Retaliation Between Students Engagement and Academic Achievement: A Case of Tribhuvan University, Nepal

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Abstract

Students' devotion to learning with their learning activities refers to engagement in learning. This paper is based on a study aimed to examine the impact of students' engagement on their academic achievement. The survey design was adopted to conduct the study. Only 335 students by using accidental sampling were included in the study. Likert-type scale was adopted for data collection and SEM was used to analyze the data. The result showed that student learning engagement significantly predicts their achievement. Moreover, among cognitive, affective and behavioural only the affective domain significantly predicts achievement. It is concluded that belief and attitude were the main driving factors for university-level students about their learning. Thus, belief and attitude need to be strong toward learning for a good level of achievement rather than what they say and do in the classroom.

Keywords: Cognitive engagement, behavioral engagement, affective engagement, academic engagement.

Introduction

Examining how often a student participates in activities that have been associated with excellent learning outcomes in higher education is referred to as student engagement. Engagement is defined as the level of effort students themselves put forth in educationally motivated activities that directly contribute to desired outcomes (Hu & Kuh, 2001). Academic engagement occurs when students are fully immersed in their studies when they are emotionally and mentally engrossed by the material, and frequently when they are communicating with their peers Amerstorfer & Munster-Kistner, 2021). The important mission of education is foster learning and growth in students to make them creative leaders and have meaningful lives (Bender, 2017). When the learning environment is improved, higher academic accomplishment can be achieved. The learning environment is best when students are engaged at the micro level of data, where instructors have the most control (Handelsman et al., 2005). The many variables could have an impact on the student pass rate. Academic readiness, participation in teaching-learning activities related to academic achievement. The academic success of college students is positively impacted by the student's participation (Casuso-Holgado et al.,2013). Students' engagement is the considerable dimension that predicts the students' academic achievement and their quality of learning (Raosario et al., 2016). Tribhuvan University (TU) has a 75.95 percentage of share in student enrollment among the universities of Nepal (University Grand Commission, 2020) Besides this rate of enrollment, the pass rate is 29.3% (University Grand Commission, 2020) As a result, student participation plays a significant role in determining academic success at the university level.

Objective and Research Question

This study aimed to identify the impact of students' engagement on academic achievement to answer the research question, what relation exit between students' engagement and their achievement?

Literature Review

The majority of the literature on learner engagement focuses on elementary and secondary school students. Despite terminological quirks, various theories of learner engagement identify comparable physiological, behavioural, and psychological elements (Marks, 2000; Finn and Zimmer, 2013). According to research, university students typically have greater autonomy than students at the school level. Different theorists and psychologists explained student engagement and learning. Some theoretical base was taken, and discussion as the discussion below was considered in the study.

Engagement Theory

Kearsly and Schnederman (1998) engagement theory of learning was established, and it looked at how meaningful interactions with others and important tasks might engage students in their learning. Constructivist learning occurs via the ideas of active involvement.

Egbert (2020) claimed that autonomy: students' control over the learning process and teaching are the facilitating factors for students' engagement in learning. It is further claimed that authenticity: is a life-related task; social interaction: communicating and receiving proper feedback; learning support: providing required resources and enough time for developing mastery; students' interest: task should be considered according to learners' curiosity; learning support: providing required resources and enough time for developing mastery and task difficulty: The assignments should be a little challenging so that students can accomplish them by applying their knowledge. (Egbert, 2020). Appropriate instructional input and classroom environment are required, but students' engagement in the interaction with the curriculum as well as the institutions promote their academic success Deng (2021) Students' rate of participation in learning activities in the classroom and engagement to complete the task like assignments and projects learning to improve their ability of learning and academic success.

The remarkable strategies for raising students' engagement in higher learning includecreatinga safe environment, addressing students' desire for learning based on what and why questions, connecting learning with real-life practice, creating a collaborative environment and having students evaluate their learning. (Caruth,2014). Stoodley 2013) claimed that student involvement is determined by maturity level, and that student engagement is encouraged by maturational growth. According to the review's findings, college students at the seiner level are more motivated to learn than those at the joiner level. Their socio-cultural background affects how engaged and successful college students are. (Stoodley et al., 2013).

Behavioural engagement. A multifaceted term called "behavioural engagement" especially relates to a student's classroom behaviour, involvement in college-related activities, and enthusiasm for an academic endeavour (Hospel et al., 2016; Nguyen et al.; 2018). College-level students' involvement in institutional learning activities in the classroom and beyond the classroom contributes to their learning achievement.

Affective engagement. The affective components of engagement, such as enjoyment, support, belonging, and attitudes toward teachers, peers, learning, and the

institution as a whole, are included in affective engagement (Fredrickson, 2013). The students' self-regulating factor is affective engagement. Students' inner feeling and motivation always increase their active engagement in learning activities. Consequently increasing in achievement rate.

Cognitive engagement. Cognitive engagement refers to all mental processes involved in involvement and participation in academic work, such as paying attention, gathering, processing, and storing knowledge, as well as retrieving it from memory (Inggris, 2018). This type of engagement always considers important as mental involvement.

Academic engagement at the university explains the positive correlation with students' academic performance (Assuncao et al.;2020). The achievement of the learner is additionally predicted by their level of participation. Academic involvement is positively correlated with academics' eventual scientific productivity, according to research, and is impacted by socially conditioned peer effects and discipline traits (Perkmann et al.; 2021). Cognitive engagement is more positively correlated with academic achievement and all the other factors are also correlated with academic achievement (Lei et al.,2018). Emotional and behavioural engagement substantially predicted reading performance in the prediction case. (Lee, 2013).

Methods

The research method used in the study was as follows.

Research Design

The quantitative survey design was used to conduct the study. Post-positivism was considered a philosophical guideline for the study.

Nature and Sources of Data

This study was conducted under a quantitative survey design. The data were gathered through Google Forms. Thus the ordinal data were gathered from a Likert-type scale. The bachelor's and master's level students of Tribhuvan University were surveyed.

Population and Sample

All the students of Tribhuvan University were considered as a population for this study. Accidental sampling was used for data collection. Only 335 valid participants' responses were included.

Data collection tools and Techniques

The Likert-type scale was used to measure the students' engagement in learning. The student engagement questionnaire was prepared guided by the theory of student engagement and a national assessment test constructed Italian validation of the University students' engagement inventory (Maroco et al., 2016) was used to prepare a new questionnaire.

Reliability and Validity of Tools

The level of consistency is indicated by dependability. With Likert-type items, reliability is typically determined using Cronbach's alpha. To ensure the validity of the method for measuring student involvement, Cronbach's alpha was determined. The student engagement measuring tool's Cronbach alpha was found to be 0.84, which is satisfactory for the tool's dependability (Cronbach, 1970).

Validity denotes the degree to which a test or other measuring instrument is measured. Face validity was ensured by a pilot test and discussion with experts. The convergent validity was calculated by pilot testing. The Italian validation of the university student engagement inventory (Maroco et al., 2016) and prepared students engagement scale was administered to the same respondent and correlating coefficient was found to be 0.78. The cross-check correlation method was also used to ensure validity by using SPSS,

which provided the total correlation with the significance of each item.

Data collection procedure

Data were collected from January 1 to May 1, 2022, through Google form via the internet (email, Facebook, massager). The primary ordinal data were collected through five points Likert-type scale. The student engagement measurement scale was sent to the respondents via internet media.

Data Analysis Tools and Techniques

The collected response was converted into SPSS and a short unique code was made (eg. BE1 (behavioural engagement items) for structural modelling. These special codes were created during the CFA-level structural model creation procedure. Each item (observed variable) had a latent variable associated with it. Additionally, there are four general steps in the structural modelling process, including specification, estimation, evaluation, and modification. These steps were adopted for the model fit. In the evaluation stage, the test of model fit and other indices of fit need to be interpreted by AMOS.

Result and Discussion

The information given in table 1 shows the general information of socio-demographic variables. Female participants have the majority (61.8%) in the sample compared to male participants (38.2%). More than half of the participant (54.9%) was from the Brahmin/chhetri, and nearly one-third of the participants were from Janajati (30.7%). Very less participants were from Madheshi (1%) and others (3%). From the perspective of the level of graduation majority of the participant were bachelor's (81.8%) and the rest were from master's level (18.2%).

Table 1

Socio-demographic Demographic Characteristics (n=335)

Socio-demographic Characteristics	n	Percentage
Gender		
Male	128	38.2
Female	207	61.8
Ethnicity		
Brahmin/Chhetri	184	54.9
Janajati	103	30.7
Dalit	37	11
Madhesi	12	1
Others	8	3
Level of graduation		
Master	61	18.2
Bachelor	274	81.8

Table 2

Detail Information of Students Engagement Measurement Scale (n=335)

Sample items and code	Agreement in percentage						
	SD	D	N	A	SA	Mean	SD
Classroom learning excites me. (BE1)	3.0	20.0	30.4	51.9	14.6	3.6	1.06
I don't have any difficulty concentrating in the classroom (BE2).	1.8	8.4	11.3	45.4	33.1	4.0	0.97
I like to be active in the classroom (BE3)	3.3	8.1	4.2	38.5	46.0	4.2	1.05
I am sure that I can get success in my studies based on my hard work.(AE1)	2.7	3.3	10.4	57.9	25.7	4.0	0.86
What I learn in class is important to me (AE2).	1.8	33.6	5.4	62.7	26.2	4.1	0.79
Classroom activities help me to become what I want to be(AE3)	2.7	10.1	17.0	55.2	14.9	3.7	0.94
I gather all the materials for the study (CE1).	0.6	8.1	7.2	69.6	14.6	3.9	0.76
I search internet resources for my study(CE2).	1.5	4.5	5.4	66.6	22.1	4.0	0.77
I also study other materials besides what the teachers suggest (CE3).	2.1	15.2	12.8	58.5	11.3	3.6	0.95

Note- SD= Strongly disagree, D= Disagree, N= Neutral, A= Agree, SA= Strongly agree, BE= behavioural engagement, AE= affective engagement, CE= cognitive engagement.

The following criteria were made guided by the formula given by Albarhi,(2016).

Each level was obtained by adding 1 from the lowest value of the scale. The lowest value and largest value of the range were included in indicated engagement level.

Criteria (Mean value of Scale)	Meaning	Level
1-2	Very poor engagement	1
2.1-3	Poor engagement	2
3.1-4	Good engagement	3
4.1-5	Excellent engagement	4

Under these criteria Table, 2 was prepared. The items with a mean from 1 to 2 were levelled indicating that the students have very poor engagement levels in learning activities. The items with a mean from 2.1 to 3 indicate that the students have poor engagement levels in learning activities. The item with a mean from 3.1 to 4 indicates the students have a good engagement level in learning activities concerning the indicated area of engagement. The item with a mean value from 4.1 to 5 indicates the students have an excellent level of engagement in teaching-learning activities concerning the indicated area of engagement. All items' mean was found to be more than 3 and the standard deviation was not more than 1.1. Thus the students' engagement level is good. Furthermore, in the model Figure 1 indicate the Confirmatory Factor Analysis (CFA) procedure to access all the constructs involved in the study.

The association was examined using a structural equation model produced by AMOS. A good fitting model was accepted if the value of the CMIN/df, the goodness of fit (GFI) indicates (Hari. et al.;2010). The Tucker and Lewis (1973) index (TLI); the confirmatory fit index (CFI) (Bender; 1990) is >0.90 (Hair, et al.; 2010). In addition, an adequate fitting model was accepted if AMOS computed value of the standardized root mean square residual (RMR) < 0.05, and the root mean square error approximation (RMSEA) is between 0.05 to 0.08 (Hair et al.; 2010) The fit indices for the model shown in table fall within the acceptable range CMFI/df= 2.123, GFI = 0.95, CFI=0.93, TLSI= 0.909, SRMR= 0.53; and RMSEA = 0.058.

The study assessed the impact of students' engagement on academic achievement. The value of R-square = 0.14 (in figure 2) depicted that the model explains a 14% variation in academic achievement in terms of student engagement. The impact of behavioural engagement on achievement was positively and insignificant (b=0.24, t=1.13, p=0.25), similarly impact of cognitive engagement on achievement was positively correlated and insignificant (b=0.36, t= 1.25, p=0.29); and impact of affective engagement on achievement was positively correlated and significant (b= 0.56, t= 2.16, p=0.03). The model fit indicators and hypothesis results are presented in table 3.

Figure 1

Confirmatory Factor Analysis model.

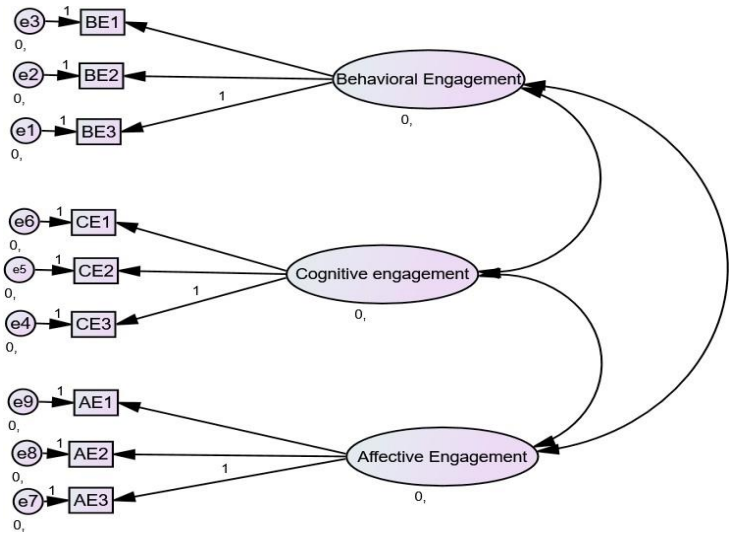


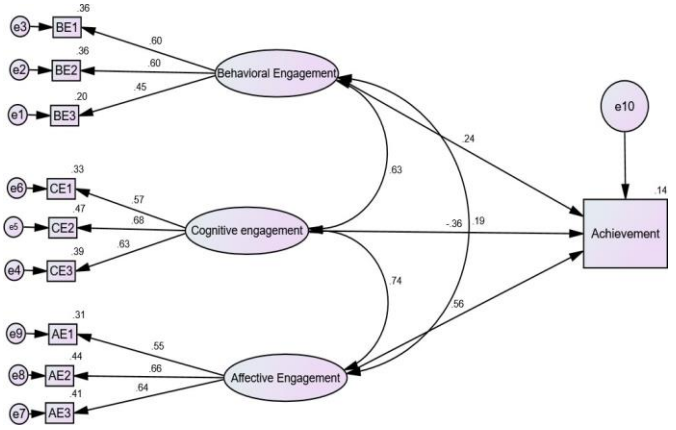
Table 3

Hypothesis Relation and Model fit Indicators

Research hypothesis relation	SE	t- value	p-value	Decision
H_1: Behavioral engagement---→Achievement	0.24	1.13	0.25	Reject
H_2: Cognitive engagement---→Achievement	0.36	1.25	0.29	Reject
H_3: Affective engagement---→Achievement	0.56	2.16	0.03	Accept
Indicators: CMFI/df=2.12, GFI=0.93, TLSI=0.909, SRMR=0.53, RMSEA = 0.058,				

Figure 2

Structural Model of Student Engagement and its Relation to Academic Achievement



Among four research hypotheses, three 1,2, were rejected and one was accepted as shown in table 3. From these tests, it was concluded that the cognitive and behavioural domain of student engagement doesn't predict achievement but the affective domain and total engagement significantly predict achievement at the university level.

The students' engagements in learning activities significantly predict achievement. This finding was similar to the finding of previous researchers finding (Egbert, 2020; Deng, 2021, Inggris, 2016). But the results that, the cognitive level didn't predict achievement significantly contradict the result of researcher Lie et al. (2018). The affective domain significantly predicted achievement. This finding was similar to the finding of Lee (2013). The cognitive and behavioural engagement didn't found to be substantial contributors on achievement which is a contradiction with the claim of Hospen et al. (2016) who considered cognitive engagement as an important factor to predict achievement. This contradictory result may be the cause of general thought of context and the importance of university education. The context of thought generally found that what we get after completion of education, does my family income support for long time university education? These thoughts may influence the cognitive and behavioural aspects of the student. The unemployment rate after university education may push for poor behavioural and cognitive engagement that why these domains of engagement violet the theories that claim that cognitive and behavioural engagement shape achievement(Kearsly and Schnederman;1998). The autonomy of students at higher levels may role in their behavioural and cognitive relation to achievement as explained by Egbert (2020). Among the considered domain of students' engagement affective domain has a beneficial impact on students' achievement rather than behavioural and cognitive engagement.

Conclusion

The higher engagement level with strong belief, valuing the subject, and self-confidence in learning are remarkable factors in university learning. The high value of these factors increases the achievement level. University-level students are driven by their belief in their learning. Thus students' beliefs and attitudes towards their learning

important than what they are in the classroom and what they express from their cognitive level temporarily. Thus the university-level strategies focus on students' belief and attitude towards their subject choice and motivation.

Limitations

This study was only based on accidental sampling and included only nine items to cover the academic engagement of university-level students. Marks obtained in their latest examination were considered academic achievements and were based on the students' responses but not by observing their authentic achievement sheet.

Author's Biography:

Dev Bahadur Chhetri *is a secondary level mathematics teacher. He also teaches in Dhaulagiri Multiple Campus, Baglung partially. He has completed the M. Phil study from Nepal Open University. He has published different books on Mathematics for University level as well as school level. He has published different articles in reputed journals.*

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