

# A Study of Student Engagement and Motivation in Higher Education with reference to E-learning

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## Abstract

Student involvement and interest in the subject matter are the important essentials for active learning. In other words, motivated students make an attempt to pay attention in class. To encourage active participation in class, it is crucial to understand the level of student motivation. The current study's goal is to examine the connection between students' levels of motivation and their engagement in class. For this a sample of 228 students from different educational institutions by using simple random sampling method was collected. Correlation analysis and Independent sample t-test was used for analysis. Results shows that there is a positive relationship between student's engagement and motivation level.

**Keywords:** Student engagement, Motivation, e-learning, Higher education, Correlation.

## Introduction

**Electronic learning** is interactive learning where the learning content is available online and gives automatic feedback to the student's learning activities (Paulsen, 2003). E-learning is a flexible term used to describe the method of teaching through technology. It is a means of education that incorporates self-motivation, communication, efficiency, and technology because there is limited social interaction, students must keep themselves motivated. The rapid development of e-Learning is due to the rapid growth of the Internet and the emergence of new advanced technologies. Because it enables learners to actively engage in learning whenever and wherever they choose, e-learning promotes good learning outcomes like a high level of learning attainment and higher-order thinking skills. Despite these benefits, e-learning has a significant dropout rate problem because contacts between students and teachers are less frequent in e-learning settings than in traditional ones, students there tend to be less engaged.

**Student Engagement and E-learning:** The number of logins, questions asked, lectures attended, articles posted on the bulletin board, and participation in online discussions are just a few behavioural indicators that are used to measure student engagement in e-learning environments, which limits the studies that have looked at this topic. The e-learning environment's qualities and elements that affect student engagement were looked at for this aim. A relevant measuring tool for student engagement in the online learning environment was subsequently created.

### **Literature Review**

Richardson and Newby (2006), Walker et al. (2006), Corno and Mandinach (1983) examined the degree to which students are willing and able to take on the current learning activity is characterized as cognitive engagement. This involves the level of effort and persistence pupils are willing to put forth when working on the assignment. The degree to which students do their assignments, show up for class, participate in extracurricular activities, or communicate with teachers in general, as well as how motivated they appear to be during class discussions, are all classic ways to operationalize cognitive engagement.

Appleton et al. (2006) explained cognitive engagement reveals that most authors view it as a more or less constant characteristic of pupils, regardless of the situation. Because the work at hand impacts the level of students' autonomy, we propose that cognitive involvement is more or less reliant on the activity at hand. For instance, different levels of autonomy are likely to produce varied levels of cognitive engagement whether working in groups and having debates, looking up material online, or listening to a lecture. Since there is little to no student agency in a lecture setting, it could be argued that listening to one is the least cognitively stimulating activity.

Alhassan, (2017) aimed to examine the connection between the self-efficacy of the teachers in using Web 2.0 tools with demographic variables and use of those tools in their teaching. The result revealed the very good positive connection between the self-efficacy of the teachers and use of those tools in classroom teaching. The study suggested to use to train the teachers on modern internet tools.

Kahu (2019), Burch, Heller, Burch, Freed, and Steed (2015), Hu and Kuh (2008) according to a study on student engagement in face-to-face learning environments, engagement includes students' cognitive, emotional, and behavioural responses to educational activities. The different types of engagement that can happen in class include effort to learn, interest for learning, enthusiasm for the topic, sense of belonging to the class, deep

learning, self-regulation, and relationship with others. The sorts of engagement that can occur in the classroom includes passion for the subject matter, interest in learning, effort, invested energy for learning, concentration on learning, and attention to class. Task completion, learning attempts, communication with instructors, knowledge development, application, and understanding are all examples of engagement that can take place in a classroom setting.

Golladay, Prybutok, and Huff (2000) suggested that successful online learners share what they've learned with their peers, are driven to learn, have enough time to prepare for lessons, and have the technical skills required to complete online courses.

Guo et al. (2014) examined participation of students watching videos. The duration of the video viewing and the frequency with which the student answered to assessments served as the study's input variables. According to the study, brief videos engaged students more fully than taped lectures.

Thomas and Jayagopi (2017) based on the students' facial expressions, head positions, and eye gazes, an ML algorithm was used to quantify student interest. Their findings demonstrated that ML systems were effective at forecasting student engagement in the classroom. According to Atherton et al., there is a link between the utilisation of course materials and student grades; those who accessed the material more frequently performed better on tests and other evaluations.

### **Problem Statement**

With the changes in the environment and needs, new modes of teaching and learning have been developed. E-learning has prominently dominated the learning modes. Learners find them convenient and easy to use. However, their impact can only be known if they are able to motivate the students and are engaging also. As a result, understanding student participation in e-learning programmes is essential in the present day time. It is also imperative to understand whether e-learning programs help to give student motivation and required level of engagement and if there exists any relationship between a set of students discriminated on the basis of subject of study or course category.

### **Scope of the Study**

The present investigation is quite significant and has a wide scope to study the various factors that influence academic achievement of students studying in graduation and post graduation. The researcher has identified the present problem to study the student engagement through e-learning. It also examines the level of motivation on students availing e-learning facil-

ities. The study aims to find out the interrelatedness between the motivation and student engagement in e-learning activities.

### Objectives of the Study

1. To study the level of student engagement in e-learning.
2. To examine the level of motivation among the students using e-learning
3. To analyze the correlation between student engagement and motivation in relation to e-learning
4. To find out the difference in the motivation and student engagement among post graduate and graduate level courses of e-learning.

### Hypotheses of the Study

On the basis of review of related literature investigator formulated following research hypotheses:

**HO<sub>1</sub>:** There is no significant positive relationship between student engagement and motivation for e- learning.

**HO<sub>2</sub>:** There is no significant difference in student engagement of graduate and post- graduate courses for e-learning.

**HO<sub>3</sub>:** There is no significant difference in the level of motivation of graduate and post- graduate courses for e-learning.

### Research Methodology

#### Research Design

The present study uses descriptive survey method endeavours to analysis the relation of Student engagement of College Students and their level of motivation in e-learning. In the present study student engagement and motivation are the independent variables. e-learning effectiveness is considered as dependent variable.

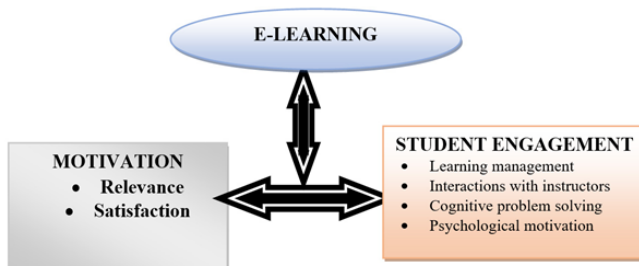


Figure 1: Conceptual Framework

Source: Authors' compilation

### Sampling Design

- **Population** - For present study population refers to all the students of colleges of Jaipur city.
- **Sampling Technique** - The sample has been collected using Simple Random Sampling which is a parametric method.
- **Sample Size** - Data has been collected from 270 students from different educational institutions after scrutiny of the respondents, 228 sample size was selected for further analysis.

### Data Collection Tools

A structured questionnaire was prepared consisting of statements related to student engagement and effectiveness of e-learning. The questionnaire consists of total 42 items. Separate statements for each factor for Student engagement and Motivation were considered. The scale used in the questionnaire is Likert scale with the scaling as follows: 5- strongly agree, 4- agree, 3- neutral, 2- disagree, 1- strongly disagree.

### Reliability Analysis

The reliability for both Student Engagement factors and Motivation was measured using the above scale. The overall intra reliability for both are found to be excellent as shown in table 1 and 1.1.

**Table 1: Reliability Test Results: Student Engagement**

Variable	Cronbach Alpha Value
Psychological Motivation	.810
Interaction with the Teacher	.764
Cognitive Problem Solving	.865
Learning Management	.710

Source: Primary Data

**Table 2: Reliability Test Results: Student Motivation**

Variable	Cronbach Alpha Value
Relevance	.821
Satisfaction	.860
<b>Overall Reliability</b>	<b>.915</b>

Source: Primary Data

## Data Analysis and Interpretation

**Table 3: Profile of the Respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
<b>Faculty</b>				
Arts	4	1.7	1.8	1.8
Science	4	1.7	1.8	3.5
Commerce	133	58.1	58.3	61.8
Management	77	33.6	33.8	95.6
Journalism	10	4.4	4.4	100.0
<b>Degree Pursuing</b>				
Post Graduate	78	34.1	34.2	34.2
Graduate	150	65.5	65.8	100.0
<b>Use of E-Learning Tools</b>				
Never	1	.4	.4	.4
Rarely	5	2.2	2.2	2.6
Sometimes	92	40.2	40.4	43.0
Only when Instructed by Teacher	24	10.5	10.5	53.5
Most of my studies are through e-learning	59	25.8	25.9	79.4
Always	47	20.5	20.6	100.0
<b>TOTAL</b>	<b>228</b>	<b>100</b>		

Source: Primary Data

The table 3 shows the profile of the respondents. 34.1 percent of the respondents are those pursuing post graduate degree whereas 150 out of 228 are those pursuing graduate degree. Only 1.8 percent respondents are those from arts and science faculty, 4.4 percent are from journalism, 33.6 percent are from management and 58.1 percent are from commerce faculty. The responses on the use of e-learning tools can be interpreted as: 25 percent has most of their studies through e-learning, 20 percent use them always showing that most of the respondents are using e-learning all the times. 10.5 percent of the respondents are using e-learning only when instructed whereas as only 6 respondents never use it or rarely use e-learning.

**Table 4: E-learning tools Usage**

<b>E- Learning Tool</b>		<b>Don't know about it</b>	<b>Never</b>	<b>Rarely</b>	<b>Sometimes</b>	<b>most of the times</b>	<b>all the time</b>
You Tube	<b>Frequency</b>	9	58	66	61	30	4
	<b>Percentage</b>	3.9	25.4	28.9	26.8	13.2	1.8
Online Assessment and Quiz	<b>Frequency</b>	4	28	29	90	56	21
	<b>Percentage</b>	1.8	12.3	12.7	39.5	24.6	9.2
Online Classes	<b>Frequency</b>	6	34	32	53	39	64
	<b>Percentage</b>	2.6	14.9	14	23.2	17.1	28.1
Websites	<b>Frequency</b>	10	31	37	71	57	22
	<b>Percentage</b>	4.4	13.6	16.2	31.1	25	9.6
E- library	<b>Frequency</b>	4	35	44	85	36	24
	<b>Percentage</b>	1.8	15.4	19.3	37.3	15.8	10.5
MOOC Platforms for Online Courses	<b>Frequency</b>	12	35	28	51	46	56
	<b>Percentage</b>	5.3	15.4	12.3	22.4	20.2	24.6
Video Conferencing	<b>Frequency</b>	2	8	22	70	61	65
	<b>Percentage</b>	0.9	3.5	9.6	30.7	26.8	28.5

Source: Primary Data

Table 4 shows the results of the responses on the use of various e-learning tools. 25.4 percent of the respondents reveal that they do not use you tube or 28.9 percent says that they rarely use you tube for e-learning.39.5percent of the respondents sometimes use online assessment and quizzes where as 24.9 percent muse them most of the times. 23.2 percent respondents sometimes study through online classes, 17.1 use them most of the times and 28.1 use them all the time. 31.1 percent of the respondents sometimes the websites for learning whereas 25 percent use them most of the times. 37.3 percent of the respondents use e-library for gaining knowledge, 19.3 percent rarely sue them where as 15.8 percent use them most of the times. The results show that 24.6 percent respondents use MOOC platforms all the time, 22.4 percent of the respondents sometimes use MOOC platforms whereas 20.2 percent use them most of the times. Finally, 30.7 respondents use video conferencing sometimes, 26.8 use it most of the times whereas 28.5 percent respondents use video conferencing for e-learning

all the times.

**Table 5**  
**Student Engagement for E-learning**

	<b>Learning Management</b>	<b>Cognitive Problem Solving</b>	<b>Interaction with Faculty</b>	<b>Peer Collaboration</b>
<b>Mean</b>	3.8936	3.8781	3.8575	3.9313
<b>Std. Deviation</b>	.60825	.63527	.59686	.64779
<b>Range</b>	4.00	4.00	3.50	3.33
<b>Minimum</b>	1.00	1.00	1.00	1.00
<b>Maximum</b>	5.00	5.00	5.00	5.00

Source: Primary Data

The table 5 above shows the mean values of the parameters of Student engagement measured on the Likert scale. The mean values for all the parameters are greater than 3 (3.89, 3.87, 3.85 and 3.95) showing that the respondents agree on the effectiveness of the e-learning programs for student engagement. Although the results also reveal that the respondents do that find the e-learning to be highly engaging.

**Table 6: Motivation for E-learning**

	<b>Satisfaction</b>	<b>Confidence</b>
<b>Mean</b>	3.7675	3.6667
<b>Std. Deviation</b>	.66100	.70659
<b>Range</b>	4.00	4.00
<b>Minimum</b>	1.00	1.00
<b>Maximum</b>	5.00	5.00

Source: Primary Data

The table 6 above shows the mean values of the parameters of Student motivation measured on the Likert scale. The mean values for all the parameters are greater than 3 (3.76 and 3.66) showing that the respondents agree on the effectiveness of the e-learning programs for student motivation. Although the results also reveal that the respondents do that find the e-learning to be highly motivating.



The hypothesis of the present study includes:

**HO<sub>1</sub>:** There is no positive relationship between student engagement and motivation for e-learning.

In order to statistically prove the hypothesis 1-tailed Pearson Correlation has been used. The statistics measures the correlation between all the parameters of student engagement and motivation as well as overall correlation between the two parameters.

### Correlation Analysis

**Table 7: Correlation Analysis**

		<b>Student Engagement</b>	<b>Motivation</b>
<b>Student Engagement</b>	Pearson Correlation	1	.703**
	Sig. (1-tailed)		.000
	N	228	228
**. Correlation is significant at the 0.01 level (1-tailed).			

Source: Primary Data

Table 7 shows the results of the correlation analysis to measure if there exists a positive correlation between the student engagement and motivation. The p value is significant which means we reject the null hypothesis. The correlation coefficient .703 shows that the correlation between the two is positive and the strength of the relationship moderate to high.

### Independent Sample T- test

**HO<sub>2</sub>:** There is no significant difference in student engagement of graduate and post-graduate courses for e-learning.

**Table 8: Independent Sample T- Test: Student Engagement**

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Student Engagement	0.646	226	0.519	0.05037	0.07795	-0.10322	0.20396

Source: Primary Data

The results shown in the table 8 for Student Engagement can be interpreted as follows: the p value is 0.519 which is greater than .05. Hence, we accept the null hypothesis can conclude that there is no significant difference

in the student engagement for graduate and post graduate students.

**Table 9 : Statistical Values on the Basis of Degree: Student Engagement factors**

	<i>Degree</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Std. Error Mean</i>
<b>Student Engagement (overall)</b>	Post Graduate	78	3.9303	.51403	.05820
	Graduate	150	3.8799	.57994	.04735
<b>Learning Management</b>	Post Graduate	78	4.0128	0.54935	0.0622
	Graduate	150	3.8317	0.62959	0.05141
<b>Cognitive Problem Solving</b>	Post Graduate	78	3.859	0.61927	0.07012
	Graduate	150	3.888	0.64526	0.05269
<b>Interaction with teacher</b>	Post Graduate	78	3.8654	0.56651	0.06414
	Graduate	150	3.8533	0.61387	0.05012
<b>Psychological Motivation</b>	Post Graduate	78	3.984	0.55878	0.06327
	Graduate	150	3.9467	0.66149	0.05401

Source: Primary Data

**Table 10: Independent Sample T- Test Result**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Learning Management	Equal variances assumed	1.661	0.199	2.15	226	0.033	0.18115	0.08424	0.01516	0.34715
	Equal variances not assumed			2.245	175.739	0.026	0.18115	0.08069	0.0219	0.34041
Cognitive Problem Solving	Equal variances assumed	1.011	0.316	0.327	226	0.744	-0.02903	0.08886	-0.20412	0.14607
	Equal variances not assumed			0.331	161.831	0.741	-0.02903	0.08771	-0.20222	0.14417
Interaction with teacher	Equal variances assumed	0.082	0.775	0.144	226	0.885	0.01205	0.0835	-0.15249	0.17659
	Equal variances not assumed			0.148	167.471	0.882	0.01205	0.0814	-0.14866	0.17276
Psychological Motivation	Equal variances assumed	0.61	0.436	0.425	226	0.671	0.03731	0.08772	-0.13555	0.21016
	Equal variances not assumed			0.448	180.562	0.654	0.03731	0.08319	-0.12684	0.20145

Source: Primary Data

Table 9 and 10 shows the result of independent sample t- test to analyze if there exists any difference in the mean values for student engagement for e-learning on the basis of degree; post graduate and graduate courses. The p-value for factors related to student engagement is : psychological motivation (0.67), interaction with teacher (.885), cognitive problem solving (0.744). Therefore, null hypothesis is accepted for the above. However, the p- value for learning management is (0.34) which is less than .05 giving evidence to reject the null hypothesis showing there is a difference in the mean value for learning management on the basis of degree.

**HO<sub>3</sub>**: There is no difference in the level of motivation of graduate and post-graduate courses for e-learning.

**Table 11: Independent Sample t- test: Motivation**

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Differ- ence	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Moti- vation	.683	226	.495	.06031	.08826	-.11362	.23423

Source: Primary data

The results shown in the table 11 for Student Motivation can be interpreted as follows: the p value is 0.495 which is greater than .05. Hence, we accept the null hypothesis can conclude that there is no significant difference in the student motivation for graduate and post graduate students.

**Table 12: Statistical Values on the Basis of Degree: Motivation**

	<i>Degree</i>	<i>N</i>	<i>Mean</i>	<i>Std. Devi- ation</i>	<i>Std. Error Mean</i>
<b>Motivation (overall)</b>	Post Graduate	78	3.8090	.54957	.06223
	Graduate	150	3.7487	.67103	.05479
<b>Satisfaction</b>	Post Graduate	78	3.8077	0.57958	0.06562
	Graduate	150	3.7467	0.70054	0.0572
<b>Relevance</b>	Post Graduate	78	3.8103	0.56467	0.06394
	Graduate	150	3.7507	0.67949	0.05548

Source: Primary Data

**Table 13: Independent Sample T- Test Result: Factors**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
<b>Relevance</b>	Equal variances assumed	0.936	0.334	0.664	226	<b>0.507</b>	0.05959	0.08972	-0.1172	0.23638
	Equal variances not assumed			0.704	182.997	<b>0.482</b>	0.05959	0.08465	-0.10743	0.22661
<b>Satisfaction</b>	Equal variances assumed	0.604	0.438	0.661	226	<b>0.51</b>	0.06103	0.09239	-0.12103	0.24308
	Equal variances not assumed			0.701	183.658	<b>0.484</b>	0.06103	0.08705	-0.11073	0.23278

Source: Primary Data

Table 12 and 13 shows the result of independent sample t- test to analyze if there exists any difference in the mean values of motivation for e-learning on the basis of degree; post graduate and graduate. The p-value for factors related to student motivation factor relevance and satisfaction is greater than .05, 0.51 and 0.57 respectively. Hence, the null hypothesis is accepted for the same. There exists no significant difference in among the e-learning for post graduate and graduate courses

### Findings

- The results on the use of the e-learning suggest that 20 percent of the respondents use them always, 40 percent of the respondents use them sometimes, 25 percent of the respondents conduct all their studies through e-learning tools whereas 10 percent use them only when instructed by the teacher or the facilitator. Henceforth on the basis of the above interpretation it can be concluded that the more than 95 percent of the respondents are using the e-learning tools and only around 5 percent of the respondents do not use them.
- The results of the usage of various e-learning tools also draw an interesting conclusion. Most of the respondents use online classes, video conferencing, MOOC platforms and various web sites frequently. E-library is sometimes used by most of the respondents. You tube as an e-learning tool is rarely or sometimes used.

- The results of the effectiveness of the various e-learning tools brings about inferences about you tube, online classes, online assessment tools, e-library, MOOC platforms and video conferencing. It is interesting to note that respondents though do not use you tube for e-learning but find it to be very effective. The results also suggest that most of the respondents also find video-conferencing to be very effective and then in line are online assessment tools followed by online classes which are considered to be highly effective e-learning tools.
- Most of the respondents also feel that the e-library is moderately effective followed by the websites. However, it can be stated that the majority of the respondents do find all the e-learning tools to be effective or moderately effective. Very few respondents find the e-learning tools to be not effective at all or challenging to understand.

### **Conclusion**

The present investigation has proved to be successful in finding out the effectiveness of the e-learning for student engagement and their motivation which is imperative for the success of the goals of education. The main purpose of any education system is to keep the learners engaged and to build their confidence. The learners should be motivated and their curiosity should be stimulated for improving themselves. The e-learning should not be a hurdle in the interaction with the teacher for creating a learner centric environment. The future teacher education students became more aware and got to know the various open source E-Learning tools to be implemented in education and thus became adaptive towards E-Learning.

The results of the result propose that the learners are interested and adaptive towards e-learning tools. The learners find e-learning to be engaging enough to support their studies. The results suggest that they do not find e-learning to be a hurdle in interaction with the teachers for any feedback, discussion or fulfilment of their queries. The e-learning tools provides sufficient study aids and materials to support their subject of study, they are also helpful in developing the cognitive thinking ability among the learners which is also imperative for fulfilling the purpose of education. Overall, the outcomes of this study have confirmed that e-learning is an element which affects students' motivation.

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