

# EXAMINING THE IMPACTS OF OUT-OF-CLASS STUDENT ENGAGEMENT ON STUDENT COMPETENCIES IN THE CONTEXT OF BUSINESS STUDENTS IN VIETNAM

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## **Abstract**

*Since the mid-1990s, the topic of “student engagement” has received considerable attention in the literature, especially in higher education, for its robust correlation with many desirable and positive educational outcomes, such as student retention, students’ satisfaction, persistence, academic achievement, social engagement, and personal development. While in-class student engagement has been largely researched as it happens in the primary environment of learning, out-of-class student engagement seems to receive less attention. However, some researchers favor the approach that for students at higher education, out-of-class environment is crucial to contribute to their complete development. With regards to an increasing and undeniable role of student competencies for business students, this paper attempts to examine the relationship between out-of-class engagement and student competencies. This paper starts by reviewing literature related to student engagement and out-of-class engagement of students at higher education, and the linkage between out-of-class student engagement and student competencies. It then provides exploratory and confirmatory factor analyses on two different samples of 491 and 492 business students in Hanoi to conclude about the relationship between out-of-class student engagement and student competencies.*

**Keywords:** *Agentic engagement, out-of-class engagement, student competencies, student engagement*

## **1. Introduction**

Since the mid-1990s, the topic of “student engagement” has received considerable attention in the literature, especially in higher education, for its robust correlation with many desirable and positive educational outcomes, such as student retention, students’ satisfaction, persistence, academic achievement, social engagement and personal development (Appleton, Christenson, & Furlong, 2008; Astin, 1984; Chickering & Gamson, 1987; Finn, 1993; Finn & Zimmer, 2012; Fredricks, Blumenfeld, Friedel, & Paris, 2005; George D Kuh, 2003; Lei, Cui, & Zhou, 2018; Newmann, Wehlage, & Lamborn, 1992; Ernest T. Pascarella & Terenzini, 2005; Voelkl, 1997).

Eccles and Wang (2012) emphasized that “*There is no doubt that “engagement” is currently a very hot topic in the broad field of school achievement*”. Kahu (2013) also agreed that “*Student engagement is widely recognized as an important influence on achievement and learning in higher education and as such is being widely theorized and researched*” (page 758).

Though there are variations of student engagement concept with different definitions and different components, student engagement in higher education is generally accepted to cover two main contexts of in-class (or academic) and out-of-class (or non-academic) environments (Finn, 1989; Fredricks et al., 2005; Gunuc & Kuzu, 2015). While in-class student engagement has been largely researched as it happens in the primary environment of learning, out-of-class student engagement seems to receive less attention. In a literature review of student engagement by Trinh (2020), among 17 concept definitions of student engagement, there are only 10 definitions mentioning out-of-class engagement while 16 out of 17 including in-class engagement. However, some researchers favor the approach that for students at higher education, out-of-class environment is crucial to contribute to their complete development (Audas & Willms, 2001; Finn & Voelkl, 1993; Trowler, 2010).

Regarding important school achievements at higher education, skills and competencies have been considered as increasingly essential for students seeking employability after graduation. The importance of equipping students with competencies has been emphasized by the society and employers (Humburg, Van der Velden, & Verhagen, 2013). In Vietnam, the graduate skills gap has been discussed and emphasized, but still very few researchers paid attention to the great benefits that student engagement can make on students’ skills and competencies (Tran, 2017). Foster and Rahinel (2008) was among those who mentioned this relationship in their research, but just focused on how faculty can impact in-class student engagement to help improve student competencies. To the best knowledge of the author, no research has so far addressed the impacts of out-of-class student engagement on the development of competencies at higher education.

Therefore, this paper will examine the relationship between out-of-class engagement and student competencies, with a focus on business students for the undeniable role of competencies for graduate business students.

This paper starts by reviewing literature related to student engagement and out-of-class engagement of students at higher education, and the linkage between out-of-class student engagement and student competencies. It then provides exploratory and confirmatory factor analyses on two different samples of 491 and 492 business students in Hanoi to conclude about the relationship between out-of-class student engagement and student competencies.

## 2. Method

### 2.1. Literature review

#### 2.1.1. Student engagement concept

There are different terms and definitions for the concept of “student engagement”. This concept was initially mentioned to as “time on task” (Tyler, 1930s, cited by George D. Kuh (2009)) and “quality of effort” (Pace, 1960–1970s, cited by George D. Kuh (2009)). Later on, Astin (1984) introduced “student involvement” to indicate the level of physical and mental energy that students spent on educational experiences. Other studies then continued to develop new aspects related to student engagement and student interaction with school in educational activities, including social and academic integration (Tinto (1987) cited by Ghori (2016)), participation-identification (Finn, 1993), and student engagement (G. Kuh, 1991; Ernest T Pascarella, Pierson, Wolniak, & Terenzini, 2004).

While the concept of “student engagement” became more popular, variations of this concept definition have been found with quite similar components but not entirely consistent (Appleton et al., 2008; Fredricks, Blumenfeld, & Paris, 2004; Fredricks & McColskey, 2012; Furlong et al., 2003). Fredricks et al. (2004) argued that this is a complex, multidimensional concept, and its conceptualization is still far from reaching an overall agreement. Other authors also proposed that further research should focus to clarify the concept and its components, and on how to measure these components (Fredricks & McColskey, 2012; Glanville & Wildhagen, 2007; Lei et al., 2018; Sinatra, Heddy, & Lombardi, 2015).

In this paper, the concept of student engagement proposed by Kuh et al. (2007) will be used, in which, student engagement is conceptualized as “*students’ participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes*”.

In terms of the concept of “student engagement”, some early scholars proposed a two-dimensional model of engagement, including behavioral (such as participation, effort, positive practices) and emotional (care, belonging, values and positive emotions) (Finn, 1993; Marks, 2000).

In a later period, a large number of studies have focused on identifying aspects of the concept of “student engagement” and have been quite consensus on the three aspects of this concept, including: (1) cognitive (conscious engagement, engagement in learning), (2) behavioral (participation in social and community activities), and (3) emotional (affection, affection) (Appleton et al., 2008; Fredricks et al., 2004; Yazzie-Mintz, 2007).

The most recent model introduced by Reeve and Tseng (2011) proposed to add agentic engagement as the fourth component since they believed students can actively participate and actually contribute to the education process, and therefore affecting to the

learning outcomes of their owns (Lawson & Lawson, 2013). Later studies have confirmed the validity of agentic engagement as “a distinct and an important construct” (Jang, Kim, & Reeve, 2016; Reeve, 2012; Sinatra et al., 2015).

### 2.1.2. Student engagement theories

In order to explain and better understand student engagement, we'll look into student engagement theories. There are two main lines of research on school successful performance over the last three decades: (1) the research studies related to Engagement Theory (ET) which closely linked to drop-out prevention and at-risk students – key authors of this approach can be named as Astin (1984), Finn (1993), Newmann et al. (1992), Christenson et al. (2008), and (2) the research studies related to psychological motivation theories, such as Self-Determination theory and Flow theory with key authors like Bandura (1986), Deci and Ryan (2000), Skinner and Pitzer (2012), Eccles and Wang (2012), Csikszentmihalyi, and Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2014).

In his Student Involvement Theory, Astin (1984) defines student involvement as “*the investment of physical and psychological energy (of the student) in academic experience*”. He described a highly involved student as someone who spends more time to study, shows more effort in doing homework, and/or interacts more frequently with other students and teachers, and he assumed such involvement would lead to student learning and development. This theory provides a foundation for the behavioral component in the concept of student engagement. However, the main drawback of this theory is that it did not attempt to explain the mechanism of student engagement, how it works and how it interacts with other factors in the educational environment.

Therefore, many researchers started to move away from education-based theories to psychological and management theories to explain student engagement and further investigate its constructs, precursors and outcomes (Burch, Heller, Burch, Freed, & Steed, 2015).

Self-determination theory is originally a theory of human motivation and personality in social contexts (Deci & Ryan, 2012). The core idea of this theory is about human intrinsic motivation to explore, to learn and to possess knowledge of what surrounds them. “*When these needs are met by social contexts or activities, people will engage constructively with them; when these need are thwarted, people become disaffected, that is, they withdraw, escape, or act out*” (Skinner & Pitzer, 2012). This theory has set a theoretical ground to understand student engagement as a human social behavior and explained different mechanisms through which students have different level of engagement or disengagement in the school context, in which cognitive and emotional engagement play very important roles.

In the Flow theory, according to Nakamura and Csikszentmihalyi (2002), flow is a “state of deep absorption in an activity that is intrinsically enjoyable”, as we can observe

artists or athletes focusing on their play or performance. Based on this Flow theory, one must simultaneously experience concentration, interest and enjoyment in an activity in order for flow to occur (Csikszentmihalyi 1997, cited by Shernoff et al. (2014)).

According to this theory, student engagement is affected by class and school environments as well as other contextual and personal factors. However, it's students who are the key actors of this mechanism where they boost their concentration and interest to a certain level where flow actually occurs and turns into their deep engagement in learning activities (Shernoff et al., 2014). This theory provides a strong support for the agentic component in student engagement concept as it confirms the proactive role of students in their own engagement process.

Based on these theories, this research will take the approach of a four-typology concept of student engagement in examining the relationship between out-of-class student engagement and student competencies in the context of business and management students in Vietnam.

### *2.1.3. Out-of-class student engagement*

At college and university, students will have more opportunities to interact with the broad school community, not just limiting within their classroom, as they need to prepare for the real-life environment. Therefore, student engagement at higher education is often associated with the school community (Bryson, 2010; Fullarton, 2002).

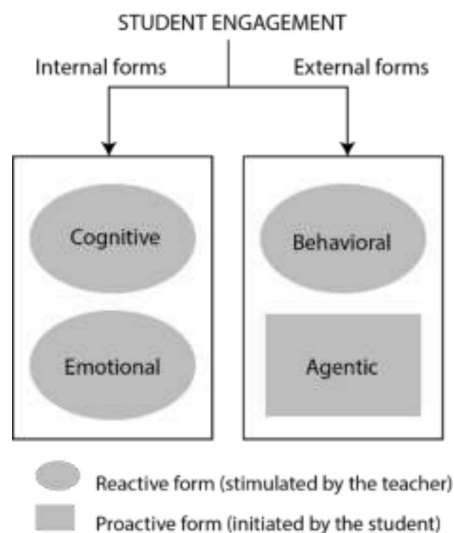
Out-of-class engagement (or non-academic engagement, campus engagement), is to refer to the engagement with the school community, participation in social activities, sense of belonging and valuing university of students (Gunuc & Kuzu, 2015; Hausmann, Schofield, & Woods, 2007).

Participation in university activities, or behavioral engagement in the out-of-class context, is seen in students' participation in non-academic activities, membership of clubs and student associations, involvement in sports and other extra-curricular activities (Finn, 1989; Willms, 2003). Regarding feelings of belongingness or attachment to school, this emotional component refers to feelings of being accepted and valued by their peers, and by others at their school, and sense of being a part of the school environment (Voelkl, 1996; Willms, 2003). The other cognitive aspect of engagement refers to "valuing school" which is concerned with "*whether or not students value school success – do they believe that education will benefit them personally and economically*" (Voelkl, 1996).

In the out-of-class context, agentic engagement can be operationalized as initialization of or proactive participation in extra-curriculum activities, and in some cases, participating in school governance (Finn, 1993).

Reeve (2013) made a clear categorization of those four dimensions based on two criteria regarding forms of engagement. He concluded that “*a difference among these four forms of engagement lies in (1) proactive and reactive behaviors, and (2) internal and external responses*”. Agentic engagement is the only proactive form of engagement as it is defined as student’ initiated activities, which is different from the other three reactive forms of behavioral, emotional and cognitive engagement. At the same time, emotional and cognitive engagement are internal forms of engagement as they are not easily observable. Behavioral and agentic engagement are categorized as external forms because students will demonstrate these forms of engagement in an explicit and observable manner.

**Figure 1 summarizes those forms of engagement in a model as followed:**



*Figure 1: Forms of student engagement*

*Source: Montenegro (2019)*

## **2.2. Conceptual framework and measurement instruments**

### *2.2.1. Student engagement and competencies*

Ernest T. Pascarella and Terenzini (2005) asserted that students “*become more mature, knowledgeable, and focused during college in thinking about a career*” based on their research results in three decades. Students at higher education therefore are expected to be more conscious about their competency development.

And the way that students develop such important skills and competencies is through activities, interactions, and engagement at school, especially by out-of-class activities.

*“These extracurricular activities are recognized widely [...] as providing students with opportunities for leadership, for personal growth and for developing a sense of commitment to the well-being of the wider community. They offer students opportunities to apply skills learned in the classroom in an applied setting, for them to learn the value of*

*teamwork, competition and cooperation, individual and group responsibility.*” (Fullarton, 2002) (pp.1)

Holland and Andre (1987) also found very similar results that participating in activities in school helps students “*to acquire new skills (organizational, planning, time-management etc.)*”. Extracurricular activities are said to “*provide an opportunity for students to develop these skills in a less formal setting than the classroom*” (Fullarton, 2002).

Such results show potential relationships between out-of-class student engagement and student competencies. In their research about higher education, Barth, Godemann, Rieckmann, and Stoltenberg (2007) concluded that key competencies for sustainable development are mainly formed during the interaction between students and different contexts created by the university, namely academic context and extracurricular activities outside the classroom. In other words, these competencies are developed through student participation and student engagement.

Coates (2005) suggested that while institutions and teachers are to provide necessary resources for students to develop at school, it is essential that students need to interact with these conditions “in ways that will lead to productive learning”. It means that in the course of interaction with the class and school environment where students demonstrate their ‘quality of effort’ (Pace, 1982), students gain their achievements by “*challenging themselves to learn, interacting with new ideas and practicing the communication, organizational and reflective skills*” (Coates, 2005).

When students participate in extracurricular activities or live in a campus residence, they have joined in a broader environment outside their classroom which gives them more opportunities to interact with their peers and develop themselves. They therefore may gain social competencies and strengthen their connectedness with school ((Fredricks et al., 2005), Jordan & Nettles, 1999; Knifsend & Graham, 2012, cited by (Lawson & Lawson, 2013)). Other researchers who study impacts of college experience also agree that what happens outside the classroom, or termed as extra-curriculum activities, contribute to valued outcomes of college, e.g., student learning, cognitive and social development (Janosz, 2012; George D Kuh, 1995; Liem & Martin, 2011).

Therefore, main hypotheses are predicted as follows:

*H1: Out-of-class behavioral engagement has a positive impact on student competencies.*

*H2: Out-of-class emotional engagement has a positive impact on student competencies.*

*H3: Out-of-class cognitive engagement has a positive impact on student competencies.*

*H4: Out-of-class agentic engagement has a positive impact on student competencies.*

### *2.2.2. Out-of-class student engagement measurement*

Based on literature review, the author collected some student engagement instruments from various research studies. These instruments were then put in a table to compare their usage and to match with the research objectives. A suitable instrument to measure student engagement should be used for undergraduate students, cover three to four constructs of student engagement, and explicitly include out-of-class engagement.

Among 14 student engagement instruments being collected, student self-report is the most popular data collection method for all questionnaires – only one other instrument used teachers' report as a supplementary method besides student's self-report. There are four questionnaires used for undergraduate students, but no questionnaires specifically used for students in business and management. Eight out of 14 questionnaires used both in-class and out-of-class forms of student engagement. Those instruments include sub-scales and items to measure behavioral, emotional, and cognitive engagement for out-of-class context. Regarding agentic engagement, there are only items to measure in-class engagement in the instrument developed by Reeve and Tseng (2011). Out-of-class agentic engagement was only mentioned in the level 3 and level 4 of student participation by Finn (1993) and need to develop more items to measure.

A final list of 17 items collected from suitable instruments as follows: 5 items of Valuing used for out-of-class cognitive component, 6 items of Sense of belonging used for out-of-class emotional component, 4 items of Participation used for out-of-class behavioral component; and 2 items from out-of-class Agentic engagement.

All these items were then translated into Vietnamese by an expert Vietnamese translator working in the education field. After that, the translated version was reviewed by another Vietnamese university lecturer who is proficient in both English and Vietnamese. Minor adjustments were made to the translated list of items.

As a result of the literature review, the out-of-class agentic engagement was not much researched and lack of measurement instrument. Therefore, expert interviews and focus group were chosen as qualitative research methods to generate possible new items to measure out-of-class agentic student engagement in the context of business and management students in Vietnam. The author invited three experts in the field of student's psychology and behavior with more than 10 years of experience to join expert interview and did a group focus discussion with eight students. Each expert interview lasts from 48 minutes to one hour. The focus group took place in one hour and 45 minutes.

Main findings from expert interviews and focus group discussion show that: (1) Interactions between students and their friends, faculty staff, and school on social network



(e.g. Facebook) were mentioned as an emerging aspect of student engagement. Those interactions demonstrate various components and levels of engagement, consisting of commenting on Facebook, sharing events and spreading awareness, giving advices, and protecting the reputation of the school; and (2) Active participation in extracurricular activities can be displayed in the form of membership of club management board and event organizers.

Based on the findings, two new items were added to measure out-of-class behavioral engagement, and five new items were added to measure out-of-class agentic engagement.

### *2.2.3. Student competencies and its measurement*

Unlike in high schools, at colleges, students often study different subjects, in larger classes, communicate with different teachers and interact with many different peers. Teaching and learning methods change, requiring students to be active for their self-study and take more responsibility for their learning process (Ernest T. Pascarella & Terenzini, 2005).

The current fast changing social and economic development in the new millennium requires education to equip the learners with the skills and competencies appropriate to the needs of the knowledge economy (Ananiadou & Claro, 2009). For most young people, school is the only place where they can learn these skills and competencies (Ananiadou & Claro, 2009).

Some recent studies on higher education mentioned the need to equip students with the necessary competencies of the 21st century (Ananiadou & Claro, 2009; Wiek, Withycombe, & Redman, 2011), and build a theoretical framework for the required competencies of students (Hipkins, 2006). These studies all suggested that students need to be equipped with competencies - not skills (Rychen & Salganik, 2000). Hipkins (2006) noted the emerge of key competencies to replace the “essential skills” in recent curriculum framework as “unlike skills, competencies focus on all the requirements of a task and this includes what you need to know, not just what you can do”. He also suggested the following definition: “*Competencies include the skills, knowledge, attitudes and values needed to meet the demands of a task.*”

Although the number of research studies related to this topic is increasing, it must be emphasized that there is currently little consensus regarding what the most necessary set of competencies for graduates is.

As competencies are increasingly essential for graduate students to find jobs in the market, another model called Making the Match Between University Graduates and Corporate Employers developed by Evers and Rush (1996) has proposed four base competencies that are needed during the transition from university to work. These four base

competencies are (1) mobilizing innovation and change, (2) coordinating people and managing tasks, (3) communicating, and (4) managing self-developed, which have been comprised from 18 workplace skills. This model has been used to assess competencies of undergraduate business students (Berman & Ritchie, 2006) as well as in other research studies by Berdrow and Evers (2011), Man, Lau, and Snape (2008), and Pinto and Ramalheira (2017). The biggest advantage of this model is its emphasis on employment competencies with a vision where most employees are empowered to make more of the decisions within their organizations. This approach has been highly evaluated by employers in the labor market.

Within the scope of this study, the author intends to use the four base competencies to do the research, therefore, the measurement of competencies will be drawn from measurement instrument proposed by Evers and Rush (1996). Minor changes were made to get a shorter version of the instrument to fit with undergraduate students.

#### *2.2.4. Data collection method*

There are several methods used to measure student engagement, but self-report survey measures are considered as the most common method for assessing student engagement (Fredricks & McColskey, 2012).

The overall scale used in student self-report is 7-level Likert Scale, which is more complex but allows respondents to give the answer closest possible to their feelings, thus showing the differences between levels and creating a seamless scale (Williams & Cappuccini-Ansfield, 2007). This scale is described with “1” is “Strongly disagree” and “7” is “Strongly agree”.

The questionnaire used in this research has four parts for the main content. The first part of the questionnaire is an introduction providing an explanation of the research purpose, type of informants and information collection, confidentiality policy, statement of consent and instruction of completing the questionnaire. At the end of this introduction, respondents will be asked to complete a “consent statement” where they show their voluntary consent of taking part in the survey.

The second part was about out-of-class student engagement items, with 6 items of out-of-class behavioral engagement, 6 items of out-of-class emotional engagement, 5 items of out-of-class cognitive engagement, and 7 items of out-of-class agentic engagement.

The third part was about student competencies, with 5 items of Innovation (mobilizing innovation and change), 10 items of Coordination (coordinating people and managing tasks), 10 items of Communication (communicating), and 10 items of Self-management (managing self-developed), a bit shorter than the original version.

The last part was about informant’s demographic and personal information, such as

age, gender, year level, major, number of subjects that they are taking and university name.

As the questionnaire was quite a long one and takes much time of respondents to complete it, no reversed item was designed in the form to help respondents focused on the main content of the survey.

#### *2.2.5. Data collection*

The sampling method is quota sampling, where the author sent questionnaires to ten different big universities in Hanoi that provide courses in business and management. There were 300 questionnaires sent to the first university (National Economics University), 200 questionnaires sent to the second and the third universities (Hanoi University of Business and Technology, and Hanoi University), and 100 questionnaires sent to the rest seven universities. In each university, the author either asked some lecturers to help collect responses from students in their classes or came directly to those classes to collect data.

After being collected, responses were scanned for their validity before being coded into Excel file. Invalid responses with more than five missing data in a row were removed. After being coded into Excel file, data were then cleaned up by computing Max, Min, Mean, Standard Deviation (SD) for each observation. After checking, the final data set comprises of 991 responses, out of 1,400 questionnaires sent, showing a response rate of 70,8%.

Outliers were identified and eliminated using Mahalanobis distance in SPSS based on a linear regression. In total, eight outliers with values of the Mahalanobis Probability variable less than .001 (Leys, Klein, Dominicy, & Ley, 2018) were identified and removed from the dataset, resulting in a final dataset of 983 observations.

#### *Sample information*

University	n	%
National Economics University	266	27.1%
Hanoi University of Business and Technology	149	15.2%
Hanoi University	116	11.8%
Banking Academy	74	7.5%
Foreign Trade University	87	8.9%
Vietnam University of Commerce	41	4.2%
Hanoi University of Science and Technology	71	7.2%
Hanoi Open University	75	7.6%
Economic School, Hanoi National University	59	6.0%
University of Economics - Technology for Industries	45	4.6%
Total	983	100.0%

The total sample was then divided into two datasets for separately running Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA), as these two analyses should not be run on the same set of data (Appleton, Christenson, Kim, & Reschly, 2006; Fokkema & Greiff, 2017; Hinkin, Tracey, & Enz, 1997) to avoid overfitting data

problem. All odd observations were chosen as dataset 1, and all even observations were put in dataset 2.

	Dataset 1		Dataset 2	
	n	%	n	%
Gender				
Male	135	27.4%	127	25.9%
Female	334	67.9%	341	69.5%
Prefer not to say	10	2.0%	10	2.0%
Missing	13	2.6%	13	2.6%
Total	492	100.0%	491	100.0%
Age				
17-18	26	5.3%	21	4.3%
19	109	22.2%	100	20.4%
20	125	25.4%	137	27.9%
21	175	35.6%	172	35.0%
>=22	53	10.8%	56	11.4%
Missing	4	0.8%	5	1.0%
Total	492	100.0%	491	100.0%
Study year				
Year 1	100	20.3%	91	18.5%
Year 2	135	27.4%	141	28.7%
Year 3	179	36.4%	172	35.0%
Year 4	67	13.6%	78	15.9%
>=Year 5	2	0.4%	1	0.2%
Missing	9	1.8%	8	1.6%
Total	492	100.0%	491	100.0%

Both datasets are dominant by female students: 67.9% female to 27.4% male in dataset 1 and 69.5% female to 25.9% male in dataset 2, but those ratios are consistent and quite normal for students in business and management where female students are often the majority. Both datasets contain students from all study years, from Year 1 to Year 4.

### 3. Results

#### 3.1. Exploratory Factor Analysis

In this part, an Exploratory Factor Analysis EFA were used to explore the factor dimensions as well as to reduce the set of observed variables to a smaller, more parsimonious set of variables (Hinkin et al., 1997) for dataset 1.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.934
Bartlett's Test of Sphericity	Approx. Chi-Square	9117.288
	df	276
	Sig.	.000

The KMO value is  $0.934 > 0.7$  and the Bartlett's test of sphericity is significant at  $\text{sig}=0.000$ .

For this EFA, the extraction method used is Principal Component Analysis, with Eigen value greater than 1, rotation method is Varimax and the absolute value of small coefficients to be suppressed is 0.4 (Hair, Black et al., 2010). The initial result of EFA for out-of-class engagement is as follows:

**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	% of Variance	Cumulative %	Loadings			Loadings		
				Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.084	46.184	46.184	11.084	46.184	46.184	5.300	22.082	22.082
2	3.220	13.418	59.602	3.220	13.418	59.602	4.426	18.441	40.524
3	1.246	5.193	64.795	1.246	5.193	64.795	3.705	15.437	55.961
4	1.080	4.500	69.295	1.080	4.500	69.295	3.200	13.335	69.295
5	.879	3.662	72.957						
6	.744	3.099	76.056						
7	.622	2.593	78.649						
8	.567	2.361	81.010						
9	...	...	...						

Extraction Method: Principal Component Analysis.

There are four components identified based on the criteria of Eigen value of greater than 1 with 69.295% of total variance explained. The total number of components is four as expected and the total variance explained is greater than 50%, which is good.

Initial factor loadings from an exploratory factor analysis of all 24 items to measure out-of-class student engagement are obtained as follows.

**Rotated Component Matrix<sup>a</sup> and item description**

Items	Component			
	1	2	3	4
OB1 I take part in periodical student clubs / student associations activities at school	.764			.405
OB2 I attend in sports, cultural or social events of my class/school	.780			
OB3 I go to campus willingly	.691	.407		
OB4 I participate seriously in extra-curricular activities	.751			
OB5 I actively interact with student clubs/student associations of my school on social networks	.712			
OB6 I actively interact with my school on social networks	.583	.421		
OE1 I look forward to going to campus		.806		
OE2 I feel myself as a part of the campus		.725		
OE3 I enjoy the activities carried out in campus		.674		

OE4	I feel happy in campus		.828	
OE5	I like spending time in campus		.797	
OE6	I feel secure in campus		.575	.475
OC1	I believe university is beneficial for me			.770
OC2	University is of great importance in my life			.802
OC3	I give importance to university education			.844
OC4	I give importance to extra-curricular activities and take them seriously	.447		.604
OC5	I determine my own socializing goals	.535		
OA1	I actively contribute to extra-curriculum activities of my class	.608		
OA2	I actively contribute to extra-curriculum activities of my school	.638		.443
OA3	I am a core member of at least one student club/ association / group of my school			.848
OA4	I involve in the management of at least one student club/ association / group of my school			.859
OA5	I actively contribute to my student club's / student association's activities	.476		.641
OA6	I share campaigns/ events of my school on social networks	.447		.495
OA7	I protect reputation and image of my school on social networks			.550

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

There were minor cross loadings in the rotated component matrix. The author first removed OA1, OA2, and run the EFA again. This time, the author chooses the absolute value of small coefficients to be suppressed is 0.5 to focus on components with strong loadings. The next run of EFA showed that OC5 and OA7 should be removed. The final rotated component matrix is as follows, with total variance explained slightly increases to 72.463%.

**Rotated Component Matrix<sup>a</sup>**

Items	Component			
	1	2	3	4
OB1		.737		
OB2		.752		
OB3		.698		
OB4		.769		
OB5		.713		
OB6		.575		
OE1	.808			
OE2	.746			
OE3	.707			
OE4	.844			
OE5	.806			
OE6	.588			

OC1			.778
OC2			.821
OC3			.865
OC4			.579
OA3			.871
OA4			.874
OA5			.674
OA6			.508

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser

Normalization.

a. Rotation converged in 8 iterations.

This EFA result has confirmed the four subcomponents of out-of-class engagement, where out-of-class agentic engagement was a separate component of the structure. The measurement instrument of out-of-class agentic engagement is also reduced to four items with quite strong loadings for each item, ranging from 0.508 to 0.874.

### 3.2. Internal Consistency Assessment

In this step, the reliability of the scale will be tested based on Cronbach's Alpha.

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<b>OB Cronbach's Alpha</b>		<b>.899</b>		
N of Items		6		
OB1	23.32	49.740	.744	.878
OB2	23.51	50.193	.760	.875
OB3	22.84	53.073	.649	.892
OB4	22.69	52.919	.746	.878
OB5	23.16	50.512	.777	.873
OB6	23.02	53.014	.681	.887
<b>OE Cronbach's Alpha</b>		<b>.917</b>		
N of Items		6		
OE1	24.76	40.074	.777	.901
OE2	24.89	39.482	.782	.900
OE3	24.91	40.171	.765	.903
OE4	24.97	38.971	.860	.889
OE5	25.12	39.728	.792	.899
OE6	24.45	43.274	.621	.921
<b>OC Cronbach's Alpha</b>		<b>.868</b>		
N of Items		4		
OC1	17.16	9.937	.763	.813
OC2	17.24	9.488	.813	.791
OC3	16.92	10.323	.776	.811
OC4	17.36	10.990	.547	.901
<b>OA Cronbach's Alpha</b>		<b>.839</b>		

	N of Items	4		
OA3	11.23	25.695	.738	.766
OA4	11.63	25.699	.702	.783
OA5	10.51	26.967	.699	.784
OA6	10.13	30.184	.553	.845

All Cronbach's Alpha of OB, OE, OC, OA are greater than 0.8, which showed that the measurement items are reliable. In each sub-construct, most of Cronbach's Alphas if Item Deleted were smaller than the main Cronbach's Alphas, except the three cases of OE6, OC4, and OA6 which showed minor improvement with the overall scale. Hair (2016) indicated that a scale item should only be deleted if they are below 0.4, therefore all scale-items of the measurement tool are retained.

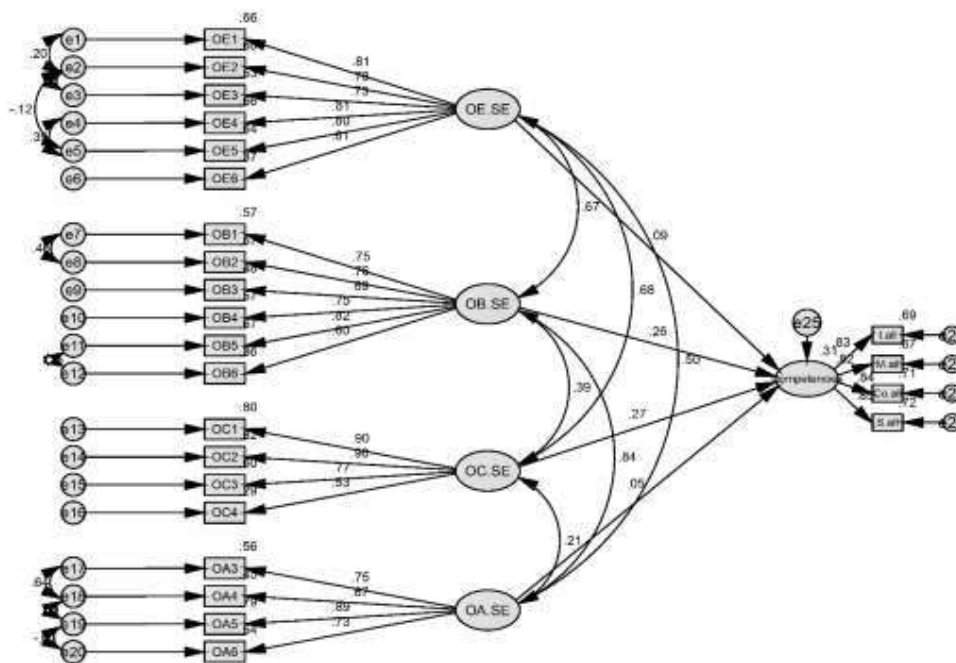
Besides, all Corrected Item-Total Correlation > 0.5, it means they are highly interrelated and likely to measure the same construct.

Therefore, the items used to measure the components of out-of-class student engagement are reliable.

### 3.3. Confirmatory Factor Analysis

The dataset 2 was used to run a Confirmatory Factor Analysis based on the result of the EFA from dataset 1.

The rotated pattern matrix of out-of-class engagement was put into Amos Graphics version 20. Student competencies was used as a single dependent variable with four competencies as observable variables in the model.





Among different indices of fitness assessment, Hooper, Coughlan, and Mullen (2008) suggested to report the Chi-Square statistic, its degrees of freedom and p value, the RMSEA and its associated confidence interval, the SRMR, the CFI and one parsimony fit index such as the PNFI, as these indices have been found to be “*the most insensitive to sample size, model misspecification and parameter estimates*”.

In this model, the fitness indices are compared with the norms to get the model fitness assessment as follows:

Criteria	Model value	Norm	Source	Model fitness assessment
<i>Absolute fit indices</i>				
Normed chi-square CMIN/DF (Chi-square/Degrees of freedom)	3.360	<5	Wheaton, Muthen, Alwin, and Summers (1977)	Good
P value	.000	>=0.05	Wheaton et al. (1977)	Not good
Root mean square error of approximation RMSEA	.069	<=0.07	Steiger (2007)	Good
90% confidence interval of RMSEA	.064 - .075	<=0.08	Steiger (2007)	Good
PCLOSE	.000	>=0.05	Steiger (2007)	Not good
Standardized root mean square residual (SRMR)	.0733	<=0.08	Hu and Bentler (1999)	Good
<i>Incremental fit indices</i>				
Normed-fit index (NFI)	.906	>=0.9	Byrne (1994)	Good
Comparative fit index (CFI)	.932	>=0.93	Byrne (1994)	Good
<i>Parsimony fit indices</i>				
Parsimony normed-fit index (PNFI)	.906	>=0.9	Mulaik et al. (1989)	Good

Among those 9 indices, seven indices were good, only two indices of P value and PCLOSE were not good.

However, Moss (2009) stated that many researchers disregard the index P value “*if both the sample size exceeds 200 or so and other indices indicate the model is acceptable*”. Since other indices of model fitness are good, this model is considered satisfactory and acceptable for the test.

### 3.4. Results

The hypotheses being tested in this model have results as follows:

**Regression Weights: (Group number 1 - Default model)**

		Estimate	Standardized Regression Weights	S.E.	C.R.	P
Competencies <---	OE.SE	.063	.093 <sup>ns</sup>	.061	1.032	.302
Competencies <---	OB.SE	.151	.265*	.077	1.959	.050
Competencies <---	OC.SE	.206	.267***	.052	3.937	***
Competencies <---	OA.SE	.026	.050 <sup>ns</sup>	.060	.443	.658

(\*\*\* p<0.001, \*\* p<0.01, \*p<0.05, ns=not significant)

**Squared Multiple Correlations**

	Estimate
Competencies	.306

The standardized regression weights for out-of-class emotional engagement (OE.SE) and out-of-class agentic engagement (OA.SE) are low (0.093 and 0.05 respectively) with insignificant p values. Therefore, the hypotheses of H2 (*Out-of-class emotional engagement has a positive impact on student competencies*) and H4 (*Out-of-class agentic engagement has a positive impact on student competencies*) are not supported.

The standardized regression weights for out-of-class behavioral engagement (OB.SE) is 0.265 at p = .05, and the standardized regression weights for out-of-class cognitive engagement (OC.SE) is 0.267 at p < .001. Therefore, the H1 and H3 hypotheses that out-of-class behavioral and cognitive engagement has positive impacts on student competencies are statistically significant.

With R square = 0.306, 30.6% of variation of student competencies can be explained by the independent variables of out-of-class student engagement.

This result has confirmed the role of out-of-class student engagement in relationship with student competencies in the context of business students in Vietnam.

**4. Discussion and Conclusion**

**4.1. Discussion**

The findings of this test show that out-of-class student engagement has significant positive impacts on student competencies at higher education, especially with out-of-class behavioral and cognitive engagement. Though the importance of competencies has been widely confirmed, the acquisition of competencies is “hardly comparable with learning as knowledge acquisition” as described by Barth et al. (2007): “they are learnable but not

teachable”. Therefore, an initially established relationship between student engagement in general and out-of-class engagement in specific will provide possible intervention and development for student competencies. However, such relationship still needs further research and testing in different contexts, both theoretically and empirically.

This finding also shows a comparable interesting aspect of student engagement in different contexts, where previous research also demonstrated that “behavioral and cognitive engagement in learning activities strongly predicts achievement and learning competencies” (Janosz, 2012).

The findings of this research, however, did not support the impact of out-of-class emotional and agentic engagement on student competencies. This is not very consistent with other research where they emphasized the role of emotional engagement as “*there is much potential for school environments to have broad influence on students’ development and growth*” (Yusof, Ang, & Oei, 2017). As a new subcomponent of out-of-class student engagement, out-of-class agentic engagement has not been much researched in different contexts, and the measurement instrument of this construct is still under development.

#### **4.2. Conclusion**

In this research, the author has reviewed literature relating to relationships between out-of-class student engagement and student competencies to establish a theoretical linkage and then empirically test it with two samples of business students in Vietnam.

The author has contributed to the knowledge of student engagement by generating new items to help measure a new subcomponent of out-of-class agentic engagement through literature review and qualitative research.

An exploratory factor analysis on a sample of 492 students has confirmed the four separate components of in-class engagement in the context of Vietnam. The measurement instrument of out-of-class student engagement was successfully tested as a valid and reliable instrument with both convergence and differentiation criterion.

The research also produced promising results with satisfactory model fitness in the confirmatory factor analysis on another sample of 491 students. The findings from this research shows statistically significant positive impacts of out-of-class behavioral and cognitive engagement on student competencies at higher education, while the impacts of out-of-class emotional and agentic engagement was not significant. Such findings show initial contribution to the current knowledge body of student engagement and calls for further research and testing of this relationship in different contexts, both theoretically and empirically.

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