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Perception of online learning environment and its effect on academic performance of students

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Abstract---Online Learning has become a norm, especially during the times of Covid. Many students, especially the college students, have been taking their courses via online platforms. As most of them are new to the online learning platforms, this study focuses on how well they are able to adapt to the online learning environment and in understanding the factors that can play a key role in determining the academic performance of students. The factors that can affect students while attending the online sessions are taken into account and how each factor has an impact on the academic performance of students are identified. The results taken from the study can be used to determine the factors that have contributed more to the student's academic performance.

Keywords---online learning, performance students, learning environment.

Introduction

Online learning or E learning has become a norm in almost all colleges and schools especially post covid time. Even before pandemic, several colleges in the country had offered numerous online courses and distance education courses to students. Through the distance education courses the students can take the courses at their respective homes and has to visit the colleges only for project submission and exam purposes. Online courses and distance education courses seemed favorable to students as they can learn at their comfort zone and pace. The pandemic has caused both students and teachers to adopt the online system of education. As they have adapted online mode for their education, they are finding newer ways to learn and communicate with themselves. E-learning is referred to as the system by which the course facilitators use the technology for teaching the students and delivering the course via online mode. This learning method has the potential to reach maximum number of students at the same

time and makes it comfortable for the facilitators to teach the students in their flexible timings. The students too find it comfortable as they can attend the sessions at their comfort zone and seated comfortably at their respective homes. There are no costs involved in terms of transportation or hostel mess etc. and it seemed to be a huge cost effective type of learning. As online type of learning is new to everyone, the teachers at first too found it difficult to adjust to online learning tools and mechanisms. With continuous learning, the teachers were able to adapt and find out more flexible mechanisms to reach students and address their queries. Even though there had been distance education college courses and parallel online courses taken for students from various colleges, the online education consumption rate has been increased dramatically. As various courses are conducted online and taken by students from their homes at their comfort zone, there have been several questions raised on how effective have been their online learnings and students perception of the online learning environment. This study aims to analyze how students and teachers view online courses. We examine the opinions of students regarding the impact of online courses. We also examine the support they receive from teachers, and views of teachers on the efficacy of online courses, the teaching methods they employ, and the training they receive. Findings from our study can help us decide how to impart effective learning to students.

Literature Review

Abdelrahim M. Gaffar, Salma Al-Neel, Mohamed H. Taha, and Yasar Ahmed (2018). They evaluated students learning perception in their environment and evaluated differences in students' perception regarding their academic performance. From the analysis they found out that high achievers perception of the learning environment is considerably superior to those of low achievers Bączek, Michał; Zagańczyk-Bączek, Michalina; Szpringer, Monika; Jaroszyński, Andrzej; Woźakowska-Kapłon, Beata (2021) they found an effective execution of internet education into the educational program requires a thoroughly examined technique and a more dynamic methodology. Ronald W. Stringer & Nancy Heath (2008) their study indicates neither the scholastic self-perceptions toward the start of the review nor changes in self-perceptions over the long haul anticipated changes in scholarly execution. Self-perception of scholarly ability can't play a straightforward, causal job in scholastic accomplishment. Pratiwi, Fitria Dwi; Mangunsong, Frieda (2020) this research study inspected the hypothetical model of friend social help's intercession in the impact that interactive abilities have on the scholarly self-idea of understudies. These outcomes showed that through peer social help, interactive abilities decidedly influence the scholastic self-idea of understudies with extraordinary necessities in comprehensive grade schools Dr. David A. Armstrong Ed. D. D (2011) Results from this study yielded proposals for changes in the plan of on the web and e-discovering that support understudy discovering that is lined up with workforce, understudy, and institutional view of online schooling. Florence Martin, Chuang Wang, and Ayesha Sadaf (2020) Discoveries from research studies show that educators' assistance as far as opportune reaction to questions and ideal input on tasks are significant in laying out teacher presence, understudy commitment in their courses, and working with more elevated levels of learning. Jung Wan Lee (2020) The review investigates the jobs of educational facilitators who might impact understudy execution of online

class exercises and their scholastic accomplishment. The discoveries recommend that understudy execution and scholastic accomplishment in internet based classes are not free of facilitator commitment. Dr. Rebecca Hoey (2017), Discoveries propose the recurrence of educator association in conversation affects understudy results. T. Muthuprasad S. Aiswarya, K.S. Aditya, Girish K. Jha (2021) In this review, they center around getting Agricultural Student's insight. The outcomes showed that larger part of the respondents (70%) is prepared to settle on internet based classes to deal with the educational plan during this pandemic. Greater part of the understudies liked to involve advanced mobile phone for internet learning. Suvi Lakkala, Satu Uusiautti, Outi Kyro Ammala, Perttu Gronofors (2020) In this review, they evaluated how Finnish educators' expert activities support their understudies' commitment and positive mental self-portrait at school. They conceptualized the discoveries of this review inside the hypothesis of comprehensive instructional method to improve the comprehension of the instructor skills important to fabricate understudies' mental self-portrait and commitment with their examinations. Jose Mari Calamlam, Fritz Ferran, Lee Gerard Macabali (2021) A direct relapse examination was utilized to decide the effect of discernment on the web based learning climate to self-managed learning. Notwithstanding, insight doesn't influence students' scholarly accomplishment. The review prescribes involving methodologies to additionally foster constancy in acclimating to web based learning in the midst of starting misfortunes.

Motivation for the Study

Our Study titled "Perception of learning on Students Academic Performance" encompasses of 5 independent variables and 1 dependent variable. Our study has collected variables that are typically experienced by students during the online class sessions and these variables are playing a huge role in the dependent variable. Our study aims to find out which variable has a positive association with the dependent variable chosen for the study and the most significant variable that has contributed to our dependent variable, which is, academic performance. Our study is going to be different in a way that this study has incorporated variables that can contribute to academic performance, instead of focusing on a single variable.

Research Questions

The study aims to look onto look onto find out the answers to the following questions:

1. What are the factors in the online environment that affect academic performance in online learning?
2. Among the factors that influence the academic performance of students, which one has maximum influence?
3. How Online learning has impacted the students overall learning experience?
4. Is student's gender having an influence on their academic performance?

Introduction to Research Topic

The Rationale for the Study

The rationale behind the study is to understand the perception of online learning environment and its effect on academic performance of students. The study addresses the perception of students from dimensions like Students Academic performance, students' perception of learning, students- academic self-perception, students perception of the atmosphere, students social self-perception and self -directed learning and how these factors can play a critical role in impacting the student's academic performance via taking online classes. As online classes or learning has taken a surge, especially during the covid- era, the study aims to address the views of students regarding the online classes and whether it ultimately helps them in getting good grades.

Research Problem

The study focuses on addressing the factors that can have an impact on the academic performance of students. Online learning requires a lot of student participation and engagement with teachers as there are limitations on the mode of overall interaction between them. As it has become a norm, the study tries to find out the variable which has impacted the most on students learning and ultimately their performance. The study also finds out the overall student learning via taking courses through digital media.

Research Objectives

1. To assess the impact of online learning on the academic performance of students
2. To study the factors that play a key role in enhancing the effectiveness of online learning among the students

Research Methodology

Research Design

The research design allows the researcher to decide on the research methodology that is suitable for the topic of their study. The research design used in this particular study is descriptive.

Data Sources

Data can be defined as a quantitative or qualitative value of a variable. Data itself cannot be understood and to get information from data one must interpret it into meaningful information. Data sources are classified into Primary and Secondary. Primary data sources: This type of source uses surveys or experiments or any other direct observations. The primary data used for this study is the responses collected from post graduate students through structured questionnaires. Secondary data sources: This type of source may be conducted by collecting information from a diverse document or accessing electronically stored

information. The secondary data used for this study is the data collected from research articles and online website articles.

Sampling Design

Sample Size: 133

Sampling Frame: Post Graduate Students

Sampling Area: Kerala

Performance Tool: SPSS

This study addressed research questions in the following seven areas.

- Student's Academic Performance – This dependent variable takes into account the academic performance of students during the online learning. This variable is dependent on 6 independent variables of the study and these 6 variables together decide the effect on students academic performance.
- Student's perception of learning – This variable takes into account the students perception on learning happening during online classes. It influences the student studying factors, decides on whether learning is happening as effectively as they were in physical classrooms, the motivation level with respect to learning, is learning happening effectively and also the students satisfaction level with respect to online classes.
- Students' Academic self-perception – This variable decides on the self-perception of students regarding their performance in courses taken via online. The variable address the students concerns regarding the grades that they have secured in various subjects and also the satisfaction level in the marks that they have secured for various subjects.
- Students perception of the atmosphere – This is another independent variable taken for the study which describes the perception of students regarding the online learning environment. It measures whether there is an appropriate environment for the students to learn and grow.
- Students Social self-perception – This variable looks upon the views on how they are seen or are judged by others. This variables measures the students perceptions on how they are viewed in the eyes of others, whether there is sufficient support from other peers to facilitate the online learning.
- Self-Directed Learning – This variable is considered as a learning strategy that is responsible for one's own learning process or the desire to excel themselves during the online process. It is a self-driven learning strategy. It measures whether the students approaches in terms of learning by themselves or through other support.

Procedure

As the first step, a Google form was created with the approved questionnaire. Our Research Design was Descriptive Research, type of Study was Cross-Sectional Study and Sampling Method used was Convenience sampling. Afterwards, created Google form was circulated among the participants. It took one week for completing data collection.

Survey design

Through this study we investigated the perception online learning of students during pandemic period and its effects in their academic performance.

Data Collection and Analysis

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	SPL, SPA, SASP, SDL, SSSP ^b	.	Enter
a. Dependent Variable: Academic performance (AP)			
b. Independent Variables:			
a) Students perception on teachers (SPT)			
b) Students perception of learning (SPL)			
c) Students perception of the atmosphere (SPA)			
d) Students' academic self-perception (SASP)			
e) Self-directed learning (SDL)			
f) Students social self-perception (SSSP)			

Model summary^b

Predictors: (Constant), SPL, SPA, SASP, SDL, SSSP

Model	R	R square	Adjusted R square	Std. Error of the estimate					
					R square change	F Change	df1	df2	Sig. F Change
1	.286 ^a	.082	.046	6.57054	.082	2.271	5	127	.051

a. Dependent Variable: AP

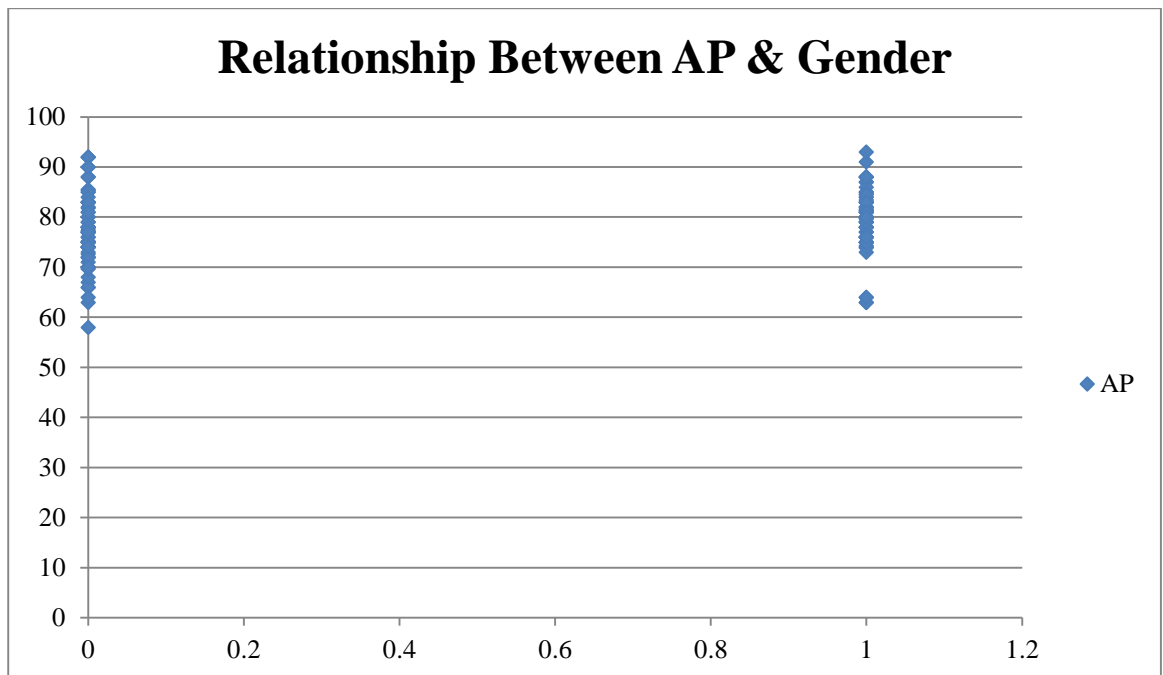
Here R value represents the correlation between our dependent and independent variables. R square shows the total variation for the dependent variable described by the independent variables. For an effective model a value greater than 0.5 is necessary. In this case our value is .082, which makes our model in effective.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	69.043	3.892		17.738	.000		
SDL	-.002	.364	-.001	-.006	.995	.344	2.906
SSSP	-.039	.347	-.015	-.112	.911	.387	2.586
SPL	.756	.366	.257	2.068	.041	.470	2.129
SPA	-.478	.351	-.189	-1.363	.175	.375	2.668
SASP	.483	.373	.166	1.295	.198	.442	2.260

From the above table it is understood that there are no significant effect in academic performance due to self-directed learning, students' social self-perception, students' perception on atmosphere and students' academic self-perception. This is because of the significance value of all above mentioned variables are higher than the acceptable limit of 0.05.

There is significant change in academic performance due to students perception about learning, because of its significance value is 0.041 and it's acceptable. With 1% increase in students' perception about learning, their academic performance will increase by 0.756% (B value).



In this scatter plot diagram X axis represents gender (0=Male, 1=Female). On Y axis academic performance is represented. From this diagram, we can understand, female participants have a slightly better academic performance compared to that of male participants.

Discussion

This study deals with assessing the relation between post graduate student's academic performance and five independent variables within Kerala. This research is done during the covid 19 pandemic, when colleges were required to move their education virtual. Majority of our participants were MBA students, who required a professional in campus experience for a better understanding about the course. Still they were shifted to online learning as to cope up with covid 19 protocols. Not much articles have been published concentrated on the particular location. We had male and female respondents were mostly between the ages of 20-25. We had a small percentage of working class who are also

pursuing studies part time. Popularly participants responded that they are comfortable using various online applications used for attending online lectures. But a minor percentage suggested they were not able to cope with the shift from offline to online education. Participants had a good understanding about the learning objective and they were confident in clearing the exams. As most of them had a strategy for learning they continued to apply that in online learning and reported they works for a certain limit. The shift from offline to online learning made students to be more conscious about their education and that helped in developing problem solving skills. As our regression model suggests, student's perception about learning have an effect on their academic performance. Students responded that they feel encouraged to clear the doubts whenever possible. Students reported the support from teachers have motivated them. There are students who responded as they experienced a huge amount of stress during the online sessions. From the responses we were able to analyse that, for majority students their academic performance haven't changed considerably during online learning. In addition to the analysis conducted, we also observed the relation between respondent's gender and its effect on academic performance. It was analyzed through scatter plot diagram, and we obtained a result we shown that female participants have a better academic performance compared to that of male respondents.

As per our study, students' perception of the atmosphere didn't have an effect of students' academic perception. This might be because of the homely comfortable atmosphere in which they were attending their online sessions. In case of self-directed learning, students were in a closed environment where they didn't have an encouragement for taking charge on their studies. In case of students' social self-perception, even if everyone is linked by internet students haven't got an opportunity to gather around together for combined studies as in an offline environment. Variable students' perception about learning also didn't show any significance in academic performance, reason for this might be students didn't have an further enthusiasm regarding learning in this online mode of learning.

Limitations: Our respondents were 133, so there is a possibility of bias as we only considered a small group of respondents. As we shared the questionnaire online itself, it may be the reason for low responses. Another limitation is that the study was conducted between Dec 2021 and Jan 2022. Situations and responses may differ if the study was conducted in a different time period.

Findings

The model that we have used for this study is SPSS. The value of R square is 0.082. This means that 8.2% of the variance in independent variable which is academic performance can be derived from the independent variables. Coefficient of Determination is another name for R Square. 0.046 is the adjusted R square. R square has a value of 0.013. $1 - ((1 - R_{sq})(N - 1) / (N - K - 1))$. Because the number of data is limited and the predictors are big, the R Square and Adjusted R Square will differ significantly.

0.046 is the adjusted R square. Each independent variable that we have taken for our study determines the variance in the dependent variable. R square has a

value of 0.082. Because the number of data is limited and the predictors are big, the R Square and Adjusted R Square will differ significantly. Significance F change is 0.051. From the Anova Table, we can see that there are 3 sources of variance which are: Regression, Residual and Total. The total variance is explained as the sum of Regression and Residual.

The Sum of Squares, are associated with total, model and residual which we can get from Anova table. Here the formula for calculating the sum of squares is given by Sum of Regression and Sum of residual. Here, by dividing the value of Sum of Regression and Sum of Residual, the value which we get is equal to value of R Square which is 0.082. The reason for this is because R square is the proportion of the variance which is explained by the independent variables which we have taken for the study. From the table we can see the values of df, which stands for degrees of Freedom. The total variance has degrees of freedom or df of N-1. In this study, there are N=133, so the DF will be 132. From the Coefficient Table, we can see that significance value for each of the independent variables taken for the study is higher except for the variable Student's Perception of Learning (SPL). The variables are termed to be significant if the P value is less than 0.05.

The Significance value for SDL is 0.995 which is not statistically significant as the value is greater than 0.05. The value is seemed not significant due to reason that there is no self-initiative from the part of students in the online learning process. The students are not ready to plan and execute the learning process by themselves. They are seemed to be less self-motivated to open to learning process. The Significance value for SSSP is 0.911 which is not statistically significant. The value is not significant due to the reason that there is no interaction among students in virtual learning as compared to in classroom sessions. The peer to peer interaction can help a lot in a student's learning process. As the learning happens in an online mode, the students find it difficult to get along with peers and have an interaction due to the limitations in the online learning process.

The significance value for SASP is 0.198 which is not statistically significant. The value for this variable is not seemed to be significant due to the reason that the students seemed less confident on their academic abilities while pursuing online classroom sessions. They seemed to be pessimistic in their ability to learn and scoring good grades in exams.

The significance value for SPL is 0.041 which is statistically significant as the value is less than 0.05. The variable is significant due to the reason that students believe that the online classroom sessions are as effective as the physical classrooms. As the classroom sessions are conducted effectively, there is also a sense of motivation among the students to learn and excel. They are also satisfied with the learning that taking place through the virtual classroom sessions. The significance value for SPA is 0.175 which is not statistically significant. The reason for this insignificant value is that the environment in which the student is accustomed is favorable to their learning. There is suitable environment for them to learn, mound and grow. By analyzing the relationship between gender and academic performance we found out, female participants had a better academic performance than that of male participants during this particular time period.

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