RESEARCH ARTICLE

IDENTIFICATION AND ANALYSIS OF FACTORS THAT AFFECT STUDENT'S LEARNING AMONG UNIVERSITY STUDENTS

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ARTICLE INFO	ABSTRACT
	Learning, in psychology, is the process by which a relatively lasting change in potential behavior occurs that brought about by experience. The purpose of this study was to identify and analyze the factors that affect students learning in University graduate students. The main focus of this study was to see how some students perform well than the other in the academic achievement. Four departments in the college of social science and humanities were selected. Of the respective total population size of the study groups, 52 students as sample size were taken. The data for analysis were collected from students in the graduate class through focused group discussion and structured instrument. In here, factorial analysis, Pearson correlation, coefficient alphas, descriptive statistics, and percentage were employed on the data. The use of factor analysis has accomplished in identifying six distinct factors, so that using the highest load of the items the highest six components were considered to infer the result of the study: teaching methodology, teacher student relationship, peer influence, class size, context of the students and personal interaction were identified as factors that affect in the university students' learning. Based on these findings conclusions and possible recommendations were made.

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INTRODUCTION

Learning is talking about step by step process in which an individual experiences permanent, lasting changes in knowledge, behavior or way of processing the world Jameson *et al*. (2008). Students between the age 5 and 18 years are expected to learn in school (Barron, 2015). This is the primary job in society and it is possibly the one thing that will prepare them to become productive members in their adult year what they learn in education (Traylor, 2010). In order for the student to learn there are several factor that must be considered. Most of these factors could be categorized into internal and external. Traylor, (2010) for instance has discussed that factors related with social or cultural values, the school environment as well as teachers and administration that teach them has an impact on students learning ability. Another important factor falls up on the student ability and willingness to learn. Elsworth, (1995), Traylor, (2010), Pamela and Davis-Kean, (2005), and Sears, (2015) have found that socio economic status, parent's education, school structure and resource, language barriers, learning disability, teacher administration, student willing to learn, and family back grounds could affect the learner6, (Elsworth and Coulter, 1977).

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Besides, Haas, (2002) found that students' learning has relation to the teaching methodology (Haas, 2002). In line with above, Pamela and Davis-Kean, (2005) have concluded that there are two principle agencies, the family and the school, which powerfully shapes the student's learning experience. The influence of these two agencies is constrained by the wider social and cultural systems into which they are embed Sears (2015). Developing country, like Ethiopia, should properly utilize and adopt the experience of teaching and learning process and experience of the middle income and developed countries to bring a desired progress so as to exploit its human resources for better economic growth.

One of the indicators of quality of education is the academic performance of student; however, most of the students were not seemed to perform well in their university course as expected (Goldstein *et al*., 1998). Teachers blame and curse the new generation as if all students have no substance in academia. The academic staff and students have sat for a meeting usually, however, it is little documentation and research around the problems of the university. Thus, Students' learning can be affected by a number of factors that emanate from within the university and out of the university (Ali, 2009). Low academic performance adversely affects the motivation of the learners and ultimately brings about failure and wastage (Barkley and Andrew, 2006).

To minimize this educational wastage, Adigrat University implementing excellent and various policies to bring quality education: However, factors that mainly affect to students learning were not well documented.

Objectives of the Study

General Objective

The objective of this study was to identify and analyze the factors that affecting students' learning in the context of Adigrat University, Ethiopia.

Specific Objectives

- To identify factors that emanate from the inside and outside of the university.
- To analyze the factors that highly affects the student learning in general.

Significant of the Study

University is among the vital organization in which the younger generations are shaped towards the progressive advancement of every aspect in a nation. University students should be trained properly; their problems should be identified and treated accordingly with the collaboration of all teachers, administrative and other concerned bodies, thus, this study could have the following significance:

- It initiates university and other stakeholders to give emphasis on factors affecting student learning, and
- The finding and suggested recommendation could be used as possible solutions to resolve the problem.

MATERIALS AND METHODS

Study Site

The study was conducted in Tigrai Regional state Northern Ethiopia where the three Universities are located, and categorized in first, second and third generation according to their establishment. Among the three, Adigrat University is the newer one but enrolled over 10,000 students in 37 departments with six distinct colleges, found about 898 kilometer from the capital of the country. Communities of the region are more engage on agriculture and live in rural areas.

Data collection

The data for the analysis were collected from students in the graduate class through focused group discussion and structured instruments. The target population for the study consists of all students at college of social science and humanities in the university. Each graduate class was purposively selected for the study in order to have a representation and more information on the university life: of all university students', 50 students were randomly selected from each department. Two-stage random sampling procedure was used for data collection. In the first stage, college and departments were selected purposively and in the second stage cohorts of students defined from the

graduate class attended were selected randomly (Cochran, 1977). Thus, primary data were used in the study, prior to its distribution pilot study has been made with few graduate students for checking the reliability and found to be 0.7 in Cronabach alpha and the actual data were collected through administering reliability and face validity checked structured questionnaire to students. Following the data collection, responses were coded and entered in SPSS version 16 software for statistical analysis. Factorial analysis was employed to identify and assess the factors which affect students learning in university (Field, 2005).

RESULTS

Total items in the instrument were 25 in number which showed the overall variables to identify the factors. The distributed questionnaires were completed and returned on time, and analyzed using the SPSS software version 16. The data that gathered from the participant were coded, labeled and tabulated using the SPSS. Table 1 shows that there were more female respondents than male respondents. Regarding the age wise, the majority of the respondents 32(61.5%) were between the age of 20-22 years which could mean that the beginning of adult hood. Besides, as indicated in the above table the majority of the respondents were come from the medium income level families, 41(78.8%) of the respondents. KMO and Bartlett's Test in the SPSS was used to measure the sampling adequacy, and found to be 0.573.

Table 1. Characteristic of Respondents

No	Items		Frequency	Percent
1	Sex	Female	27	51.923%
		Male	25	48.07%
2	Age	17-19	1	1.9%
		20-22	32	61.5%
		23-25	15	28.8%
		26-28	1	1.9%
		Above 28	3	5.8%
3	Family Economic Status	Low	8	15.4%
		Medium	41	78.8%
		High	3	5.8%

"The Kaisare-Meyer-Olkin measure of the sampling adequacy and Bartlett test of sphericity is addressed that the KMO statistic varies between 0 and 1. A value of 0 indicated that the sum of partial correlation is lager relative to the sum of correlations, indicating diffusion in the pattern of correlations (hence, factor analysis is likely to be inappropriate). A value close to 1 indicates that a pattern of correlation is relatively compact and so factor analysis should yield distinct and reliable factor. Kaiser recommends accepting value greater than 0.5 as acceptable (value blow this should be lead you to either to collect more data or rethink which variable to include)." (Field, 2005:5) Based on the Kaiser's ideas the sampling adequacy for the instrument of this study is 0.573. Therefore sample size is acceptable.

Identifying the Factors that Affect Student Learning

Factor analysis was employed in principal component to analyze and decide on the correlation matrix using both un-rotated factor solution and screen plot so that to extract, select, and loaded Eigen value. In addition to this, Factor analysis on

rotation method, using the Varimax, Anderson-Rubin and coefficient matrix, was done to display and select both rotated solution and loading plot so that to put the maximum iterations for convergence was 25 variables. Thus, Factorial analysis option was used to select exclude cases pair wise and in coefficient display format identified in both sorted by size and suppress absolute values less than 0.5. As shown in the table - 2 of the SPSS output, the communality before and after extraction. Principal components analysis works on the initial assumption that all variance is common; therefore, before extraction the communalities are all has 1.

The average of communality can be found by adding them up and dividing by the numbers of communality in table - 2 that is (18.006/25=0.72024).

Factor rotation

The rotated component matrix (also called the rotated factor matrix in factor analysis) which is a matrix of the factor loadings for each variable of each factor. This matrix contains the same information as component matrix in the output except that it is calculated after rotation.

Table 2. Communalities

No	Item	Initial	Extraction*
1	Crowed classroom affects students learning	1.00	.746
2	The space within our class has effect on the learning process	1.00	.752
3	Our teacher can make one to one communications with all of us	1.00	.638
4	The class conditions prepared for learning is standardized one.	1.00	.721
5	Textbooks and reading materials are available to each students	1.00	.657
6	University building are conducive for teaching learning process	1.00	.690
7	library is open for 24 hours except in the holiday	1.00	.682
8	The library has all the necessary reference materials.	1.00	.680
9	The teacher uses the laboratory effectively	1.00	.670
10	Our teacher gives us number of exercises and tests	1.00	.806
11	Our teachers encourages us to be active participates in teaching learning process	1.00	.806
12	Our teacher are qualified and competent enough to teach	1.00	.806
13	Our teachers continuously follow up and evaluate our progress	1.00	.705
14	I feel well when I am with other students	1.00	.788
15	I always sit in center among classmate	1.00	.805
16	I Prefer to study with students in group	1.00	.753
17	Group work helps me to learn well	1.00	.738
18	My parents encourage me to perform well	1.00	.689
19	My parents communicate about my progress with my teacher	1.00	.778
20	My parents involve in university activities when requested	1.00	.672
21	My parents are well educated which reinforce me to perform well	1.00	.803
22	Students are motivated to learning	1.00	.660
23	Students are attend the class regularly	1.00	.574
24	Students are distracted their concentration during teaching and learning	1.00	.776
25	The teacher motivates us to increase our concentration in class	1.00	.747

The communalities in the column labeled extraction reflected that the common variance in the data structure. For example, we can see the first item of the instrument comprises 0.746% of the variance associated with question 1 is common or shared variance. Another ways to look at these communalities is in terms of the proportion of the variance explained by the underlying factors. After extraction some of the factors are discarded and some information was lost. The amount of variance in each variable that can be explained by the retained factors is represented by the communalities after extraction.

Components Matrix of the variable

Table 3 shows that the variable before and after rotation. This matrix contains the loading of each variable onto each factor/component. By default SPSS displays all loadings; however, it was requested that all loadings less than 0.5 to be suppressed in the output and so to made it blank for many of the loading value so as to make it important for interpretation and to arrange the variable in a way that readers could understand it. Thus, six factors have been extracted using Kaiser's Criteria in factorial analysis which used to be accurate for less than 30 variables and communality after extraction with value greater than 0.7. The communalities of this study exceeded 0.7.

There are things to considered about the format of matrix such as, factor loadings less than 0.5 have not been display because the study set up for these loading to be suppressed. When one looked into the Comparability of the matrix with the un-rotated solution before rotation, most variable loaded highly onto the first factor and the remaining factors did not really get a look in. However the rotation of the factor structure has clarified things considerably; there are six factors and variable load very highly onto only one factor exception other four items due to the suppression of loadings less than 0.5 and ordering variables by loading size also makes interpretation considerably easier. As can be seen in the table - 4, four item variables were not loaded in the identified component due to they have less than 0.5 value. Thus, the first six components were displayed with their value greater than 0.5.

Interpretation

The next step was done at the content of the item question that loads onto the same component to try to identify common themes. If the mathematical factor produced by the analysis represents some real world construct then common themes among highly loading questions can helps to identifies what factors might be. The question that loads highly on factor 1 seems to be teaching methodology.

Table 3. Variable which were included in the SPSS

No	Items	Component*					
		1	2	3	4	5	6
12	Our teachers are qualified and competent enough to teach	0.745					
13	Our teachers are continuously follow up and evaluate our progress	0.665					
22	Students are motivated to learn	0.631					
11	Our teachers are encourages us to be active participants in teaching and learning process	0.625					
16	I prefer to study with students in group	0.618					
17	Group work helps me to learn well	0.611					
10	Our teacher gives us a number of exercises and test	0.557					
25	The teacher motivates us to increase our concentration in class	0.55					
8	The library has all the necessary materials	0.539	0.526				
3	Our teachers make one to one communication with all of us		0.668				
9	The teacher uses the laboratory effectively		0.653				
5	Textbook and reading materials are available to each students		0.537				
23	Students are attend the class regularly		-0.534				
19	My parents communicated about my progress with my teacher			0.649			
6	University building is conducive for teaching learning process			-0.514			
1	Crowed classroom affect the students learning				-0.653		
2	The space within our class has the effect on the learning process				-0.524		
24	Students are distracted their concentration during teaching and learning				-0.511		
14	I feel well when I am with other students					0.630	
21	My parents are well educated who reinforce me to perform well					-0.502	
15	I always sit in the center among my classmate						0.698

Extraction Method: Principal Component Analysis.
*6 components extracted.

Table 4. Variables which were excluded in the SPSS

No	Items	Component*					
		1	2	3	4	5	6
18	My parents encourage me to perform well						
7	Library found in the university is open 24 hours except in the holiday						
4	The class condition prepared for learning is standardized one						
20	My parents involves in university activity when requested						

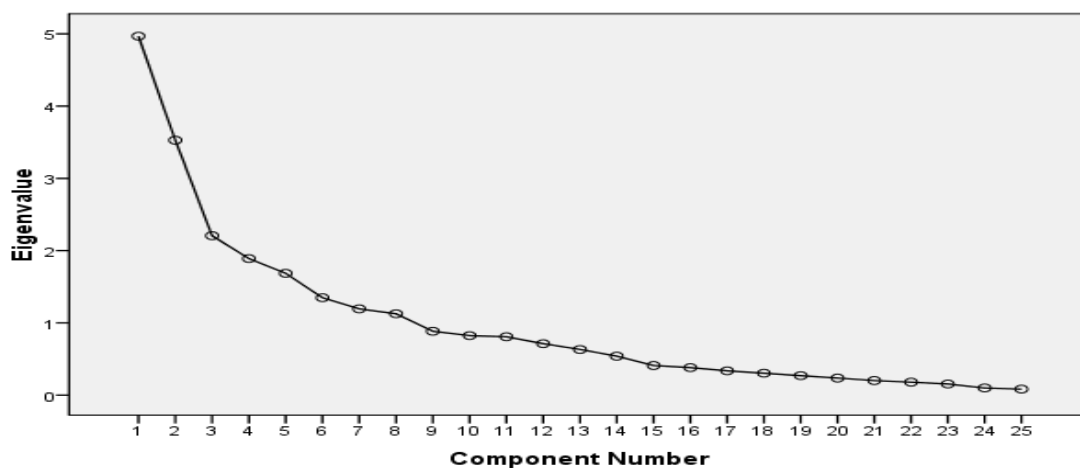Extraction Method: Principal Component Analysis.
*6 components extracted.

Figure 1. Scree plot interpretation of the components and Eigen value

The variables those that are highly loading on factor 2 seem related to teacher student relationship. The question that loads highly on factor 3 labeled to context of the students. The items that loading highly on the 4th is related to class size. The variables that loading highly on the 5 is related to personal interaction. Then, finally the question that loads highly on the 6 is related to peers influence.

Scree plot Interpretation

In the below scree plot indicated that the majority of the variable loading on component 1 than the other components like from component 2 up to the last component. Therefore based on the given Eigen value in the SPSS it give us the many component by loading the variable based the Eigen value, in which below Eigen value 1 were not considered as factors.

DISCUSSION

It has been distributed an instrument with 25 items to gather the information about the factor that affect student learning at Adigrat University. But the instrument was remained 21 after discarded the 4 items which could not be found loaded in either of the components in the factorial analysis output. Based on the research questions, objective of the study and analysis part of the paper a precise discussion has been made. The economic status of parents, context of students, could have its own impact on the students learning because 78.8% of the participants come from the family who has medium income level. The finding of this study agrees with Pamela and Davis-Kean (2005) who suggest that the economic status has a negative impact on the student learning. It is also meant the students who came from low and medium economic background could be exposed to risk behavior through the peer influence, besides, result from the focused group discussion shows that those who came from low income level were also suffered by lack of material that help them to learn (Pamela and Davis-Kean, 2005).

Crowded classroom and space with in class were also found to have a negative impact to learn. In line with this Brewer (2001) found that classrooms size has its own impact to the students learning. Thus, crowded classroom affect students learning which has a consequence on the teaching methodology and teachers-students relationship (Brewer, 2001). These all mentioned in the above are the factors that emanate from the inside the universities. One of the items which show the parental involvement in the students learning was asked whether Parents communicate with teacher has an impact in their academia, then it was found to be median 4 which means around 80 percent of the respondents were agreed. On the other hand the factorial analysis showed that teachers – students relations has found to be one factor which contribute in students learning ability. Roekel (2008) was discussed that in the past parents involvement was characterized by passive interaction, however, today the old model has been replaced with a much more include approach school-family-community-partnership, business leader and community groups all participating in good-oriented activities at all grade levels – linked to students achievement and school success in this levels lack of parental involvement to see their children on going (Roekel, 2008).

In line with this Adigrat University also starts up parents' day celebration with university students' parent to discuss on their status. As has been discussed in the above, if there is strong teachers-parent relationship through teachers – students' relationship the other factor like peer influence and personal interaction would come in to the intended activities, otherwise

peer influence found to be one factor which affect learning. Similarly the personal interaction skill also affects with other factors interchangeably (Rowe, 1995).

Conclusion

As it was reported by the respondent class room was crowded, thus, class size has its own impact. In the legislation of the university article 36 stated that class size could be as large as 80 except for the language department in the top case. However, the problem of large class size had on the teaching and learning process had been supported by quite number of the respondents. In addition to the class size, teaching methodology, teachers to students' relationship has also correlate with class size. Therefore, the three factors are emanate from the inside the university which can be administered inside the university. On the other hand, context of the student where an individual student spent on co-curricular activity may affect students learning while in campus. Especially the personal interaction skill could also relate with the peer influence too. Therefore, these three factors could also be categorized in to factors that emanate from outside the university might influence the students learning. To this end, the finding of the study come up with six distinct factors that affect the university students' learning ability which can also be categorized in to two further groups called factors from inside and outside of the university.

Recommendations

To improve the learning ability of the Adigrat University Students the following recommendation is forwarded

- To assist the students who came from the family low socioeconomic back ground, university established a committee of welfare to students. However, it has to be strengthened the committee through various income generating projects and has to cover the expense of these needy students.
- The interaction among the parents, teachers and students could be the pillar quality education. In Adigrat University, it has already started up, should be consistent and has to be the pioneer in introducing in celebrating the parents day at higher education institutions.
- Regarding the classroom size, it is all about administration. An experienced teacher could teach large class but to the one who was not experienced might demotivate them so does could not manage in delivering teaching to the whole class. Thus, the university should reduce in to class size as small as language department. In order to assist the students learning try to use the standardize classroom with specific amounts of students.
- Experience is more than schooling, but there has to be refreshment course to teachers on methodology and policy of the country. It has to be obliged to attain on these training to the academic staff too.

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