Is Online Education System a Better Way of Learning? An Empirical Study from Learners' Perspective

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Abstract

The technological development and use of internet have transformed the way of providing education. Online learning is education organized remotely through web-based systems made available by connected devices like computer, tablet, smartphone etc. It consists of different interfaces such as simulation exercises, mini games, multiple choice surveys, puzzles etc. Interestingly, due to recent global pandemic hit, education system worldwide has to find new options of learning either by identifying an alternative to traditional education system or switching to online education system. The sudden change and lack of social interaction, loss of interest, and lack of in-person guidance from instructors

make learning very difficult in certain subjects, especially those which require practice. Further, due to lack of IT infrastructure, it appears that instructors and learners are facing many challenges including technical issues, lack of motivation, incomprehension etc. The aim of this paper is to understand which option between online and traditional education provides more satisfaction to learners and which is a better way of learning. Quantitative methodology is used on primary data collected through a questionnaire and analysed through EViews using chi square test. Grounded on behaviourism and social-learning theory, the findings support traditional form of education over online education.

Keywords: Training and Development, Online Education, Traditional Education, Pandemic, Learners, Social learning theory, France, India.

Introduction

Education has become one of the fastest growing sectors and unique growth indicator of a nation. The emergence of online education system has made it feasible for learners with occupied lives and restricted adaptability to acquire a quality education, which perhaps seemed difficult with traditional form of education. Web-based education has made its presence possible worldwide through a single connection of the internet. Despite of numerous advantages of online education over traditional form of learning, there are many shortcomings in it such as restricted group collaborations, connectivity issues, communication gap, uncertain learning outcomes etc. While online education was adopted as a contingent arrangement to provide break-free education to learners, it has now become a practice. Many claim it as an advanced technology-enabled learning method, whereas others, still find it difficult to accept it as a full-fledged learning model. Thus, it is important to understand more viable option of education from learner's perspective.

Online education is characterized as a media based, distant and asynchronous model of learning. It does not demand any face-to-face interaction between instructor and learner. Upheld by some instructional frameworks, it is a defined as formalized education and learning system that facilitates knowledge through electronic media and the internet, with low cost and without any specific physical settings of a place. Online education has grown rapidly with internet availability, cutting edge technology, and an enormous market. Online education can be categorized by its users: 1) University-Based Virtual Teaching are those where users are enrolled in academics for the purpose of obtaining degrees and diplomas; 2) Massively Open Online Courses/Classes (MOOC) are those where users are enthusiastic individuals and can choose programs based on their prior knowledge, interest and services. Some of the advantages of online methods of education are scheduling flexibility, personalised learning, cost effectiveness, safe learning environment, and high accessibility from anywhere in the world.

Traditional education can be described as head-on understanding. This mode of education is one of the oldest and most effective learning method worldwide. Generally, conventional education is offered in classroom settings and the process of education is active, based on immediate learning and interaction between instructor and learner. The key qualities of conventional learning include head-on interaction, which ensures high participation and immediate response from learner, ecologically conductive laboratory, and

scheduled time frame of the learning process. Head on exchange allows learner to ask questions concerning their classes and immediately get the answers they seek. In physical classroom settings, learners also get chance to meet their classmates, develop friendships and work in teams. Knowledge is imparted through course materials consisting of books, textbooks, handouts, and some visual materials/audio materials. Furthermore, this mode of education has shown better performance leading to positive learning outcomes and better prospects. Thus, the objective of this research is to discover the best learning methodology for learners which would likewise encourage them to accomplish their future goals and boost their career. Also, to find out the difficulties learners go through during online and/or traditional classes and which one provides the best learning experience and outcome. Owning to education system, the study aims to achieve answer to three research questions, given below:-

RQ1: Does online education provide same level of satisfaction among learners as traditional form of education?

RQ2: What is most preferred mode of education among learners, online or traditional education ?

RQ3: Is there any theoretical underpinning that justifies the learner's perspective and result achieved?

In the given context, it is extremely important to understand the significance of online education vis-à-vis traditional education. It is crucial to address the trending needs of learner and therefore, a detailed study on the topic would help us propose a holistic perspective on contemporary education system. The current study uniquely contributes to the knowledge of literature in three prominent ways:- a) the paper compares online versus traditional education system from a learner's perspective and recognise the most preferred choice among learners, b) through quantitative data analysis, the paper identifies and suggests the most viable learning methodology, and c) even though there are restrictions to the study, the findings and results will present implications to practitioners and educationists to decide upon learners preferred mode of education.

The structure of paper in subsequent sections is as follows- literature review followed by theoretical underpinning, research methodology and hypothesis development, results and findings, recommendation, and conclusion.

Literature Review

Education is a fundamental source of youth development in a country. Right form of education enables better prospects and secure career growth to enthusiastic learners. Education act as a means as well end to a learner who desires to accomplish goals. The purpose of education is to impart knowledge, whether online or offline, but surprisingly the effectiveness varies as per the mode of education. Studies claim that mode of education significantly influences the performance of a learner. Notwithstanding, a learner's goal achievement is highly dependent upon the education system adopted by educational

institution or facilitation centres. The extant of literature highlights the existence of synchronous and asynchronous form of learning from decades. Both forms of learning are suitable under certain specific conditions. To understand the difference, we decided to present comparison between online and traditional classroom education system through scoping review of contemporary studies in the domain.

"Traditional" learning derives from an understanding of an instructional format that involves a physical classroom and the synchronous physical presence of instructor and learner. The paper underlines that even in-class application of computers and learning equipment does not affect the definition of the conventional education to change it into combined learning (Bernard et al., 2014). Whereas virtual understanding features an absence of physical classroom, replaced using web-based skills offering prospects for out-of-class learning independent of time, and pace (Bernard et al., 2014; Chigeza & Halbert, 2014). In the context of higher education, the phrase virtual learning is often interpreted as value-added additional course courses that are offered completely online (Ryan et al., 2016). Online learning setting is launched through learning management systems (LMS) or virtual learning environments (VLE) such as Moodle and Blackboard (Pellas & Kazanidis, 2015). According to Saghafi et.al.(2014), the web-based learning setting will never replace activities taking place in traditional environments. Rather, their research shows that both traditional and online learning have their respective uses and limitations.

Therefore, it is observed that both forms of learning works together in a complementary way for learners. If applied together may represent a holistic model of blended learning system. Especially in professional education, opportunities for practice-based classes are important for learners' experience. According to Saghafi et.al. (2014) comparative study, the traditional synchronous course provides a learning space for learners supporting hands-on skill training, group learning and spontaneous feedback, while the virtual asynchronous learning turns out to be better suited for constructive discussion and self-paced learning formats. Another research indicates that several factors influence learners' learning experience and their level of satisfaction in online and traditional education system. These factors are learner's importance to professional education, presence of appropriate teaching and learning spaces online as well as off-line, and engaging and meaningful learning communities that support the learners' social relations. Hence, review of existing literature confirms growing interest of researchers and scholars in the domain area of online education to determine which method of education affects learning outcome and learners' satisfaction, learners' preference between online and traditional learning, but further research is needed to better understand what influences learners' learning experiences in both methods of education.

Theoretical underpinning: Behaviourism and social learning theories

Education system is learner-centric, and the learnings are more dependent on response given by an individual to external stimuli in given setting. Grounded on learner-centric phenomenon, the present study has two theoretical underpinning – Behaviourism and social learning theories. Behaviourism theories believe in routing learning system of 'drill' where behaviour changes are from observations (Guney & Al, 2012). These

observations are processed by learner in a specific environment like classrooms, school, corridors etc. Behaviourism firmly suggest that learning is a result of continuous change in action drawn on the explorations by a learner (Guney & Al, 2012). While online mode of education may turn out to be modern, technology-enabled system but it restricts learners' observation and exploration process. Virtual or online mode may not stimulate the learning as an organic process of observation, retention, synthesis, and interpretation unlike traditional form of education. Harzem (2004) mentioned that educational institutions like schools and colleges are typically designed to expose learner to external stimuli until a desired result is not achieved. Further, behaviourism are grounded on underlying assumption that knowledge is objective, factual and absolute. Thus, traditional mode of education has high potential to give favourable results.

Social learning theory claims that learning takes place in social relationships. This theory is an extension of behaviourism theory and strongly support observation as the key to learn. Social-Situational theorists' emphasis that leaners observe in social settings and absorb the learning in a such a manner that subsequently the results are seen in the form of behaviour modification. Badura (1977) highlights that individual decode the information received from observation and encode it to form new behaviour. Thus, social-learning acts as guide for action (Guney & Al, 2012). Further, several studies have supported social-learning theories as a positive effect of observation, group working and social interaction that stimulates learning. As traditional form of education supports the social interaction aspect of theory, there exists high likelihood to be preferred by learners.

Research Methodology

For analysis, the paper has used quantitative methodology to emphasize objective measurements and the statistical interpretation of data collected through a structured questionnaire using computational techniques.

Based on literature, we identified key constructs instrumental in deciding the satisfaction level of learners i.e., motivation, favouritism, cost, and interaction. We identified preference for traditional learning as dependent variable and others as independent variables X1 (preference for online education), X2 (indifferent between the two), X3 (motivation), X4 (there is more interaction when courses are done physically) , X5 (costs related to traditional learning are high), and X6 (there is more favouritism when class are taken physically). The data is collected through primary sources with help of a questionnaire on survey legend that was shared with academic fraternity. To analyse the data further firstly we reorganized the collected data and put it on an excel sheet. If respondents prefer online or are indifferent and if traditional learning costs are important our hypothesis cannot be verified. But if learners prefer traditional learning and consider that motivation and provide more interaction our hypothesis is then verified.

Traditional method of education provides less/no difference in satisfaction to learners as compared to online education. In this hypothesis, we wish to understand if the learners' satisfaction level towards traditional learning is less and if it is more towards online education, keeping in mind the factors like time, money, energy, interaction, effectiveness, connectivity etc. Are the learners fine with online learning environment or the learners find

it difficult to interact with instructors and/or to work with classmates in projects in online mode, as communication is often very impersonal. Also, if acquiring knowledge through an online medium is more satisfactory by searching on different search engines, as although this helps by reducing the number of books one must read in traditional methods.

Hypothesis 1: There is high likelihood that learner respond indifferently to online and traditional education

Traditional method of education provides more satisfaction to learners. In this, while the online education trend is growing rapidly today, it is yet a matter of concern to know if learners personally prefer and are more satisfied towards traditional education instead. In this section, we will analyse if traditional education is the most satisfactory medium of learning by learners as compared to online education. Do they believe in traditional mode of close and personal instructing techniques and whether they find it more productive? Also, if the current shift to online classes for everyone due to lockdowns and pandemic has made learning inconvenient with lack of proper communication and connectivity issues. Most importantly, to understand if learners are gaining more knowledge and confidence through public interaction in a physical class with simulation games and extra-curricular activities as all majors cannot be taught online.

Hypothesis 2: There is high likelihood that learner prefer traditional education over online education

Results

Our findings aimed to understand if traditional educations provides more satisfaction to learners or not. Due to the covid-19 pandemic, most of the schools and colleges shifted from face-to-face education to online learning. The result help us identify the impact of change on education system, its intensity and learners preferred choice of education. Our dependent variable (Y) is traditional education, paper considered that if the respondents prefer online education, we will put 1 for online education, 0 for indifference between the two and 0 for preference for traditional learning or vice versa in the other cases. Considering motivation, interaction, cost, and favouritism to put the responses in the excel sheet we considered '1'as 'Yes' and '0' as 'No'. Most of the time when respondents prefer online learning it's because they think that costs for traditional education system is high and there is more favouritism. And when they prefer traditional learning it's because they think that traditional learning is interactive, they have a higher motivation and sometimes they are indifferent to costs.

The computed descriptive statistics, unit root test and augmented Dickey-Fuller test on E-views and multiple linear regression analysis was performed to interpret results.

Table # 1
Descriptive statistics

	OFFLINE	ONLINE	INDIFFERENT	INTERACTI...	MOTIVATION	COST	FAVORITISM
Mean	0.666667	0.128205	0.230769	0.743590	0.820513	0.358974	0.205128
Median	1.000000	0.000000	0.000000	1.000000	1.000000	0.000000	0.000000
Maximum	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
Minimum	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.477567	0.338688	0.426833	0.442359	0.388776	0.485971	0.409074
Skewness	-0.707107	2.224198	1.278019	-1.115718	-1.670383	0.587975	1.460501
Kurtosis	1.500000	5.947059	2.633333	2.244828	3.790179	1.345714	3.133065
Jarque-Bera	6.906250	46.26926	10.83514	9.018093	19.15078	6.694217	13.89369
Probability	0.031647	0.000000	0.004438	0.011009	0.000069	0.035186	0.000962
Sum	26.00000	5.000000	9.000000	29.00000	32.00000	14.00000	8.000000
Sum Sq. Dev.	8.666667	4.358974	6.923077	7.435897	5.743590	8.974359	6.358974
Observations	39	39	39	39	39	39	39

In the table 1, different skewness that of the dependent variable is negative and we have some that are positive. For normal skewness the value is 0 (0.58 for cost variable , it mirrors a normal distribution). When the skewness is positive (2.22 for online variable, 1.27 for indifferent, 1.46 for favouritism) the distribution has a long right tail with more higher values than the sample mean. In the case when skewness is negative (-0.707 for the dependent variable, -1;115 for interaction and -1.67 for motivation) it indicates a long right tail and more lower values than the sample mean. Considering the kurtosis, the distribution is normal when it's equal to 3 and called mesokurtic (it's the case with variable X6 favouritism = 3.13). It's leptokurtic (peaked-curve) when the kurtosis is positive (1.5 for independent variable offline, 5.947 for X1 online, 2.6333 for X2 indifferent, 2.2448 for X3 interaction, 3.79 for X4 motivation, 1.345 for X5 cost).

Table # 2

Dickey-Fuller test

Null Hypothesis: OFFLINE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.856108	0.0053
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

*MacKinnon (1996) one-sided p-values.

As shown in table 2, the computed p-value (0.0053) is lower than the significance level alpha=0.05, one should reject the H1 and accept H2.

Table # 3
Least Squares analysis & Multiple linear regression analysis

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,960768923
R Square	0,923076923
Adjusted R Square	0,881118881
Standard Error	0,142133811
Observations	39

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	8	1,33333	79,2	8,53213E-18
Residual	33	0,666666667	0,0202		
Total	39	8,666666667			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	1	0,247818767	4,03521	0,000304422	0,495808927	1,504191073	0,495808927	1,504191073
X Variable 1	0	0	65535	#NUM!	0	0	0	0
X Variable 2	0,333333333	0,176001224	1,89393	#NUM!	-0,02474385	0,691410517	-0,02474385	0,691410517
X Variable 3	8,90159E-17	0,142133811	6,3E-16	1	-0,289173413	0,289173413	-0,28917341	0,289173413
X Variable 4	-2,25991E-15	0,142133811	-2E-14	1	-0,289173413	0,289173413	-0,28917341	0,289173413
X Variable 5	-1,333333333	0,249173719	-5,351	6,54705E-06	-1,840281076	-0,826385591	-1,84028108	-0,826385591
X Variable 6	0,333333333	0,129749824	2,56905	0,014906078	0,069355332	0,597311335	0,069355332	0,597311335

The table 3 provides the model fit coefficients. The R^2 (coefficient of determination) gives an idea of the % variability of the variable to be modelled, explained by the explanatory variables. The closer this coefficient is to 1 the better the model which the case here because our R^2 is equal to 0.92 (in our case 92% of the variability is explained by our independent variables). The coefficients of variable X4 and X5 are negative as expected. We can then deduce that cost and favouritism have a bad impact on preference for offline classes.

Table # 4
Chi square test

Category	Observed	Expected	Hypothesis
Online	28	19,5	0,5
Offline- indf	11	19,5	0,5
	39		
P-value	0,00648531		
Test Statistic	7,41025641		

Our research question investigated if online and physical learning provide to learners the same satisfaction. We used chi-square method to analyse the data. This method is especially useful for this type of difference.

Table # 5
Summarised hypothesis result

Hypothesis	Result	Status

H1	Learners are indifferent between face-to-face and online classes	Rejected
H2	Learners are more satisfied with traditional mode of education	Accepted

In summary, we can say that our hypothesis H2 is accepted which means that physical learning provides more satisfaction to most of our respondents (67%). One of the major reasons are interaction and motivation, these factors impact the satisfaction of learner, grounded on behaviourism and social-learning theory. However, surprisingly other factors like favouritism and cost also not supported offline education. We can assume that learners prefer traditional mode of education over online education system.

Conclusion, Discussion and Managerial Implications

The limitations of the analysis based on the nature of the sample, sample size, specific group of learners, their skill sets, personal opinions and familiarity with online classes. The learners' insight and skill level were not contemplated over when isolating the comparison group of online and traditional learners. There exists the likelihood that the traditional learners in this analysis may have been more proficient than the online learners and the other way around. Experienced traditional classroom learners now taking web-based courses may be overwhelmed due to technical aspects of the course. Also, sometimes learners expect a different method of education based on the nature of study such as professional courses or certification/technical course for working people etc.

The analysis may not be true representation of population due to its size; scale and the majority of the respondents are from same set of classmates and friends. From their answers, we understood that most of them are not in favour of online learning, they preferred physical classes.

So, we recommend expanding the study to a larger number of people with different profiles (students of different ages, professionals, housewives etc.) so that it will be more realistic and maybe the results will be completely different and represent more of reality. In addition to comparing online and traditional teaching efficacy, future research should also analyse blended teaching methods for the effectiveness of courses and observe if blended style is preferable and effective.

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