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Relationship between student engagement and academic performance

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ABSTRACT

This research aims to investigate the impact of student engagement on academic performance. Using a sample of 196 students from the University of Tirana, Faculty of Economics, we used multiple regression to assess the effect of behavioral engagement, cognitive engagement, and emotional engagement on student's performance. The results of the engagement model created using three constructs show a correlation between overall student engagement and academic performance. In this study, we identified that behavioral engagement was the only significant factor for academic performance, while the two other factors, namely, emotional and cognitive engagement were not significant factors for students' academic performance. We also identified that there was a significant difference between bachelor and master students as well as their year of study. The coefficient for "bachelor and first class" is negative and significant. However, there are no substantial differences between working students and non-working students or their gender in the relationship between engagement and academic performance. Our results provide additional empirical evidence for the higher education institution, teachers, parents and peers and some pointers for policy making. Increasing the engagement of students brings benefits for all involved stakeholders.

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1. INTRODUCTION

Student engagement is a well-known construct to identify and track student behavior throughout their years in academia. Their engagement throughout the academic years gives a clear overview of their progress at university. This construct is of great value and serves as an operational tool in the hands of scholars to improve and maximize the academic experience of students. Getting students engaged in school is seen to be a remedy for symptoms of alienation. This term encompasses the attributes that are seen to be absent from many of today's students, according to both popular and research definitions [1]. Universities collect and process data on student engagement as it enables them to create or improve policies to increase student engagement. Data can also be used as a powerful tool by teachers and academic supervisors to design effective pedagogical techniques to maximize student learning experiences [2].

Researchers have observed the ambiguity in the literature revolving around the definition of engagement [1], [3]–[5]. According to Fredricks *et al*. [1], engagement is a theoretically complex process that occasionally overlaps with other definitions, at other times just uses different terminology for the same constructs, and in still other situations incorporates concepts in very general rather than precise ways from

other literatures. Appleton *et al*. [6] points out that both theoretical and research literature on engagement generally reflect little consensus when it comes to definitions and contain substantial variation in how engagement is operationalized and measured.

Although there is a cacophony in theoretical definitions, the engagement of students has taken on great importance in academic studies due to its impact. Many scholars have determined that a number of important aspects of a student's life and academic performance, including academic success, dropout rates, learning motivation, student unhappiness, and boredom, are preceded by their level of engagement in learning environments [1], [6]–[10]. Furthermore, engagement is regarded as a key theoretical framework for comprehending the process of school dropout and encouraging students to finish their education with the necessary social and academic competencies to engage in further education and future professional opportunities [10], [11]. Nevertheless, some authors give their alternative definitions regarding engagement. Student engagement can be described as the student's relationship with the school community: the people (adults and peers), the structures (rules, facilities, and schedules), the curriculum and content, the pedagogy, and the opportunities (curricular, co-curricular, and extracurricular) [9]. Engagement, as a psychological investment and effort, focuses on learning, understanding, or mastering knowledge, and skills or improving academic work [12]. Lei *et al*. [13] defined engagement with the student's active involvement in their learning tasks and activities. Similarly, Astin [14] argued that student involvement referred to the quantity and quality of the physical and psychological energy that students invest in the college experience. Such involvement can take many forms, such as absorption in academic work, participation in extracurricular activities, and interaction with faculty and other institutional personnel [14]. Other authors have seen student engagement as a range of behaviors that universities can intervene in to maximize their outputs [15], or as a quintessential reflection of learning processes, to promote high-quality learning [16].

Although some authors identify engagement with physical and psychological investment, relationship, involvement, range of behaviors or reflection of the learning process, what is indisputable among researchers is the importance it has. Student engagement affects academic outcomes [3], [5], [15], as well as student learning and personal development [5], [11], [16], and it also increase of students' persistence [14], [15]. Other authors relate the importance of student engagement by seeing the consequences of the lack of engagement. The most disengaged students interrupt lessons, skip courses or fail to complete assignments [12]. Some authors link the lack of engagement with the growth of bored, unmotivated, and disengaged students, that are disconnected from academic and social aspects of school life [6]. For these reasons, it becomes pivotal to identify the engagement of students as a data base for intervention by higher education institutions. In order to do this, an appropriate theory must be formulated and its components identified.

2. LITERATURE REVIEW

The theory of engagement is a theory that has changed its constructs over time. Engagement is typically described as having two or three components. Researchers espousing a two-component model often include a behavioral element (e.g., positive conduct, effort, and participation) and an emotional or affective one (e.g., interest, identification, belonging, and positive attitude about learning) [8], [12]. The literature is more diverse than comparable, but in the last few years, there has been a broad agreement that student engagement should be seen as a multidimensional construct that incorporates a third element: the cognitive construct (e.g., self-regulation, learning goals, and investment in learning) [1], [6]. The engagement model is defined in a variety of ways, with varying numbers of domains and occasionally even varying definitions of the domains themselves. Most scholars concur that viewing engagement as a meta-construct consisting of three domains increases the likelihood that the causes and effects of behavior, emotion, and cognition can be examined [1], [3], [10], and that this meta-construct should be viewed with the set of questions linked together [9]. In fact, the three-faced construct is not a novel conception, as it redefines precedent works such as those of Peterson *et al*. [17] who argues that behavioral engagement is related to conduct and task behavior; another example is emotional engagement which Yamamoto *et al*. [18] argues being related to the student attitude. A third example is the idea that cognitive engagement is related to motivational goals and self-regulated learning [19]. Due to the abundance of names and construct, in this paper, we will develop three engagement constructs identified and investigated previously in the literature, namely: behavioral engagement, emotional engagement, and cognitive engagement.

2.1. Behavioral engagement

Behavioral engagement refers to how much the student is involved in the learning activity in terms of attention, effort, and persistence [20]. Other researchers define behavioral engagement with involvement in academic and social or extracurricular activities, which affect academic achievements and preventing dropping out [1]. In the literature, behavioral engagement is defined in a hierarchical way: i) the conservative definition, understand a student behavioral as the student's positive conduct, such as adhering to rules and

norms, and the absence of disruptive behavior such as skipping school and getting in trouble [21], [22]; ii) the second definition expands to include involvement in learning and academic tasks and accounts for behavior such as effort, persistence, concentration, attention, asking questions, and contributing to the class discussion [22], [23]; and iii) the third comprehensive definition encompasses also behavior related to extracurricular activities such as student government or sports activities [21], [23]. As a synthesis, for the purpose of this paper we came to the conclusion that behavioral engagement can be considered as: engagement in school life. This synthesis allowed us to prepare questionnaires for this dimension of engagement that included questions about extracurricular activities, student interactions with other students [1], [6], [7], and community actions in and around the school [9].

2.1.1. Behavioral engagement and academic achievement

The positive relationship between the construct of behavior and the academic achievements of students is a relationship widely proven by precedent research. Research has indicated that a student's level of behavioral engagement is a powerful indicator of their learning, grades, accomplishment, and likelihood to stay in school. Conversely, disengagement has been linked to a higher likelihood of failing grades, low test scores, and even dropping out [1], [24]–[27]. However, the way the constructs come together to alter performance remains understudied. Some of the researchers have observed the influence of only one of the three constructs, others were able to isolate two. This makes the relationship between student engagement and academic achievement ambiguous [13]. However, behavioral engagement overall has been demonstrated to be positively related to academic performance. In fact, students who attend school regularly, focus on learning, abide by school rules, and avoid disruptive behavior such as truancy or fighting generally get better grades and perform better on standardized tests [24]. In this study, we investigate the impact of behavioral engagement on students' academic performance within the broader engagement framework.

2.2. Emotional engagement

Emotional engagement is the second constituent construct of the engagement theory. Despite literature widely agreeing on the importance and presence of this element, the literature does not have a unified definition for it. According to Connell and Wellborn [7], emotional engagement refers to students' affective reactions in the classroom, including interest, boredom, happiness, sadness, and anxiety. These positive and negative reactions are towards teachers, classmates, academics, and the school and it is assumed that it creates a connection with an institution and affects the willingness to do the work [1]. Some researchers associate emotional engagement with the emotional response to school and teachers [28], while others associate it with identification with the school [29]. Being emotionally engaged creates benefits for students, academic staff, and the educational institution. Students who are emotionally engaged exhibit curiosity, a desire to know more, and a positive emotional response to learning and school [1]. Regardless of the array of variations, literature seems to agree that emotional engagement can be considered as students' feelings of connection to their school. According to Yazzie-Mintz [9], this dimension can be described as the engagement of the heart. For the purpose of this research, we have decided to ask students about their personal lives, and their perceived connection with peers, school, and teachers to account for this dimension of engagement [1], [2], [9].

2.2.1. Emotional engagement and academic achievement

As we have mentioned before, studies show a positive relationship between student engagement and their academic performance. In previous studies [3], [24], emotional engagement is a predictor of student's achievement level. Other studies observing the same correlation, argue that some influence over student achievement is also exerted by behavioral engagement [30]. In other words, that students with higher levels of emotional engagement show higher levels of behavioral engagement and this leads to higher scores [11], [30]. On the other hand, in their meta-analysis, Lei *et al*. [13] identified a moderately strong and positive correlation between overall student engagement and academic achievement in which emotional engagement exerts lesser influence out of the three types of engagement. Other studies have not found a meaningful impact of engagement on academic performance [10]. Even in the study by Hayam-Jonas [10], the effect of emotional engagement, although small, was present and exerted the greatest impact. This paper aims to explore how the emotional engagement component, within the broader construct of engagement, influences the academic performance of students.

2.3. Cognitive engagement

Cognitive engagement is the third construct of engagement that was taken in consideration in this study. This construct of engagement is under-researched when compared to behavioral and emotional engagement [6]. Cognitive engagement refers to how strategically the student attempts to learn in terms of

employing sophisticated rather than superficial learning strategies, such as using elaboration rather than memorization [4]. In other words, cognitive engagement is based on the idea of investment in learning and being strategic [1], [9]. Other authors define cognitive engagement as a desire to go beyond the requirements, and have a preference for challenges [6]. For the purpose of our research, we defined this dimension of engagement as the student level of preference for exceeding demands and seek challenge. To this end, we have included questions about their perceived relevance of schoolwork when compared to future endeavors, the value of learning, personal goals and autonomy, as well as questions about, homework, preparation for class, and classroom discussions and assignments [1], [2], [9].

2.3.1. Cognitive engagement and academic achievement

As mentioned in the previous paragraphs, cognitive engagement is the least studied construct in our model. Regardless, in the little literature available, we found enough evidence to suggest a correlation between this construct and student performance. In their meta-analysis, Lei *et al.* [13], argue that a strong correlation between cognitive engagement and student performance exists. Wang and Holcombe [24] argued that the correlation is not as strong but exists, and others have argued that cognitive engagement is not able to significantly predict student achievement [31]. Regardless of the inconclusiveness in the literature, cognitive engagement as a construct needs to be taken into consideration as it has been found responsible of exerting some influence on academic achievement. This study aims to investigate the impact of cognitive engagement on students' academic performance within the broader engagement framework.

3. RESEARCH METHOD

3.1. Data collection

An online survey was used to collect data from bachelor and master students in the Faculty of Economy of the University of Tirana. Before disseminating the questionnaire to students, a sample of 8 was pre-tested. Based on the feedback received, some items on the questionnaires were modified accordingly. Every questionnaire was completed without any omissions. The resulting dataset comprised 196 cases. Employing convenience sampling and setting a 95% confidence level for a student population of 5,000, we determined a necessary sample size of 357 students. We distributed questionnaires to 400 students, and the response rate stood at approximately 50%.

3.2. Missing data, outliers, and empirical model

After collecting the data, we examined the dataset for missing data and outliers. There was no missing data in our data set, and therefore we did not delete any cases, resulting in a data set of 196 cases. Further, the Z-score analysis showed no outliers in our dataset. Since our independent variable is composed of three constructs measured on a Likert scale, a multiple linear regression was used to analyze the dataset, and the outcome was measured with a scale.

3.3. Operationalization of variables

The questionnaire includes questions for the three constructs of engagement. Under behavioral engagement we included 13 questions, under cognitive engagement we included 16 questions and under emotional engagement we included 11 questions. After the analysis was done, the constructs of the three engagements were created. All the questions were measured with a 5 Likert scale. The outcome is related to the average of the students and was measured using a categorical variable (5 was coded with 1, 5 to 6=1, 6 to 7=2, 7 to 8=3, 8 to 9=4, and more than 9=5).

4. RESULTS AND DISCUSSION

The socio-demographic characteristics of the respondents can be found in Table 1. As we can see in the table, we had more female than male students, coming primarily from the third year of the Bachelor's program. The respondents were asked to rate each of the questions based on a 5-point Likert-type scale (from 1=never to 5=always). Cronbach's alpha scores reached an acceptable level of reliability ranging from .806 to .899 as displayed in Table 2. Cronbach α was computed to test reliability to ensure the quality of the measurement. A multiple regression was performed to identify if student engagement is a predictor of their academic performance. Prior to this, the assumptions of normality, linearity, homoscedasticity, independence of residuals, and sample size were met. The model summary and ANOVA are given in Table 3. Based on the data, we say that about 53.5% of the variation in student grades is explained by student engagement (R-squared=.535). Table 4 shows that the predicted factors were statistically significant (F=30.88, p=.000) at the .05 level. Therefore, based on the data analysis, we can say that engagement can be an important predictor of academic performance.

Table 1. Socio-demographic characteristics of the respondents

Characteristics		Frequency	%
Gender	Female	174	88.8
	Male	22	11.2
Study program	Bachelor	173	88.3
	Master	23	11.7
Year of studies	I	43	21.9
	II	19	9.7
	III	134	68.4
Working relationship	Yes	50	25.5
	No	146	74.5

Table 2. Questionnaire items and measurement instruments for students' engagement

Category/construct	Scale	Cronbach's alpha	Number of items	Some of included questions
Behavior engagement	5-point Likert-type scale	.895	13	Behavior engagement-selected aspects: - Following the rules and adhering to classroom norms. - Effort, persistence, concentration, attention, asking questions, and contributing to class discussion. - Extracurricular activities.
Cognitive engagement	5-point Likert-type scale	.899	17	Cognitive engagement-selected aspects: - Relevance of schoolwork to future endeavors, - Value of learning, - Personal goals and autonomy, - Questions about homework, preparation for class, classroom discussions, and assignments.
Emotional engagement	5-point Likert-type scale	.806	11	Emotional engagement-selected aspects: - Students' internal lives, their connection with peers, school and teachers.
Student engagement	3 constructs	.878	3	Behavior engagement construct, cognitive engagement construct and emotional engagement construct.

Table 3. Model summary of multiple regression

R	R-square	Adjusted R-square	Std. error of the estimate
.731	.535	.518	.827

Table 4. ANOVA of multiple regression

Model	Sum of squares	df	Mean square	F	Sig.
Regression	147.862	7	21.123	30.889	.000[b]
Residual	128.561	188	.684		
Total	276.423	195			

In Table 5, the coefficient results of the multiple regression are explained. We observed that behavior engagement was the only significant factor in academic performance, while two other factors namely emotional and cognitive engagement were not as significant. Our analysis shows that being male or female is not significant, but rather that the study program and the year of study make the difference. The coefficients for "bachelor and first grade" are negative and significant. However, there are no significant differences between students that work and students that do not work.

Table 5. Coefficient results of the multiple regression

Variables	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
(Constant)	2.261	.421		5.376	.000
Gender	.332	.193	.088	1.719	.087
Study program	-.551	.211	-.149	-2.610	.010
Year of study	-.857	.076	-.598	-11.228	.000
Working relationship	-.077	.154	-.028	-.500	.618
Behavior	.623	.147	.328	4.225	.000
Cognitive	.093	.163	.050	.570	.569
Emotional	-.097	.149	-.051	-.653	.515

This study is an effort to delve into the relationship between academic achievement and student engagement. For the purpose of the research, we defined engagement as a three-faced construct encompassing behavioral, emotional, and cognitive engagement, and academic performance was defined as how students perform in terms of grades, in higher educational setting. The research found that in the Faculty of Economics at the University of Tirana, behavior engagement was the academic performance predictive element and that a strong correlation existed between behavioral engagement and academic performance. Despite being tested on a small sample compared to the total number of students currently studying in Albanian higher education institutions–and therefore might not replicate real-life scenarios- this study helped identify behavioral engagement as a significant predictor of academic performance. The findings are similar to several studies [11], [32], [33], and at controversy with other studies such as Sukor *et al*. [3] who found that the predictor of academic performance is emotional engagement. However, other studies have found that cognitive engagement can predict student achievement [34], [35], whereas others find all the constructs predictive of student performance [2], [36]–[39], or find only emotional and cognitive engagement predictors of student performance [40].

Nevertheless, other findings in this study are worth mentioning, namely the correlation or lack of, related to gender, year of study, study program, and employment. Unlike other previous studies [10], [13]; in this study, gender was not determined to be significant in the relationship between academic achievement and student engagement. The same was observed for students' employment status which was not found to be a significant factor. However, when observing years of studies, being a Bachelor and in the first year of study we notice a stronger correlation between students' engagement and their performance, and these findings are similar to another studies [41], [42].

The findings related to student engagement can have important implications for policymakers and higher education institutions. Maximizing student engagement can be beneficial in providing meaningful learning experiences to students. The increase in student engagement that can correlate to better student achievement brings a series of other benefits, such as: improving the early detection of at-risk students [19], influencing social and academic outcomes [6], improving, and maximizing the relationship between students and the institution [2], as well as the reduction of dropout rates [19]. Based on all these benefits, higher education institutions, policymakers, parents, teachers, and peers should consider increasing student engagement in educational settings.

Despite the potential benefits of the findings, some limitations bind this study. Firstly, the study has a sample of a faculty of a university and does not represent higher education institutions in the country. Secondly, we have taken into consideration only the self-declarations of the students regarding the engagement and not the statements of their professors. Thirdly, we have not studied other influencing factors (individual factors, environmental factors, institutional factors) of engagement known in the literature, which would give us a more accurate overview of the impact on the increase of engagement. The current study's findings raise concerns about the potential influence of various school environments, the number of students included in the study, and other influencing factors or differences that can arise due to other variables not included in the study that can affect the relationship between engagement and achievement. These significant questions might be addressed through further studies.

5. CONCLUSION

The conclusion we can draw based on the analysis of the data in this paper is related to the importance of student engagement as a predictor of their academic performance. Higher education institutions in Albania should pay more attention to behavioral engagement as an important influencer of student performance, especially those who are in the first cycle of studies and in the first year following this cycle. This impact on maximizing behavioral engagement would bring a series of other improvements in the experience of students, in their relationship with the institution, professors, colleagues, and all stakeholders included in the higher education system. In order to tackle the challenges affecting education in the country, especially the low academic performance of students, it is crucial to initially understand the influential factors before introducing policies and regulations. The findings of this study provide a first indication for institutions to take steps to improve the performance of students in higher education in the country.

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