The roles of student engagement motivations in learning and managing

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Abstract

The purpose of this study is to explore how the combined influence of intrinsic motivation and extrinsic one on the engagement about behavioral, emotional, and cognitive of university students to bring academic achievements. To do this, an experimental questionnaire is designed to collect data from Vietnamese students in Danang and employed Structural Equation Modeling (SEM) to estimate the relationships among proposed variables. The results from 393 samples indicated that intrinsic motivation is the crucial element stimulating their efforts and engagement to obtain learning success. In contrast, extrinsic motivation is found to not bring a positive influence on the cognitive engagement of students. Therefore, this is an important research result that contributes to the theoretical foundation of student engagement as well as makes sense for the management of higher education.

Keywords: Student engagement, Intrinsic motivation, Extrinsic motivation, Behavioral engagement, Academic achievement.

1. Introduction

It is recognized that higher education plays a crucial role in training high-quality human resources, as a foundation for the development of innovation capacity for the development of the country and the contribution of human knowledge. However, the reality shows that universities are facing many difficulties in enrollment due to the international exchange and the outward tendencies of many students. As a result, education managers are still seeking and taking steps to continue to attract new students and maintain current students. Therefore, along with improving the quality of faculty and facilities, grasping students' aspirations to enhance cohesion is an extremely important task of education managers.

The term "engagement" was first explored by Kahn and later it was investigated widely in various disciplines, so a lot of sub-concept of engagement such as consumer engagement (Barger et al., 2016), customer engagement (Quynh 2019), advertising engagement (Malthouse & Calder, 2018), student

engagement (Quynh et al., 2021), audience engagement (Bilda, 2011), online engagement (Quynh et al., 2020b), customer brand engagement (Solem, 2016), civic engagement (Jennings & Stoker, 2004).

Engagement enables service quality enhancement, promotion, customer satisfaction, and competitive advantage (Brodie et al., 2013; Quynh et al., 2020a). Therefore, most businesses including universities, are aiming to initiate strategies to promote customer engagement with businesses. However, what drives the cohesion for each type of business is different.

In the educational settings, the engagement construct is seen as a potential synthetic one (Fredericks et al., 2004) and it is also recognized as a strong predictor element of coming behavior and achievement of students(Klem & Connell, 2004) and is a prerequisite for long-term academic achievement as well as course completion (Connell et al., 1994). In particular, school-attached students are more likely to attend school (Klem & Connell, 2004), test scores better (Willingham, Pollack, and Lewis 2002), score higher (Goodenow 1993) and, have lower dropout rates (Ekstrom, 1986). Furthermore, it is the condition to teachers are more willing to accommodate them with more assistance and motivation (Skinner et al., 2009). Likewise, engaged students showed more positive attitudes and behaviors (pay attention, care more, and be more resilient) than their more relaxed classmates (Klem & Connell, 2004). It is also correlated with behaviors that negatively affect health (e.g., substance abuse, depression, suicide, aggression, premature sexual activity) and aggressive behavior promotes health (eg exercise, nutrition, safe sex) (Carter et al., 2007). In contrast, students who are low interaction levels are highly likely to face top adverse consequences including disruptive behavior and classroom absences, and dropouts (Rodríguez & Conchas 2009). Hence, student engagement has been considered an essential and predictive indicator of learner' motivation and feelings of well-being informal learning environments (Ryan & Deci, 2009). That means highly motivated students will be interested in classes, especially students with intrinsic motivation. To achieve this, the level of student motivation groups must first be identified and the policies that promote student engagement. There have been several studies investigating the extent to which motivation affects student engagement. However, most of the research is done in the developed country context with modern education. Thus, it is necessary to carry out a study in a new context such as universities in Vietnam to have a comprehensive assessment of student psychology.

2. Literature review

2.1. Student engagement

In the education context, student engagement is considered as a new potential meta-construct (Fredericks et al., 2004), is a process facilitating learning (Turner & Patrick, 2004), is a readiness to cohere in school activities with students' cohesion indicators of behavior, cognition, and emotion in specific learning tasks (Chapman, 2003), lead to academic success (Marks, 2000), and is the most promising approach for improving the school dropout phenomenon (Reschly & Christenson, 2006). Another approach, student engagement is also the action energy that connects students and actions (Russell et al. 2005), or the state of positive emotional motivation (Schaufeli et al. 2002) or the initiation of effort, persistence, action with learning, and the emotional state surrounding learning activities (Skinner et al. 1990). Therefore, student engagement could be considered as one of the intangible products of education that are forecast driving

student success. Harboura et al. (2015) proven that there is a positive correlation between student engagement in academic performance and success. That means students who always try their best for learning activities such as completing assignments that teachers require, likely to explore new challenging tasks, actively participating in extracurricular activities, these students often achieve results, expected results as high scores, recognition of society….

2.2. Relationships between engagement and motivations of students

Student engagement level is considered to have a meaningful relationship with student motivation and is a crucial prerequisite leading to the engagement of students during the learning process (Ryan & Deci, 2009). In which, motivation is defined as the individual's energy and motive to study, work efficiently and reach their full potential, and behaviors that are consistent with this energy and motivation (Martin, 2010). In other words, motivation describes to be regarding individuals' effort and time invested in what they are interested in and is higher likely to lead to greater skill and performance (Liem & Martin, 2012). In the educational context, student motivation plays a crucial role in their engagement and academic achievement in school and specific subjects (Martin, 2010). However, some studies have shown that an individual is often motivated to perform a task under the control of two groups of engines, the internal and the external. According to Vivek et al. (2012), when individuals are associated with a brand / product, they are often driven by two groups of motives - internal and external. Most users are boosted by a combination of intrinsic motives (fun and altruism), internalized extrinsic (learning, reputation), and entirely extrinsic motivations (payment, career prospects) (Füller, 2010).

Intrinsic motivation has been viewed as engagement in an activity for the enjoyment, interest, challenge, or natural fulfillment of curiosity (Barry, & King, 2000) or to individuals' instinct to succeed, without obvious external incentives (Reeve et al., 2004). Moreover, according to the goal-orientation theory proposed by Pintrich and Schunk (1996), individuals are intrinsically motivated leading to success-oriented people. Internally motivated students have a high degree of learning achievement and a low level of interest and are engaged more than extrinsically motivated students (Wigfield & Waguer, 2005). In contrast to intrinsic motivation, external motivation is triggered by the intention to achieve the desired results or avoid an undesirable one and is combined with external incentives, e.g. monetary compensation or recognition of others (Hars & Ou, 2002), stickers or point systems when obtaining successful task performance (Williams & Sternberg 2002), and obligations or punishments (Deci & Ryan, 1985). However, such incentives should only be employed when they are relevant to the student's competencies development or to enhance intrinsic motive (Schunk et al., 2002). According to Lepper et al., (2005), when employing external incentives is improper, it can believe that intrinsic ability is better than rewarded and recognized effort. Therefore, it is essential to clarify how external motivation should be structured to enhance internal motive, for example, reward students who are passionate about seeking new challenges and exploring a different learning experience (Lepper et al., 2005). In other words, whereas external motivation describes that individuals exhibit a particular behavior due to external influence elements like the expected rewards or satisfaction of their own ego, the internal motive regards individuals' interest, interest in, or successful instincts (Reeve et al., 2004). The goal-orientation theory tendered individuals are intrinsically stimulated leading to success-oriented people (Pintrich & Schunk, 1996). Saeed and Zyngier (2012) argued that

students who lack motivation show engagement at the rebellious level, authentic engagement belongs to students having an intrinsic motivation, extrinsically motivated students to exhibit passive and ritual engagement. Besides, some authors argue that student motivation derived from internal goals tends to be more resilient, stronger, and easier to maintain than motivations from external coercion (Ryan & Deci 2000, 2001). Likewise, internally motivated students have a high degree of learning achievement and a low level of interest, are engaged more (Wigfield & Waguer, 2005), and have a higher likelihood of seeking out new challenges, exploring and learning, extending and experience their capabilities (Ryan & Deci, 2000) than extrinsically motivated students. Moreover, the efficacy of motivations (intrinsic and extrinsic) not only depends on time and context but a certain activity also (Pintrich & Schunk, 1996). For example, different students can be motivated intrinsically or externally in the same activity (Pintrich & Schunk, 1996). Therefore, it is very important to understand which motive and way its effect on engagement about behavioral, emotional, or/and cognitive of students is an important issue for them to achieve academic success.

A more popular aspect of SE studies is the discovery of the forms of engagement. The previous SE studies show the dominance of three dimensions: behavioral, cognitive, and emotional engagement (Fredricks et al., 2004). Some studies also mention one of these three aspects in their research (Dinsmore et al., 2008; Tsai et al., 2008). Furthermore, a distinct exploration of the forms of engagement – agentic engagement – also has been suggested by Reeve and Tseng (2011). However, it is important to combine all four subtypes of student engagement when seeking how to understand and enhance students' learning engagement (Reeve, 2012). In which, emotional engagement regards the positive emotional response of students derived from experience while learning process, behavioral engagement show students' performance behaviors in pursuit of learning, and cognitive engagement imply the students' mental energy devoting to learning (Fredricks et al., 2004). Another point of view, while emotional engagement is a combination of vitality exhilaration, interest, delectation, hope, gratification, and honor (Pekrun & Linnenbrink-Garcia, 2012), cognitive engagement simply as "students' self-regulation" or employing their " self-regulation strategies" (Wolters & Taylor, 2012, p.641). Further, there is a positive relationship among positive activating emotions (e.g. delectation, hope, and honor), academic outcomes (e.g. academic control, and task-value appraisals), intrinsic motivation (Pekrun et al., 2011), and extrinsic motivation (Putra et al., 2017; Bergström & Garcia Martinez, 2016). Results also demonstrated that the relationship between intrinsic motivations and the cognitive engagement indicators such as learning material elaboration, effort, and self-regulation of learning was positive.

Besides, engagement of students is driven by extrinsic motivations such as awards or social recognization (Lepper et al., 2005; Reeve et al., 2004). Logically, we presume that:

H1: Students' intrinsic motivation positively affect their behavioral engagement

H2: Students' intrinsic motivation positively affect their emotional engagement

H3: Students' intrinsic motivation positively affect their cognitive engagement.

H4: Students' extrinsic motivation positively affect their behavioral engagement

H5: Students' extrinsic motivation positively affect their emotional engagement

H6: Students' extrinsic motivation positively affect their cognitive engagement

H7: Students' behavioral engagement positively affect their achievement

H8: Students' emotional engagement positively affect their achievement

H9: Students' cognitive engagement positively affect their achievement.

3. Methodology

3.1. Measures

The items applied in the current investigation are derived from theoretical inspections on intrinsic and extrinsic motivations (Tremblay et al., 2009; Ryan & Deci, 2000). The student engagement scale gathers items adopted from Fredricks et al.'s (2004) and Tyler & Boelter's (2008) scales. The instrument to measure achievement was adopted from Piedmont (1989) and Hermans (1970). All items considered in the constructs were measured by a 7-point estimation scale ranging from "strongly agree" (7) down to strongly disagree" (1).

3.2. Expected research model

A literature survey related to student engagement motivation was conducted which proposed a conceptual model (Figure 1) indicating some variables and relationships to interpret student psychology and behavior. In this model, intrinsic and extrinsic motivation are considered the premise of motivating student engagement, from that generates their achievement. Survey results will be processed and analyzed based on SPSS 22.0 software and AMOS 20 to calculate the parameters and evaluate the fit of the model shown in Figure 1. To measure parameters for these constructs, their existing scales were reviewed and subsequently modified for use in the educational context.

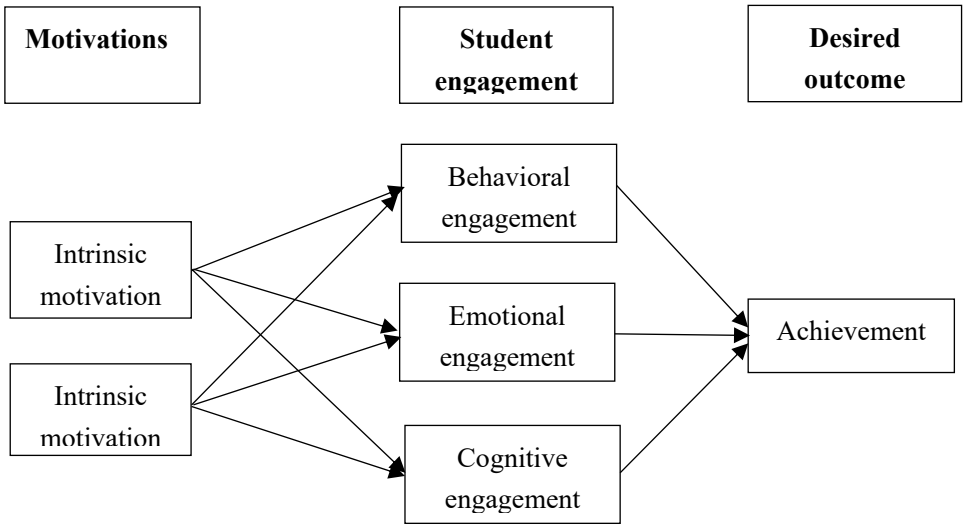

Figure 1. Proposed conceptual framework

3.3. Sample and data collection

There are many groups of drivers that promote engagement, and there are also different sets of outcomes that result from student engagement. However, this study focuses on examining the internal and external motivational groups, and achievement is considered the most expected result from student engagement. In order to ameliorate the accuracy of this study, 428 questionnaires were distributed to students and 415 samples were collected. However, only 393 valid questionnaires were eligible for analysis. Descriptive

characteristics of the candidates are shown in Table 1.

Table 1. Demographic characteristic of respondents

Variable	Catergories	Frequency	%
Gender	Male	135	35.5
	Female	245	64.5
School	Vietnam-Korea University of Infomation and Communication Technology	155	39.4
	The DaNang University of Economics	125	31.8
	Danang University of Science and Technology	100	25.4

As shown in Table 1, while most of the respondents were female, accounted for 64.5% of the sample size, male only captured 35.5%. Among the respondents, 39.4% were students of Vietnam-Korea University of Infomation and Communication Technology, 31.8% were students of The DaNang University of Economics, remain 25.4% were students of Danang University of Science and Technology.

4. Results

4.1. Cronbach Alpha

The research model was tested using SPSS 22.0, in which reliability of the measurement scales in the proposed model has tested applied Coefficient alpha analysis and item-to-total correlations methods (Churchill, 1979). According to the generally accepted rule of thumb (Hair et al., 1998), the item-to-total correlation should exceed 0.5. Although, the research results indicated the high coefficient alphas for the six proposed factors including 0.818 (Achievement); 0.887 (Intrinsic motivation); 0.831 (Emotional engagement), 0.912 (Behavioral engagement), 0.859 (Extrinsic motivation), and 0.855 (Cognitive engagement), four items indicated a low item-to-total correlation. Thus, there was space for improvement. To obtain a higher coefficient alpha and delete low correlations with the total score, several iteration procedures has conducted. As results, the items with low item-to-total correlation such as 'AC1', 'CE3', 'CE5', and 'EE3' were deleted. Leading to desired findings, all the factor loadings are above the threshold of 0.5, coefficient alphas and item-to-total correlations for the revised items ranged from 0.596 to 0.832 and from 0.841 to 0.912, respectively across the six factors implying a reliable measure.

4.2. Measurement model assessment

For reducing and grouping the items of variables, it is essential to conduct an exploratory factor analysis. Besides, to make sure the unidimensionality of the multiple-item structures and test the reliability & validity of the corresponding measurement model, CFA also employed (Bollen 1989).

Table 2. CFA results of the measurement model

Constructs	Number of items		Cronbach's alpha	CR	AVE	Parameter estimate	t-value
	Before analysis	After analysis					
IM	5	5	0.887	0.887	0.612	0.773-0.801	15.813-16.464
EM	5	5	0.859	0.860	0.552	0.668-0.784	13.202-15.317
BE	5	5	0.912	0.913	0.679	0.768-0.881	18.771-22.998
EE	5	4	0.892	0.893	0.675	0.799-0.864	18.815-19.515
CE	7	5	0.841	0.844	0.522	0.673-0.805	11.243-12.744
AC	5	4	0.890	0.892	0.676	0.728-0.907	17.245-21.372
X2/df = 2.264; CFI =0.937 , IFI = 0.938, TLI = 0.929, GFI = 0.880, RMSEA = 0.057							

According to Hair et al. (1998), to test the convergent validity, some indicators including factor loading, construct reliability (CR), and average variance extracted (AVE) should be evaluated. If CR and AVE are greater than 0.70 and 0.50 respectively, and in the total variance AVEs are lower than CRs respectively, convergent validity will be established. Thus, the convergent validities of all six proposed factors will be confirmed. Further, discriminant validity will be established when AVEs are greater than the squared correlation coefficients among factors. As indicated in Table 2, items of each construct obtain a high loading value (0.50 or more), and the AVE of each constitutional concept excees the general level of 0.50, which means each concept is a reliable measurement tool. Besides, to prove the validity of each constitutional concept, it is necessary to examine whether the constituent factors have a unique difference from each other, and also how the concepts have a correlation with external variables. Several common model-fit measures including Cmin/df, CFI, IFI, TLI, GFI, RMSEA, and RMR were employed to estimate the measurement model fit. As shown in Table 3, the fit index of the measurement model X2/df = 2.264; CFI =0.937, IFI = 0.938, TLI = 0.929, GFI = 0.880, RMSEA = 0.057, respectively.

4.3. Construct model assessment

The purpose of the hypotheses test is to determine which predictor variables create a significant contribution to the explained variables. And the satisfied hypotheses with p-values are less than 0.05. To do that, a SEM analysis was also conducted testing the hypotheses of this study. In Table 3, almost all hypotheses were supported with significant p-values.

Table 3. Path analysis results

Hypothesis	Path	Estimate	C.R	p	Results
H_1	IM->BE	0.349	5.45	***	Supported
H_2	IM->EE	0.34	5.399	***	Supported
H_3	IM->CE	0.426	6.058	***	Supported
H_4	EM->BE	0.265	4.24	***	Supported
H_5	EM->EE	0.339	5.441	***	Supported
H_6	EM->CE	0.111	2.445	0.105	Not supported

H_7	BE->AC	0.367	4.874	***	Supported
H_8	EE->AC	0.194	3.745	***	Supported
H_9	CE->AC	0.269	7.152	***	Supported
Note: ***Statistically significant at $p < 0.01$					

The final research results below interpret the confirmation of the hypotheses as follow:

These research outcomes manifest that most proposed relationships are positive significant. Specifically, intrinsic and extrinsic motivations of students to their emotional and behavioral engagement were positively significant with ($\beta = 0.349$, $\beta = 0.34$, $\beta = 0.265$, and $\beta = 0.339$, $p < 0.01$, respectively), hypotheses H1, H2, H4, and H5 were supported. In other words, intrinsic and extrinsic motivations stimulated emotional and behavioral engagement of students. These were in line with the previous studies carried out by Sun and Hsieh (2018), who demonstrated that student engagement was attracted by intrinsic and external factors, furthermore, these results are also accordance with outcomes of Schunk et al. (2012).

In contrast, the cognitive engagement of students was influenced by their intrinsic motivation ($\beta = 0.426$, $p < 0.01$) without extrinsic one ($\beta = 0.111$, $p = 0.105$), hypotheses H3 was supported, H6 did not. This result is believed to be consistent with Wolters & Taylor's (2012) view of cognitive engagement.

As expected, behavioral, emotional and cognitive engagement of students were also significantly related to their academic achievement ($\beta = 0.367$, $\beta = 0.194$, and $\beta = 0.269$, $p < 0.01$, respectively), hypotheses H7, H8 and H9 were accepted. In other words, student engagement creates better learning outcomes. These findings fit with the result of Han et al. (2016) who suggested that engaged students are likely to achieve learning successes.

5. Conclusion

Although there have been some studies exploring the relationship between student motivation and student engagement, there are still some limitations. Therefore, this study aimed to supplement the theoretical background of the student's engagement motivation by providing a few important insights. To do this, this study 1) examines the roles of intrinsic and extrinsic motivations in the university educational context; 2) explores the relationships between student engagement and its desired outcomes; 3) estimates the role of intrinsic and extrinsic motivations in enhancing student engagement. The results show that students' intrinsic and extrinsic motivation positively influences their engagement in the learning process, in turn, engaged students obtained desired successes. This result provides more evidence supporting the results of Saeed & Zyngier (2012) and Lepper et al. (2005). This proves that student engagement is one of the most important premises in determining students' success. Moreover, the products of education services are intangible, which results in the consumption process of producing desired outcomes such as academic achievements, good jobs, meaningful behaviors. Therefore, we expect that, in addition to the efforts of the service provider, the interactive participation of students will create high self-relevance, leading to high cohesion and future behavioral intentions.

Examining the student's engagement from a multidimensional perspective concerning the internal and external motivations of the students facilitates educational administrators including lecturers to understanding deeply about students' personal psychology. Besides, engagement is seen as a malleable,

emotional process that is positively related to student performance or student quality of life (Kahu, 2013). The development of educational institutions framework programs, therefore, also needs special attention to meet the interests, qualifications, and ambitions of students, to help them meet the needs of the labor market. This is an important research result that contributes to the theoretical foundation of student engagement as well as makes sense for the management of higher education.

Furthermore, in this research, we suggested a new research model in order to construct the nomological network regarding SE by considering the motivations driving SE and looking at, at the same time, the relationship of SE with the achievement construct. In other words, the current study not only presents new additions to existing student engagement research but also provides empirical support and validates the outcome of the previous studies. Unexpectedly, the study has also some limitations.

Firstly, the sample employed in the existing study is quite large. Candidates were students of public universities in Danang and all of them were Vietnamese. However, students have often ethno-centrism, leading to may create an unjust or misleading assessment of another cultural pattern (Tilley, 2007). Thus, to generalize more the obtained results, it would be interesting to more investigate whether these impacts remain the same when comparing international with domestic students. Furthermore, it could be worth estimating the moderating effect of demographic factors on these relationships in other educational settings. Secondly, further research should be considered to ameliorate the measurement scales in motivation construct (intrinsic and extrinsic) and student engagement (behavioral, emotional, and cognitive engagement) by combining "engagement at rebellion level" into student engagement construct. This is due to students have the ability to decline activities and general goals of the class, instead, replace some of their own goals (Schlechty, 2001). It would be of significance, thus, to include the concept of "engagement at rebellion level" in the model to a comprehensive assessment of students' psychological when they are driven by different motivational groups. Finally, a new proposal for future research is exploring the reverse path to see which engagement will generate positive motivations for students.

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