ONLINE VS OFFLINE LEARNING: THE CHANGES, EFFECTIVENESS, BARRIERS & FUTURE.

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Abstract

Offline and Online Learning helps people to be educated and become productive members of society. The current work was focused on the intention of the students to use online platforms. To analyze this one survey was conducted where the major population involved were students belonging to higher secondary, undergraduate, and postgraduate. A total of 351 participants responded to the survey and the results were precise and promising. The study was focused on the effectiveness like convenience, flexibility, freedom of usage, skills and technical enhancement, and barriers like administrative issues and lack of interaction/motivation of the online learning platforms that affect the intention of the students of using online platforms. The results of the survey were analyzed using the PLS-SEM technique using SMART PLS 2 software. The results revealed that there are some technical loopholes in the online learning platforms. The limitations and the barriers of online learning can hinder this study and can be considered for future research.

Keywords: Offline Learning, Online Learning, Education, Effectiveness, Flexibility, Barriers, PLS-SEM, Internet, Virtual, Skills, Technology.

Introduction

According to the Indian Constitution Article 45 education is an elementary and primary need or thing for the children's up to fourteen years of age. The technologies are developing and have developed, which in results give us a new way to gain skills and learn or get knowledge. **Online learning** is one of the varieties of education modes where, students use their devices like computers, laptops, or mobile phones with the help of net connectivity. We all should thank our developing technologies and the internet, which is helping us to boost our knowledge and skills by opening a wide range of learning options for us. E-learning is providing benefits to both learners and employers or training peoples.

Nowadays the traditional method of learning is changing and developing. Hence, online education came into the picture, the main difference between Online and Offline learning is location and preference. Online learning can be conducted practically or virtually from anywhere across the world using their access. Online learning is increasing at a rapid rate of 60 to 70%. We all have seen the COVID pandemic in 2020 which has affected our education sector badly and has generated fear of completing education and course in the learners as well as trainers, as schools and colleges were asked to be closed temporarily. Various schools, colleges, and universities across India have started conducting online classes and have partnered with some third-party platforms to provide online learning to their students, which is a virtual learning with a wide range of functions and disciplines to get academic degrees and are managed by the backend system of that vendors and run by the faculties of the institutions. Some of the third-party vendors are: Code Tantra, Google Meet, Microsoft Teams, EdTech, etc.

The Online form of learning has many advantages, which includes flexibility and feasibility, can be done from anywhere while traveling or doing some other works, the thing we only need is good internet speed and connections. The flexibility in online education involves cost and time effectiveness which provides live interaction and high-quality learning and more practical knowledge with the help of internet or broadband connections (Bartley & Golek, 2004; De la Vare, Keane, & Irvin in 2001; Gratton- Lavoie & Stanley, 2009; Koller & Ng, 2014).

Although, there are some barriers too of online learning which includes social interaction, administrative/instructor problems, time and support for studies, and learner motivation. Less important barriers were technical problems, a scarcity of technical ability, and a scarcity of educational ability. The degree to that barriers to learning were perceived was reciprocally associated with comfort and confidence levels with mistreatment on-line learning technologies.

According to the foremost recent survey from Babson Survey analysis cluster, over 30% of upper education students within the us area unit taking a minimum of one distance course. on-line education may be a good selection. As a student, this may be a helpful learning technique for sharpening your skills in a very tough subject or learning a brand-new ability. Online education permits the teacher and the student to line their own learning pace, and there's the additional flexibility of setting a schedule that matches everyone's agenda. Learning on-line teaches us very important time management skills, that makes finding an honest work-study balance easier.

Review of Literature

Kaur et al. (2020) studied that the effectiveness of the online learning by internet, communication, skills, knowledge in medical students by taking a cross-sectional survey from the sample size of 983 and analyzing the results using mean and standard deviation. The result of the paper was that online learning is equally effective as compare to offline learning in some parameters. Shenoy et al. (2020) studied that the student's engagement and learning by technology adoption and teaching by taking the interviews of a sample size of 20 and analyzing the results using MS-Excel. The results of the paper were that the class engagement is better online than offline.

Swan (2019) studied that the barriers in the online learning occurs due to arguing for commonly agreed upon protocols, tension between social and cognitive presence by taking surveys from the sample size of 270 and analyzing the results using Col framework. The result of the paper was that some difficulties were found in communication and tension in students' point of view. Yen et al. (2018) studied that the course satisfaction in face-to-face learning and online learning by taking the surveys from the sample size of 85 and analyzing the results using Multivariate Analysis of Variance. The results of the paper were that online classes can be just as effective as face-to-face classes in producing satisfactory student outcomes.

Kebritch et al. (2017) studied that there are some issues in the online participation, and it was rather difficult to transit from face-to-face learning to online learning with the help of quantitative, qualitative and mixed methods by taking the sample size of 400 and analyzing the results using Cooper's framework. The result of the paper was that there are issues in learners' expectations from online learning and participation in online learning. Sood and Singh (2014) studied that the effectiveness of online learning by e-learning tools with the help of a questionnaire and analyzing the results using mean, standard deviation and p-value. The results of the paper were that internet advancement has a great impact on ways of transferring knowledge. And helped in developing countries for bright future of student.

Anna Ya Ni (2013) studied that the effectiveness of the online learning on grades by teaching methods and performances and assessments with the help of the surveys on the sample size of 148 and analyzing the results using mean, chi-square value and p-value. The result of the paper was that on the basis of grade, online learning

is less effective in terms of calculative class. Baig (2011) studied that the effectiveness of the online learning, face to face learning and the grades in school with the help of a questionnaire from a sample size of 40 and analyzing the results using t-test, mean and SPSS. The result of the paper was that online learning is highly effective but there is a need of more facilities.

Research Objectives

- ☘ To study the factors that change the education mode from offline to online.
- ☘ To study the factors that contribute to the effectiveness of online education.
- ☘ To study the factors that act as barriers in making online education success.
- ☘ To study the factors which will making online education successful in future.

Research Methodology

Our research study scope focuses on finding the comparison between offline learning and online learning, the effectiveness of online learning, its barriers, and online learning future. We have focused on or collecting the data from the college-going students from different regions and places to measure the four components of this research paper. **Convenience sampling technique** has been used for performing research which as a research design based on **Exploratory**, data has been collected through **Primary** and **Secondary data** with a sample size of **351** from **PAN India.**

Statistical Technique: We have used PLS SEM technique, and a software named as SMART PLS 2 for analyzing data. It stands for **Partial Least Square Structural Equation Modelling** which measures the cause and effects in the relationships of the model with observed variables and can measure small as well as large sample size data.
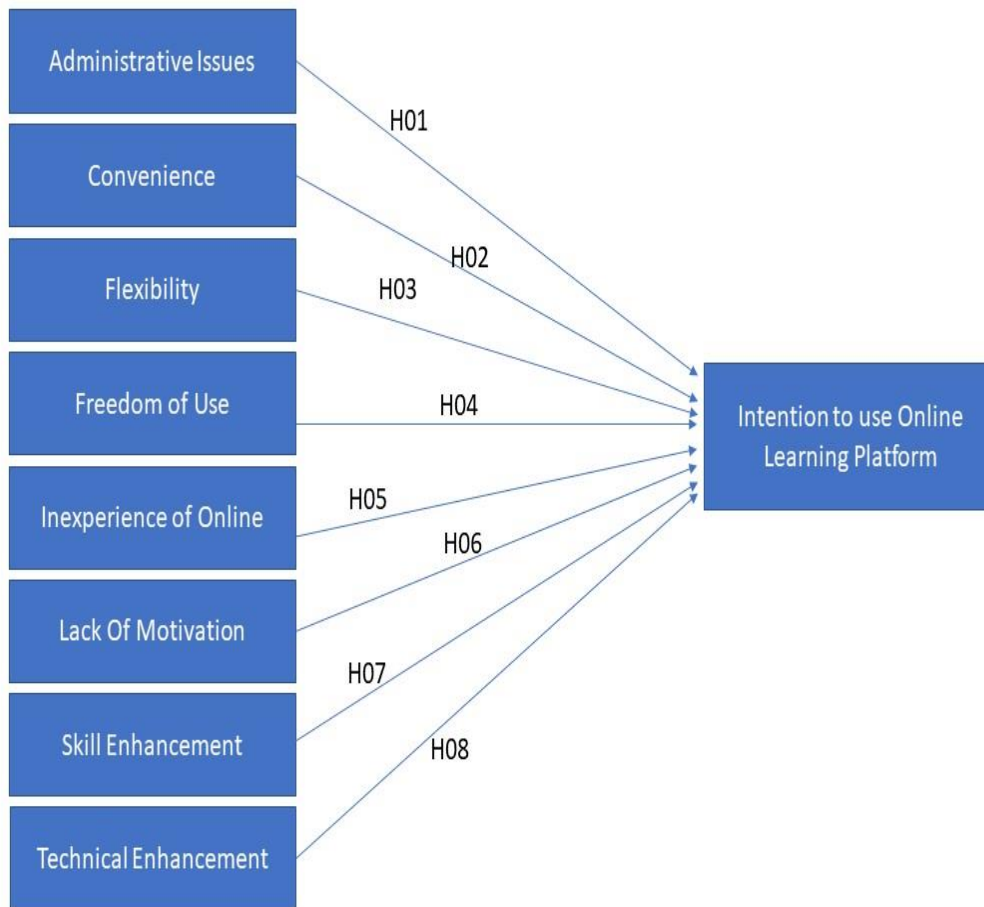
Conceptual Framework:

Fig 1: Conceptual Framework

Hypotheses

- H01: Administrative Issues has no effect on Intention to use Online Learning.

- H02: Convenience has no effect on Intention to use Online Learning.

- H03: Flexibility has no effect on Intention to use Online Learning.

- H04: Freedom has no effect on Intention to use Online Learning.

- H05: Inexperience has no effect on Intention to use Online Learning.

- H06: Motivation has no effect on Intention to use Online Learning.

- H07: Skill Enhancement has no effect on Intention to use Online Learning.

- H08: Technology Development has no effect on Intention to use Online Learning.

Descriptive Analysis

Our descriptive analysis says that measuring the effectiveness of online learning is effective, where out of 351 responses students belong to age 20-25 have filled this surveyor more and there are only 41% of students who belong to post-graduation. When we have asked them about doing online courses 94.6% of respondents had done online courses whereas 5.4% have never done, where some have to pay amount to do courses, in which 37% have paid more than Rs.1000, whereas 37% have done courses for free. Almost every respondent is aware of online platforms like Google Meet (84.9%), Zoom (78.6%), etc. Before enrolling into any online course respondents looks at some criteria's which includes course content, price, time, adaptability, skills, etc.

If we talked about platform issues out of 351 respondents only a few said that they do not face any issue while using online platforms, 33.3% faces communication barriers, 27.6% content issue, and 27.1% face issue of visualization. When we asked them about the connectivity out of 351 respondents 55.3% users are using 4G Internet to perform Online Learning, while 34.2% are using Wi-Fi for learning, in which some of them (78.3%) were also facing connectivity issues because of weather conditions (57%), 52.7 % SIM signals 25.4% belongs to rural areas and 10% are having an issue of the mobile version. Some of them 222/351 (63.2%) also see a change in their behavior concerning using online learning in terms of technical enhancement, improving communication, and so on. Overall, 197/351 (56.1%) are satisfied with the online learning, whereas 96 (27.4%) are confused and 58 (16.5%) are not satisfied.

Secondary Research

From the last two decades we have been migrating from offline learning to online learning and many educators are continuously exploring the utilization of digital media and technology in the learning. Apart from being in the digital world still many of the students are rely on the blackboard teaching. Online learning includes using internet to learn the concepts in the form of videos, presentations, texts and tutorials. The main benefits of the online learning are ease of studying and flexibility which makes online learning much preferable. The only drawback of the online learning is the lack of face-to-face interaction between the students and the teacher. Traditional learning helps a student to be more interactive and disciplined. With some changes in the online learning, it can be the boon to students in pursuing their higher studies.

Results

Convergent Validity is a form of construct validity that is the main target for performing research/study on Online Learning, which is to be measured in the form of average variance (AVE) that measures variance and constructs the relationship between variance and its error. The accurate value/result for AVE should be > 0.5 which is said to be adequate.

TABLE 1 MEASURING OUTER LOADINGS

Factors/Variables	Statements	Outer Loadings
Administrative Issues	Adm_Iss1	0.9192
	Adm_Iss2	0.9311
	Adm_Iss3	0.9168
	Adm_Iss4	0.9075
Convenience	Con1	0.8742
	Con2	0.8817
	Con3	0.8258
Flexibility & Feasibility	Flx1	0.8274
	Flx2	0.8438
	Flx3	0.8679
	Flx4	0.8597
Freedom of Use	Fre1	0.7824
	Fre2	0.8427
	Fre3	0.8709
	Fre4	0.8423
In Experience of Online	InExp2	0.8219
	InExp3	0.8522
	InExp4	0.5835
	InExp5	0.834
Lack of Interaction/Motivation	LACK_INT2	0.874
	LACK_INT4	0.9127
	LACK_INT5	0.8948
	LACK_INT6	0.8882
Purchase Intention	PI1	0.8741
	PI2	0.8915
	PI3	0.8938
	PI4	0.8911
Skill Development	Ski1	0.8665
	Ski2	0.8987
	Ski3	0.89
	Ski4	0.8543
	Tech3	0.8766

Technology Enhancement	Tech4	0.8931
	Tech5	0.8769
	Tech6	0.8782

In the above given **Table 1**, we can see Validity level of the Factors variance. In the column 1, all factors for measuring we have taken. In column 2, the statements under the factor have been given, and In column 3 the validity score have been given for the statements. The statements whose consistency is above 0.7 is only approved or validated.

TABLE 2: MEASURING VALIDITY & RELIABILITY

Variables	AVE	Composite Reliability	R Square	Cronbach's Alpha
ADM_ISS	0.844	0.9558	0	0.9392
CONV	0.7412	0.8957	0	0.8259
FLX	0.7222	0.9123	0	0.8718
FREE	0.6975	0.9021	0	0.8552
INEXP	0.6094	0.8595	0	0.8223
INT_USAG	0.788	0.937	0.7757	0.9103
LACK_INT	0.7967	0.94	0	0.9163
SKILL	0.7701	0.9305	0	0.9004
TECH	0.7765	0.9329	0	0.9042

In **Table 2**, we can see that all constructs' values have been given, factors AVE value is also more than 0.5, whereas Composite Reliability & Cronbach's Alpha has the value more than 0.7. Hence, we can say that our respondent's Intention for Online Learning, Internal Reliability and Composite Reliability is established.

TABLE 3: RESULTS OF DISCRIMINANT RELIABILITY

Variables	ADM_ISS	CONV_	FLX	FREE	INEXP	INT_USAG	LACK_INT	SKILL	TECH
ADM_ISS	0.9187								
CONV	-0.1142	0.8609							
FLX	-0.1706	0.8014	0.8498						
FREE	-0.0698	0.7169	0.8010	0.8352					
INEXP	0.5774	0.1165	0.1119	0.1455	0.7806				
INT_USAG	-0.1753	0.6905	0.7719	0.7876	0.1163	0.8877			
LACK_INT	0.8808	-0.0885	0.1461	0.0765	0.5403	-0.2245	0.8926		
SKILL	-0.1951	0.5761	0.7405	0.7851	0.1499	0.8201	-0.2130	0.8776	
TECH	-0.1399	0.7609	0.8067	0.7904	0.1082	0.7080	-0.0902	0.7390	0.8812

Discriminant Validity is measured by the questionnaire which shows there is no correlation between factors and their variance. All the construct which we are using should be different from each other. Above shown **Table 3** is showing correlation matrix. The criteria of proving discriminant validity have been taken from **Formell and Lacker (1981).** The discriminant value we have find out with the help of Smart PLS2 software which has calculated the AVE square root value shown as highlighted in the above table.

Our administrative issues (ADM_ISS) variables show a value of 0.9187, convenience/ feedback (CONV/FEED) variables of 0.809, its flexibility (FLEX) variables of 0.8498, online learning freedom of use (FREE) has a variable of 0.8352 and so on. Hence, we can conclude that the study factors/variables relate more strongly to their factor than others and the study factors are not linked.

Path Modelling

Structural Equation Modelling measures the cause and effects in the relationships of the model with observed variables. The model estimates the observing variables, it analyses the relationship between factors. In this model, two types of methods are applied: where endogenous are identified easily, and exogenous its dependent variables are like its independent variables.

TABLE 4: PATH MODELLING

Relationships	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)	Result
ADM_ISS -> INT_USAG	0.1562	0.1434	0.0615	0.0615	2.5394	Rejected
CONV -> INT_USAG	0.1936	0.2051	0.0641	0.0641	3.0214	Rejected
FLX -> INT_USAG	0.1853	0.1821	0.0727	0.0727	2.5505	Rejected
FREE -> INT_USAG	0.2241	0.2326	0.0772	0.0772	2.9038	Rejected
INEXP -> INT_USAG	0.0174	0.0192	0.0675	0.0675	0.2578	Accepted
LACK_INT -> INT_USAG	-0.2283	-0.2188	0.0607	0.0607	3.7579	Rejected
SKILL -> INT_USAG	0.4676	0.445	0.0618	0.0618	7.5605	Rejected
TECH -> INT_USAG	-0.1219	-0.1182	0.0618	0.0618	1.9737	Rejected

In **Table 4**, we can see that T-Statistics is greater than (>) 1.96 for all null hypotheses. We have accepted our null hypotheses based on inexperience in use of Online Learning and rejected rest of the null hypotheses. We have accepted our null hypotheses with the value of 0.2578, and rejected its alternative hypothesis, which says that respondents are experienced while using Online platforms or learning.

TABLE 5: PREDICTIVE ANALYSIS

Total	R2	Explanation	SSO	SSE	1-SSE/SSO	Predictive Relevance
INT_USAG	0.7757	Moderate to High	1084	427.8784	0.6053	Substantial

We can find the value of Q^2 by using the statistical formula:

$$Q^2 = 1 - SSE/SSO$$

In **Table 5**, we can see our Prediction of the Model which is between moderate to high. If our R^2 value will be higher it will show the impact of our independent variables on the dependent. In our Predictive Analysis Table, the R^2 value is 0.7787, which means 77% of our respondents affected by our independent variables and their intention to use online learning.

Managerial Implications

Educational institutes have now embraced the online learning and the number of students enrolling into online courses are also increasing. With advancement in internet technology the use of simulation games or multimedia will increase in online learning. In the future, with the increase in online libraries, simulations students will be drawn to opt for online degree than offline.

Online learning has shown a significant growth over the last decade and it is predicted that on online learning market will be $350 billion by 2025. With the continuous advancement in the sector of online learning it is safe to say that online learning is here to stay, and it is not difficult to imagine an exciting future of the online learning. If there will be timely feedback from the instructor be provided to the students and proper and quick technical assistance be provided, then the future of the online learning can be a big success. Online learning does create a time constraint for explaining the video contents and it disconnects the students from academic and administrative staff, if these barriers are overcome then the online learning will be more preferred in the future.

Limitations & Suggestions for Online Learning

The administrative issues, technical problems, and cost of online learning include having good internet connectivity and a new generation device for accessing online learning, paying fees for online learning, these all are limiting candidate's or respondents' intentions to use online learning. Online learning bringing isolation fear in the respondents, interactions, becoming extrovert all are creating barriers to using Online Learning.

Making Online learning more Flexible

We can make our learning more effective by adding on features like more practical classes, giving online learning access to any mode, by making online class more attractive, with the help of conducting quiz or poll, a healthy discussion to improve our communications, making our course syllabus more flexible by adding practical courses.

Online learning requires Less Time

Students are changing their mode from offline to online as online learning requires less time, and it also allows flexibility of time. Online learning allows us to get access to class at any time, at any place, and we can use any tools for doing online learning, as it has no time barriers. We can make online learning more effective in terms of time by allowing the offline course to be done in an online form, quick response or feedback from the faculty end.

Online learning helps in Enhancing Skills

Online learning also helps us in enhancing our skills such as helps us to improve our communication, it allows us to think practically and logical, it also helps us to improve our analytical skills with the technical skill. Skills can be enhanced by having more discussions on any individual topics during class or any course, more mathematical practice or multiple-choice questions, practical class on technical knowledge.

Online learning allows us to develop Technical Knowledge

Online learning helps us to gain technical knowledge, allows us to gain new experience, and has improved the quality of learning as compare to face-to-face or offline learning. Our technical skills can get more better or enhanced by introducing a course on learning new techniques such as knowledge on Artificial Intelligence or More advance Excel which will helps us in future.

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