionnaire items. The population of the study was first year undergraduates from a Malaysian public university. The cluster sampling method was employed to obtain the research sample. Two classes of first year university students undertaking a student development program conducted at a public university were randomly selected and all students in the two selected classes were asked to complete the research questionnaire. Data collected from the study was analysed using the SPSS statistical software.

3. Findings

3.1 Research Sample

The sample employed in this study consisted of 142 duly completed and usable questionnaires. The respondents' profile is presented in Table 1 below. The respondents' profile presented in Table 1 denotes that the sample is representative of the study population.

Table 1: Respondents' profile *(N = 142)*

	Classification	Number	Percentage
Gender	Female	98	69
	Male	44	31
Ethnicity	Malay	74	52
	Chinese	52	37
	Indian	12	8
	Others	4	3

3.2 Reliability of measurement instrument

The Cronbach's alpha values for all seven engagement types are presented in Table 2 and the high values of Cronbach's alpha indicate high reliability for all seven engagement scales.

Table 2. Measurement Instrument Reliability Statistics

	No of Items	Cronbach's Alpha
Transition engagement scale	7	0.94
Academic engagement scale	9	0.84
Peer engagement scale	9	0.92
Student-staff engagement scale	11	0.96
Intellectual engagement scale	5	0.94
Online engagement scale	11	0.96
Beyond class engagement scale	6	0.92

3.3 Distribution of first year university student engagement qualities

The sample statistics as presented in Table 3 indicate that first year university student engagement in all seven dimensions are moderately above average. The sample statistics also showed that first year university students' online engagement was highest followed by student-staff engagement, transition engagement, beyond-class engagement, intellectual engagement, peer engagement and followed lastly by academic engagement. Transition engagement among first year university students in the sample is ranked third after online engagement and student-staff engagement.

Table 3. Sample statistics of first year student engagement qualities (N = 142)

	Mean	Std Deviation	Rank order
Online Engagement	2.37	0.95	1
Student-Staff Engagement	2.40	0.89	2
Transition engagement	2.47	0.98	3
Beyond-class Engagement	2.47	0.94	4
Intellectual Engagement	2.52	0.89	5
Peer Engagement	2.61	0.81	6
Academic Engagement	2.86	0.69	7

The sample statistics for the ten most most engaged student qualities and the ten least engaged student qualities are presented in Table 4 below. The number in the rank order column denotes the ranking of the measured variables or student engagement quality among a list of fifty-eight student engagement items or statements in the research questionnaire.

Table 4. Sample statistics of first year student engagement items (N = 142)

Engagement item		Mean	σ	Rank order
Using email /whatsapp /facebook to contact other students is very useful	OES	2.18	1.18	1
I regularly use the Internet for study purposes	OES	2.18	1.19	2
I regularly use email/whats app/facebook to course mates	OES	2.21	1.21	3
Using email/whatsapp/ facebook to contact my lecturers is very useful	OES	2.24	1.15	4
I regularly use online discussion/whats app/ facebook groups related to my study	OES	2.24	1.11	5
I have made at least one or two close friends at university	BES	2.26	1.20	6

I really like being a university student	TES	2.27	1.22	7
My lecturers try hard to make the subjects interesting	SES	2.28	1.07	8
Most of the my lecturers are approachable	SES	2.28	1.01	9
My lecturers are enthusiastic about the subjects they teach	SES	2.30	1.01	10
I am actively involved in university extra-curricular activities	BES	2.67	1.09	49
I regularly study with other students	PES	2.71	1.07	50
I regularly seek advice and help from lecturers	AES	2.76	0.95	51
I regularly make class presentations	AES	2.83	0.98	52
I regularly study on the weekends	AES	2.85	1.04	53
I regularly spend time in the university library	AES	2.93	1.06	54
I regularly borrow course notes and materials from friends in the same subjects/courses	PES	2.94	1.00	55
I usually come to class having read the textbook	AES	3.00	0.99	56
I regularly ask questions in class	AES	3.04	0.99	57
I regularly borrow books from the university library	AES	3.27	1.04	58

Note: Online Engagement (OE); Beyond-class Engagement (BE); Transition Engagement (TE); Student-staff Engagement (SE); Peer Engagement (PE); Academic Engagement (AE).

Among the list of fifty-eight student engagement items in the study, the top three items where the level of student engagement were the strongest are presented below. All three were from the Online Engagement (OE) category.

- Using email / WhatsApp / Facebook to contact other students
- Using Internet regularly for study purposes
- Using email / WhatsApp / Facebook to contact course mates

The engagement items where the level of student engagement were weakest from the list of fifty-eight student engagement items in this study are presented below. All three were from the Academic Engagement (AE) category.

- Reading the textbook before attending class
- Asking questions in class
- Borrowing books from the university library

3.3 One sample t-test on mean scores of student engagement qualities

In this study, the single sample t-test was used to examine whether the research population mean was statistically different from a specified or hypothesized value. In this research, the hypothesized or test value is 3, which represents the neutral position in the five point Likert scale used in this reseach for the measured variables. The null and alternative hypotheses are H_0: $\mu = 3$ and H_1: $\mu \neq 3$. Results of the single sample t-tests conducted on engagement sub-scales or dimensions are reported in table 5. The statistical results indicate that the mean scores of first year university students' engagement dimensions were all statistically significant and that first year university students are moderately engaged in all seven student engagement dimensions.

Table 5. T-Test On First Year Student Engagement Qualities *(N = 142)*

	Mean	SD	Test value=3	
			t(*142*)	p
Transition Engagement	2.47	0.98	-6.48	0.00
Academic Engagement	2.86	0.69	-2.46	0.02
Peer Engagement	2.61	0.81	-5.81	0.00
Student-Staff Engagement	2.40	0.89	-8.00	0.00
Intellectual Engagement	2.52	0.89	-6.44	0.00
Online Engagement	2.37	0.95	-7.88	0.00
Beyond-Class Engagement	2.47	0.94	-6.74	0.00

3.4 Correlational relationships between engagement domains

Pearson correlation test results as presented in Table 6 indicate that the different dimensions of student engagement are significantly and positively related. The strongest positive association is between Student-Staff Engagement (SE) and Intellectual Engagement (IE), r = . .828, p = ≤ .01, n = 142. The student engagement dimension which has the highest positive correlation with Academic Engagement is Intellectual Engagement. First year students' academic engagement can be improved by helping students to choose courses which they enjoy studying and are in line with their interests.

Table 6. Correlations between engagement domains (N = 142)

	TE	AE	PE	SE	IE	OE
Academic Engagement (AE)	.636**					
Peer Engagement (PE)	.736**	.674**				
Student-staff Engagement (SE)	.753**	.619**	.803**			
Intellectual Engagement (IE)	.755**	.687**	.783**	.828**		
Online Engagement (OE)	.715**	.557**	.783**	.799**	.787**	
Beyond-class Engagement (BE)	.734**	.634**	.802**	.801**	.826**	.794**

*** Correlation is significant at the 0.01 level, Transition Engagement (TE)*

4. Discussion

This study found that students' online engagement was strongest when compared to other forms of student engagement domains, as presented in Table 3. The student engagement items which were found to be the strongest were all from the online engagement category, namely (i) using email/whatsapp/facebook to contact other students; (ii) using Internet regularly for study purposes; and (iii) using email/whatsapp/ facebook to contact course mates. The study findings on the strength of student online engagement corroborates with the notion that milliennial students are tech-savvy and uses social media in all aspects of daily life including academic life (Mládková, 2017). In view of the strength of students' online engagement, universities should intensify the use of information and communication technologies (ICTs) in the implementation of student development programs for first year university students.

On the other hand, this research revealed that the dimension in which student engagement was the weakest was the academic engagement domain. The relative weakeness in academic engagement compared to other student engagement domains is a reflection of the difficulty faced by first year university students' in adapting school based to university based learning environment as also revealed by a recent study that higlighted the lack of independent learning skills as a major issue among on first

year students in a Malaysian private university (Terpstra-Tong & Ahmad, 2018). The difficulty faced by new university students to adapt to university learning environment has also been reported by other researchers (Lu, Lv, & Deng, 2014; Oliver, 2007).

Future student development programs targeted at first year university students could be enhanced by having a stronger emphasis in helping university freshman to be more academically engaged during their first year in unviersity. Pearson correlation test results as presented in Table 6 indicated that Academic Engagement (AE) was most strongly and positively associated with Intellectual Engagement (IE). This suggests that raising students' Intellectual Engagement (IE) could improve students' Academic Engagement (AE). Intellectual Engagement (IE) concerns the extent in which students are intellectually stimulated by their chosen courses. Consiering the strength of students' online engagement, the high correlation between Academic Engagement (AE) and Intellectual Engagement (IE) as well as the benefits of interactive e-books (Lim, Liu, & Choo, 2020), universities should develop and increase the adoption of e-books with interactive formats to simultaneously raise students' intellectual stimulation and academic engagement.

In order to improve first year university students' engagement, the university could intensify efforts to improving the areas of weak student engagement as identified in this research. As presented in Table 4, the student engagement items which were found to be the weakest with regard to reading textbooks before attending class, asking questions in class and borrowing books from the university library. Lecturers can play a critical role to help strengthen first year university students' engagement in these weak areas by providing stimulating reading assignments, inculcating good reading habits and reducing reading anxiety (Baba & Affendi, 2020; Rahmat, Arepin, & Sulaiman, 2020). With regard to asking questions in class, Malaysian students have traditionally been passive learners. Active student engagement in the classroom would facilitate deep learning and contribute to student success. Faculty members need to be trained in strategies to effectively mentor and academically engage first year university students (Chong & Thi, 2021; Erickson, Peters, & Strommer, 2009).

The reliability statistics presented in Table 2 indicated that the mentoring scale that was developed by Krause and Coates (2008) for first-year undergraduate students in Australia is also a highly reliable measurement instrument in the Malaysian context.

5. Conclusion

This study evaluated seven domains of first year university student engagement with the aim to improve student development programs and academic success. Future student development programs targeted at first year university students could be enhanced by improving weak student engagement items as well as tapping on strong student engagement domains. This research found that first year university students' Online Engagement (OE) was the strongest while their academic engagement (AE) was the weakest. In view of the strength of students' online engagement, universities should intensify the use of information and communication technologies (ICTs) in the implementation of student development programs. This study also revealed that first year university students' engagement were weakest with regard to the good practice of reading textbooks before attending class, asking questions in class and borrowing books from the university library. University freshmen's academic engagement can be strengthened by inculcating good reading habits and encouraging classroom participation. As online education become more prominent in the post COVID-19 era, future research could study the online engagement of first year university students enrolled in non-traditional modes of learning such as distance learning and MOOCs (Massive Open Online Course).

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