Factors Influencing Online Learning and Adoption of Ed-tech: A study of Students Perception and Acceptance

Pankaj Kumar, Commerce Department, Kamala Nehru College, University of Delhi, New Delhi, India.

Vijay Prakash Gupta, Institute of Business Management, GLA University Mathura, U.P, India

Sunil Kumar, GITAM School of Business, GITAM (Deemed to be University), Visakhapatnam AP, India

Anshu Lochab, Department of Business Administration, Maharaja Surajmal Institute, New Delhi, India.

Abstract

Purpose: The current research has investigated the antecedent of online learning. The COVID-19 Pandemic brought the most significant change in education toward acceptance of online learning, and educational technology which has become a necessity. Usage of these online platforms saw tremendous spikes in the numbers.

Design/approach/Methodology: To assess the impact of various Ed-tech and online learning constructs on student's perceptions. This study tries to understand student's perceptions of online learning and acceptance of Ed-tech. Data has been collected from respondents (students) of different age groups living in different places of Assam. The sample size was 190 for this research.

Findings: It is indicative from the result of the study that all construct studies in this research significantly affect student's perception of online learning and acceptance of Ed-tech.

Practical implications: This study will be useful in understanding the readiness towards change in Ed-tech. It will also smoothen the implementation of the country's new education policy.

Originality: Educational technology will transform education in the country. Online learning and Ed-tech will play significant role in shaping the future of students and educational institutions as well. The understanding of student's perceptions towards online learning and acceptance for Ed-tech is essential before making any change in educational practices.

Keywords: Covid-19, Education, Ed-tech, Online learning, India

1. Introduction

With epic culture and places of learning like Nalanda, India has a history in the progress of learning and education. Post-independence, India saw a rise in the establishment of universities and institutes like IITs (1951, IIT-K) and IIMs (1961, IIM-C), Medical colleges, and the growth of schools across towns and villages of India. These establishments in schools and colleges grew the learning path among the generations, building an approach to a career for decades. Private schools and colleges flourished side by side, joining hands with government schools and colleges to meet the gap between available seats and students. Soon, the competition to enroll oneself in higher education began with establishments of entrance examinations like IIT-JEE, AIPMT, AIEEE, CAT, GATE, etc. The names kept changing. The same started with the establishment of job examinations like SSC, UPSC, IBPS, Railways, State PSCs, etc. Offline coaching institutes began with a flourishing spree, building an unimaginable hub like that of Kota, Allahabad (Prayagraj), Patna, Delhi etc. Also, due to the increase in the youth in India, there was a gap between number of seats to aspirants for higher education, which saw distance education platforms like IGNOU grow, equally saving both time and cost in an alternative way attain degrees. With technological advancements, MOOCs from both Indian and Foreign Institutes of reputation found a place to connect through sites like Coursera, EdX, Udemy, etc. Skill-based learning adds another

workforce population, mainly from the IT product and service industry, who regularly need to keep themselves updated with the changing technologies. At the same time, India saw rapid growth in utilizing online resources over the last decade to continue learning. With the increasing penetration of the internet in the last decade in India, it has grown into an enormous industry. The Ed Tech industry. Ed-tech stands for education technology, i.e. the new technological implementations done in the classroom to teach online, and the learners can learn over an online platform, whether with an app or website. Institutions like Byju's becoming the first unicorn in the Ed-tech space in India, the craze for Ed-tech among entrepreneurs and investors is growing. Unacademy, Embibe, GradeUp, Toppr, Vedantu, Meritnation, UpGrad, etc., the list goes on. The latest acquisition WhiteHatJr, live 1:1 online coding classes for kids of Grades 1-12 by Buju's created storm in the space. However, with some aggressive marketing campaigns and doubt about the product model, the campaign was flagged by ASCI for violating advertisements.

The COVID-19 Pandemic brought the most significant change in education toward acceptance of online learning. It became a necessity. Usage of these online platforms saw tremendous spikes in the numbers (Pham, & Ho, 2020). But are these platforms sustainable post-pandemic? What is the acceptance of online learning among parents and students? How connectivity issues, like internet speed, will play in the coming years, with talks of 5G beginning. Questions on emotional engagement and behavioural changes among the learners need to be addressed. There are many barriers as of now. Some of them could be redefining digital citizenship, shifting from coding to computational thinking, teaching the learners AI for the focus of future work, rethinking teacher prep for tech, and the giant question of all: does it improve learning? Understanding the stakeholders as what they look for while choosing an online platform for learning is thus one of the problems that must be achieved by breaking the barriers.

India passed in 2009 an act called the "Right of Children to Free and Compulsory Education Act (RTE)," aiming to have 100% of children of the age group 6-14 years enrolled in school (Sarin, 2019). But concerns remain about post-primary dropout rates, equal access to quality education, affordability, and outcomes. In 2016, according to UGC, India have 751 universities and 35,539 colleges. What more than one-fourth part of the pie of total enrolments of students in the Higher Education System is contributed by the distance education system. "The National Education Policy (NEP)" is also trying to address all these challenges and extend the scope of RTE to aged 3-18 years' students. One of the report's recommendations is to use Ed-Tech to enhance learning through apps, online student groups, and lesson delivery that goes beyond "chalk and talk." Three hundred twenty million students in India were affected by school closures during the COVID-19 lockdown (UNESCO, 2020). On the other hand, just 37.6 million children in 16 statescontinue their education via various educational initiatives, including online classrooms, radio and TV programs.

The Indian education sector, valued at $100 billion dollars, was projected to rise to $180 billion by 2020. The Indian educational system is one of the world's largest. It has the world's largest school-age population, with about 310 million students aged 6 to 17. In 2021 KPMG estimated the Ed-tech space in India to grow to US $ 1.6 bn by 2021. But taking into account that the pandemic has brought plenty of momentum in India for adaptation of Ed-tech, the Ed-tech market size can be estimated to increase 3.7x in the coming five years in India, from the $2.8 Billion (2020) to a huge $10.4 Billion (2025), reports Inc42Plus. At the same time, as per Data Labs by Inc42, between Jan 2014 and Sept. of 2019, more than 4,450 of Ed-tech start-ups were launched in India. However, more than 25% of start-ups have shut while only 4.17% of start-ups have raised funds. Byju's has a grab of 65% of the total funding in Ed-tech start-ups. Until now, start-ups still have trouble producing a reliable revenue source with steady earnings, which is the ultimate challenge.

The remarkable expansion of the COVID19 pandemic continues to revolutionise learning and teaching experiences as well as the larger education landscape. During the pandemic, the dynamics of online education in various contexts have gained considerable scholarly attention in education sectors (AL-Nuaimi, et al., 2022). The rapid adoption of blended or hybrid models by institutions, as well as the extensive use of Ed-tech for course redesigns

and pedagogical reforms, has created substantial issues for both students, parents and academic communities (Doll et al., 2022; Gupta, Mathur, & Narang, 2022; Gupta, 2022). These Ed-tech will continue to have an indirect and direct impact on educational institutions, causing existing course delivery techniques to shift (Moreno-González, et al., 2023; Perez, et al., 2023). Therefore, to understand better, the study aims to evaluate multiple issues and dimensions of online education based on but not limited to affect, learner's perception, perceived learning, belief, price, persuasion, brand, accessibility, and health issues. The study also aims to analyse the acceptance of online learning by students and parents.

2. Problem Statement

With technology, things have changed. Over the last decade, classroom education has also been made available to home on screens through devices such as desktops, laptops, mobiles, and tablets, connected via the internet. But is online learning accepted equally to offline learning? What are the factors that influence using online learning platforms? With the immense rise in the ed-tech space in India, the competition among tech entrepreneurs and businesses is increasing. Knowing and understanding these dimensions are significant to the platform providers, the educators and the learners, and anyone involved in the learning community. Do dimensions such as effect, learner's perception, perceived learning, brand, etc, play and impact directly the usage of online learning? What about the issues such as mental health, physical health, connectivity, learning outcomes, and human connection? The purpose of this research study is to record and analyse the primary research data with study of secondary research to understand the influencing factors and explore them.

3. Objectives

1. To understand and explore the dimensions and issues in Ed-tech and Online Learning.
2. To analyze the perception and acceptance of students and parents towards online learning.
3. To study the dimensions influencing online learning platforms, including ed-tech platforms, and design a model to understand the relationship.

4. Theoretical Background

Several theoretical models have been proposed to investigate and explain the elements that lead people to accept, reject, or continue using new technology (Ajzen 1985; Ajzen and Fishbien 1980). Davis (1989) proposed and developed the technology acceptance model (TAM) and presented a theoretical context that could explain the relationship between attitudes-intention-behavior based on the Ajzen and Fishbien model of Theory of Reasoned Action (TRA). The TAM got empirical validation for its ability to forecast technological reception and adoption in a robust and parsimonious manner. According to the TAM, an individual's behavioural intention to execute a specific task determines their performance of that behaviour. The main determinants of user approval are two specific variables: perceived utility and perceived ease of use. The TAM was developed to forecast the likelihood of pupils or parents adopting new technologies. This model was based on the theory of reasoned action, which stated that behaviour was determined by the intention to execute the behaviour, attitude towards the behaviour, and social pressure to conduct the behaviour (Sheldon 2016). The TAM claimed that by using the model when the technology was first utilised, future use of technology could be predicted (Turner et al. 2010).

The TAM is made up of five variables. These are "perceived ease of use, perceived usefulness, attitude towards use, behavioural intent to use, and actual use". The model's two most important criteria are perceived ease of use and perceived utility (the belief that the technology improves students' learning abilities and academic achievement). TAM's key components are these two variables, together with attitude towards use (Alfadda, & Mahdi, 2021). TAM has developed as a key scientific paradigm for evaluating student, teacher, and other stakeholders' acceptance of learning technology over the years (Davis, 2011). TAM is the most commonly used ground theory in the literature on e-learning adoption (Weerasinghe & Hindagolla, 2017). The user's intents towards using an e-learning tool were

mostly described using or extending the TAM research model with other relevant components. Cheung and Vogel (2013) employed the extended TAM model after Park, Lee and Cheong (2008) tested its use in the educational domain. Given the preceding arguments, it is obvious that current research on TAM application in the educational area is not in its infancy. However, the subject still lacks a thorough research study addressing existing methodologies and applications that underpin TAM and its various forms in educational contexts for a wide range of learning domains, learning technology, and user types (Grani?, & Maranguni?, 2019).

5. Review Of Literature

In recent decades, online learning and online classes are gaining global importance. The shift of "Online class is an Optional" to "Online class is necessary" (Larreamendy-Joems, Leinhardt, 2006). This studied could no longer set a greater example than in the last year. In 2020, lockdown due to COVID created the shift mandatory shifting from offline classes to online classes or blend learning (a mixture of offline and online learning) is not new in the globe, but relatively new in India.

What started as an alternative to clearing doubts from sources such as Wikipedia soon YouTube became the most extensive repository that contained millions of audio-visual platforms for learning online. The most significant change is brought by technology and the internet. In the last decade, in India, with the rise of connectivity through the internet and the availability of electronic devices, such as laptops and smartphones, the trend of using online learning platforms started. It supports are crucial, helping in decision making and empowering peoples (Kumar, & Gupta, 2019; Gupta, & Kumar, 2019; Gupta, Mishra, & Kumar, 2021). The Internet has enabled the delivery of instruction at a lower cost than in face-to-face classroom teaching; thus, it provides more opportunities for learners to take courses (Murday et al., 2008; Kumar, Lochab, & Mishra, 2023; Mishra, & Kumar, 2023). Indian Ed-tech spaces are rising and falling. So what factors contribute to a user's online learning behavior? To understand the factors that played a role influencing in the act of online learning, the literature review is done from the related concepts.

In 2005, Saade, & Kira, 2007 studied factors in online learning. The paper describes the various dimensions to online learning as an exploration into the topic. Through the research, the questions like what factors contribute to the success/failure of online learning? The paper measures the learning outcome and helps to understand students' learning experiences using specific learning tools. In their paper effect and perception were found to have strong measurement capabilities, while motivation was measured the weakest.

Allen and Seaman, 2013 in their paper to study about the online classroom, found out that online classes were not as good as offline classes according to the students. However, this perception improved from 40% of students finding online classes inferior in 2003 to 23% in 2012. Similarly, Busteed and Ogisi 2013 went on to study and analyze the beneficial factors; the research showed that despite the effect on grades, online classes provide ease of scheduling and offer more flexibility compared to traditional teaching methods. However, issues of administration, mental health was studied (Kelly & Rebman, 2013), and results showed influence in online learning. Comfortability (Kunal & Nayak, 2017; Kumar, & Gupta, 2019). was studied, which showed that comfort is accepted in online learning platforms as it reduces factors like traveling and the possibility of bringing the classroom home. Ed-tech growth is fierce in India, and pricing in ed-tech platforms such as Byju's (Kumar, 2020) was studied, to explore a few dimensions. It found Byju's to be leading in the game.

At the same time, the majority of the students felt that online classes were not as effective as traditional in classroom teaching, but they reduced the need for travel, were cost-friendly and offered flexibility in terms of timings of the classes (Charu Bisaria, 2020). However, most of the respondents believed that doubt-solving, teacher-student interaction, and peer interaction was better possible through the online mode. Moreover, courses involving demonstrations such as laboratory-based topics or subjects involving use of blackboards were explained better and more effectively in offline classes. Like every consumer consuming a product, in this study, the act of online learning can be said to be the act of consumption;

the learner, parent or child is the consumer, and the platforms and the learning itself is the product. Thus, using an online learning platform can affect the user, just like a consumer consuming a product. Here the affect that is taken into consideration is the affective component, which is related to the emotion or the feeling of the user (Saadé& Kira, 2006). Which arises from using the platform of how much it is liked. Affect can be said to be an individual's feelings related to emotions such as joy or sadness, comfort, pleasure, gratification, distaste, depression, motivation or hatred that result in a particular behavior (Triandis, 1979). Literature shows the relationship between the factor of affect and behavior. Behavior ultimately influence in user's decision of action (Anisha, &Kalaivani, 2016). Using any product or service leaves us an experience perceived by the user with a sense of either positive or negative. Perception is the way in which it is then regarded individually (Sarma& Agarwal, 2012). Their research found significance in the relationship between learner's perception and its impact on Online Education in an Indian context. The perception comes from the easiness, efforts needed, flexibility or constraints, which then forms on a perception that compares between other alternatives.

Perceived learning is related to the learning outcome, observed by the user which is in intrinsic factor just like the affect and learner's perception. Perceived learning outcome when measured with performance improvement, grades benefit; meeting learning needs, it was observed how understanding plays its significance in achieving them (Faigley, 1990). Fulfilment of them can be connected to be an independent factor influencing in overall online learning. Learners and users with positive learning outcomes have a greater positive attitude for the subjects and courses, resulting in better use of online learning platforms (Saadé, Kira, 2006).

Though not studied as a factor, price is an element which is exchanged, for a deal between two parties: the buyer and the seller, by the buyer in exchange of something from the seller (Ejye, 1997). Price is an extrinsic factor that influences in any buying decision. Exploring price as an independent variable on the using decision of any online learning platform is the dependent variable. Another relationship is price over brand or service, which is preferred more. Earlier studies have showed the relationship of price and its impact on consumer buying behaviour (Al-Salamin& Al-Hassan, 2016). It is taken under a couple of questions to understand purchase in the final intention. Belief plays an important role in the acceptance of something true or false, so strong that is a little hard to break easily. It can be either strong or weak. Self-belief, on the platform and within it, is explored to understand the relationship. Beliefs are thus concerned and formed, playing insights and roles to much existing consumer behaviour research that focuses on decision making (e.g. Foxall, 1983; Hoyer, 1984).

Persuasion on the other hand is extrinsic, which can be due to peer pressure, parents, lack of opportunity. Similarly, brand name impacts the decision. Consumers tend to behave emotionally in buying and using decision. People generally prefer those brands they are emotionally attached to via social preview and advertisements (Malik. M, 2013). Accessibility is the ability or access to use a product or service. The access or non-availability can either trigger a positive emotion or negative emotion (Pirre, 1978). Issues such as internet connectivity, good UI of the platform are explored under the factor (Chahal, 2018). Other factors like internet penetration and ease of online learning in India. Health issues can arise from using a particular service in its way. Just like riding a bike for long hours could lead to back pain, online learning carries certain health issues that can also be seen on online learning platforms (Kelly &Rebman, 2013). Mental health as well as physical health in using online learning platforms electronically can be explored.

6. Methodology

This study utilized a mixed research design. To identify the dimensions that may influence on using online learning, a descriptive study was conducted and the factors involved. The first step is chosen from various secondary research and a few factors. After that, a questionnaire is prepared for pilot testing and it is redesigned to a structured questionnaire for conducting a descriptive study.

The questionnaire has a total of 45 items, which were scored on a Likert scale. Other than

that it contained 11 questions, 5 of which are demographic questions relating to age, gender, income, etc. The survey for the research was conducted among students who were believed to be relevant to qualify answering based on their experience and knowledge and share insights on the factors influencing online learning. The respondents are divided into two categories. The first is student/learner who is directly using the platform to learn. The second category is the parents of kids who are aged below 10 years who are using online learning platforms to teach their kids.

The questionnaire was distributed electronically and collected from 250 respondents, out of which 190 were found valid to conduct the research and taken as the sample size. In data analysis, using SPSS Version 25 and AMOS, confirmatory structural modelling is done to verify the research framework and hypotheses. Primary data collection is done through a questionnaire designed to collect the opinions through Google form. The collected data can be categorized into demographic information, personal preferences and their responses to the various dimensions considered for the study. A seven-point Likert scale is used to collect the opinion of both students and parents using online learning platforms. Seven-point Likert scale indicates one being strongly disagreed and strongly agreeing on the asked question. The sample size considered for the research is 190. Data has been collected from respondents of different age groups living in different places of Assam. The survey was conducted in January-February, 2021.With the various known demographic data, the research chiefly tried to explore some factors to see whether they influence in the usage of online learning platform. Due to limitations of knowledge and study of limited literature review, the factors are limited to 8. These factors are affect, learner's perception, perceived learning, belief, persuasion, brand, and accessibility and health issues. These can be further categorised into two categories, viz. Intrinsic factors and Extrinsic factors, where the former four would fall in the first category, while the remaining four would fall in the second category.

Analysis is made based on the reliability (Cronbach's alpha), model fit (CMIN/DF) value, estimates from the p value and the model diagram.
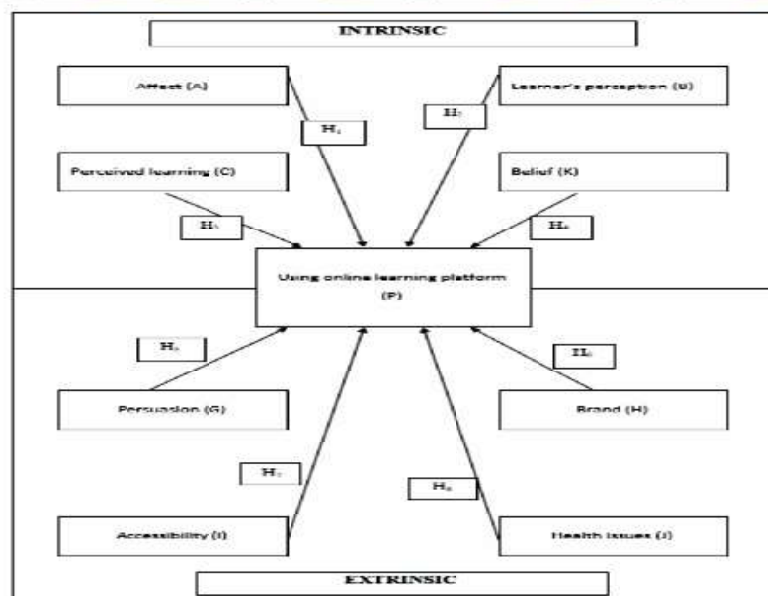

Figure 1.
Theoretical framework

6.1 Hypotheses
Based on the above model, considering that each of these factors influence in the usage of online learning platform, we hypothesized that:
H1: Affect has direct positive relation with online learning.
H2: Learner's perception has direct positive relation with online learning.

H3: Perceived learning has direct positive relation with online learning.
H4: Belief has direct positive relation with online learning.
H5: Persuasion has direct positive relation with online learning.
H6: Brand has direct positive relation with online learning.
H7: Accessibility has direct positive relation with online learning.
H8: Health issues have direct negative relation with online learning.

6.2 Analysis and Discussion

A questionnaire on issues and dimensions of online learning in India was electronically distributed among respondents. The valid responses finally screened for the study contained the data from 190 people. The respondents belong to different gender, age, location, occupation and income group. In the questionnaire, questions were asked on personal preferences and also included set of questions related to the various factors taken to study on a 7 pointer Likert-Scale. The responses are summed up and the objective here is to use this data to explore the relation, whether these factors really play a role in the ultimate act of going for online learning.

6.3 Characteristics of respondents and preferences:

		Frequency	**Percentage (%)**
Category	Students	178	94%
	Learners	12	6%
Gender	Female	112	59%
	Male	78	41%
Age Category	Below 15 years	6	3%
	15-20	21	11%
	21-25	98	52%
	26-30	43	23%
	Above 30	22	12%

Table 1.
Demographic Profile of
respondents

6.4 Place of stay

Respondents from city stands at 77%, from town are 20% and from village is 3%. Amongst 190 respondents, 23% reported monthly income under 25000 INR, 25% reported between 25000-50000 INR. 26% for 50001-75000 bracket; the remaining 26 % reported above 75000 INR.Amongst 190 respondents, the major portion of respondents, around 49% are involved in post-graduation coursework followed by college going students and learners who are looking for a job. Primary student comprised of those who are below 10 years and these responses are filled by their parents. Inference can be made that college going students from the majority of users, followed by school going kids and aspirants looking for a job and preparing various exams, followed by employed personnel looking for improvement in skills. The majority of the respondents (33%) said that they have been using online learning platforms for the last 2 to 5 years, followed by another section (29%) who said that they have been using from last year to a couple of years. Thus it could be understood that COVID Pandemic is not the sole reason of exposure of online learning platform but its usage is seen from earlier. However, a boost of 9+16=25% can be seen in the last year itself. The majority of the respondents said that they use it for one to two hours while the next category said they use it for under an hour. Thus, it can be understood that most respondents use online learning as a blended form of learning with offline learning or clearing doubts.

Frequency distribution based on source of marketing information reveals that Google ads and Social media ads occupy the largest pie of 45% followed by word of mouth at 25% and internet blogs at 24%. Thus, engaging in online advertisements seems to be dominant and impactful. This study asks certain online learning platforms to be marked based on name recognition and usage. Out of them, YouTube, the free platform stands tall on first with everyone recognising the brand name, i.e. 190 respondents shared that they have heard the name, out of which 174 said that they have used the platform for learning from time to time. Based on popularity, YouTube, Byjus, Unacademy, Vedantu, WhiteHatJr, Udemy, Coursera, Up-Grad stands in the top 8. Point must be noted that most of these platforms run ads on Television.

Brand	Heard	Used	Usage (%)
YouTube	190	174	92%
Adda247	85	46	54%
Unacademy	160	78	49%
Testbook.com	89	42	47%
Coursera	107	44	41%
Udemy	109	41	38%
Oliveboard	44	16	36%
Meritnation	56	20	36%
GradeUp	96	31	32%
Cracku	36	9	25%
Byju's	169	41	24%
Datacamp	42	10	24%
Alison	45	9	20%
Toppr	92	18	20%
edX	58	9	16%
Dataquest	39	6	15%
Embibe	35	5	14%
Simplilearn	56	7	13%
UpGrad	105	10	10%
Vedantu	138	13	9%
WhiteHatJr	126	8	6%

Table 2.
Brand preference

However, when it came to usage count, change could be observed from the second as top 8 is seen as YouTube, Unacademy, Adda247, Coursera, Testbook.com, Byjus, Udemy, GradeUp. To understand the ratio of knowing the brand and using it, top 8 usages in form of percentage is studied and found. YouTube, Adda247, Unacademy, Testbook.com, Coursera, Udemy, Oliveboard, Meritnation are in descending order in the top 8. Thus it could be observed that even though the popularity of platforms like Byju's or WhiteHat Jr is one the rise, owing to their high price segments or their perception in the consumer mindset, they have lower usage to knowledge ratio. At the same time, platforms that provide mock exams of competitive exams like Adda247, Testbook, Oliveboard, Meritnation finds a place in the top 8.
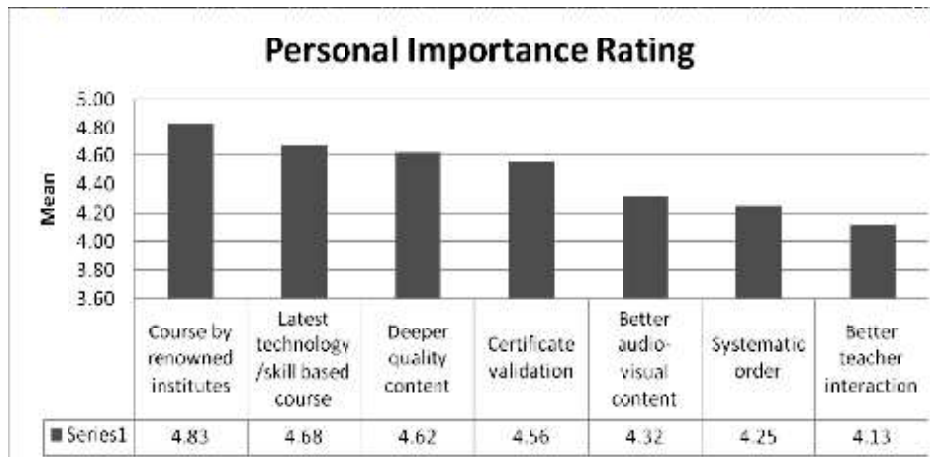
7. Rating On Importance
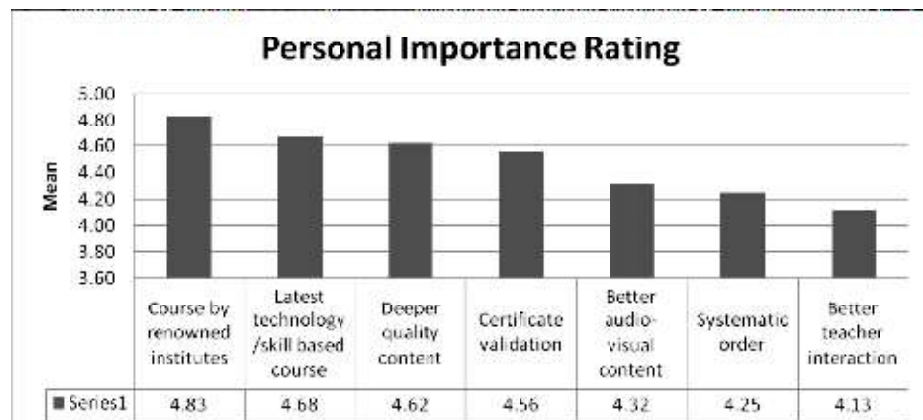
Figure 2.
Order of importance

It shows the order of importance and the purpose of online learning based on the mean of the responses rated by the respondents on a scale of 1-7, one being the lowest and 7 being the highest rating they can rate. Course by renowned institutes such as Havard, Cambridge, etc. available on platforms such as Coursera, EdX, Alison is the most sought out reason, followed by skill based learning, deeper content quality, certificates, audio-visual, systematic order. Teacher interaction is found to be the least; thus lesser human interaction can be said to be an issue in online learning which is also studied in the factors.

7.1 Prime Purpose For Using

Personal Importance Rating

	Course by renowned institutes	Latest technology /skill based course	Deeper quality content	Certificate validation	Better audio-visual content	Systematic order	Better teacher interaction
■ Series1	4.83	4.68	4.62	4.56	4.32	4.25	4.13

Fig 3 above shows the order of purpose for using online platforms. Majority of respondents being from university, the purpose for preparation for university subjects stood first, followed by preparation for job exams, skill development etc.

7.2 Reliability values

On a 7 pointer Likert- scale, the responses on the statements were recorded from strongly disagree to agree strongly, 4 being the neutral point. The mean of the responses on the statements and the overall construct mean are found. Here, the traditional system of interpretation is used. Here mean of 0-1 means strongly disagree, 1-2 means disagree, 2-3 means somewhat disagree, 3-4 is neutral, 4-5 is somewhat agree, 5-6 is agree, and 6-7 is strongly agree.

Construct	Question Code	Mean	Cronbach's Alpha	Construct Mean
Affect	Online classes give me the pleasure of comfort and help me overcome my shyness	4.20	0.874	4.40
	The absence of human and social touch like interacting with friends and instructors physically instead of just virtual presence does not impact on my mental well-being and learning	3.95		
	Online learning platforms come with instant gratification that makes me happy	4.33		
	I believe online learning platforms are helping me to learn better and excel in performance	4.59		
	I feel mo re productive via online learning than offline learning	4.15		
	I believe that using online learning platforms gives me an extra edge among my peers	4.54		
	I am motivated by using online learning platform as it is making me learn a new skill/improve a skill	5.01		
Learner's perception	Online learning platforms are easy to use	5.27	0.731	4.79
	Online learning needs more effort than offline learning	4.57		
	Online classes give us flexibility in terms of timings of classes	5.37		
	Online learning is better than offline learning	3.95		
Perceived learning	It is easier to understand concepts in online classes	4.27	0.820	4.11
	I don't believe there is any opportunity to cheat in online assessment	3.30		
	Clearing doubts in online classes is easi er than in normal classes	3.33		
	Online learning meets my learning goals	4.15		
	Audio-Visual content makes me understand better	5.05		
	I find it easy to understand the learning platform strategy aimed at increasing my score	4.54		
Using OLP	I would suggest others for online learning	4.52	0.708	4.52
	I am willing to pay for an online learning course	4.66		
	I am willing to pay more for online learning courses than a comparative offline learning course	3.67		
	I am willing to use online learning platforms	5.24		
Belief	Online learning can never be an alternative to offline learning	4.31	0.731	4.10
	In case of self -paced online program, I hardly procrastinate	4.07		
	Maintaining discipline during live online classes is difficult	4.46		
	There is n o difference in the effectiveness of the lectures in online and offline modes	3.45		
	I feel Ed -tech platforms are increasing an unfair competition among its learners	4.22		

Persuasion	I use the online learning platform because my friend/colleague is using it	4.33	0.735	4.27
	I am using the online learning platform because the course I am learning isn't available in anywhere else	4.64		
	I am using as my parent/teacher made me to use it	4.25		
	I am using it to get a certificate to list on my CV	4.36		
	Online learning platform encourages me as I get access to foreign university lecturers from top foreign universities	4.86		
Brand	The online platform that I use is because the sales and marketing team showed me its positive effectiveness	3.86	0.733	4.63
	I sel ected the platform because the online platform is renowned and known to me	4.77		
	I believe that the course content matters more and I switch online platforms for learning irrespective of its brand name	5.13		
	I only choose a platform where the teachers are of premier institutes or top rankers of competitive exams	4.57		
	Marketing campaigns does not influence my selection decision	4.49		
	I enrol myself for a course in an online platform only after good research and I spend a lot of time in researching before selection	4.98		
Accessibil ity	I hardly face internet issues that impact in my learning	3.59	0.71	4.73
	The user interface of online learning platforms are easy to lear	4.74		
	Online learning helps me saves time	5.11		
	The feedback access p rovided by online learning platforms are significantly better than offline platform	4.84		
	Online learning platforms are broadening the accessibility for the disabled	5.38		
Health issues	Online classes negatively effect on health such as eye fatigue, n eck pain, etc. (hours of being glued to computers/mobiles/tablets)	5.51	0.835	5.38
	Online learning for long time is depressing	5.44		
	Online learning can lead to a growth of unsocial attitude among learners even when mixed with offline learni ng due to long term habit	5.20		

Table 3.
Reliability values

Since the mean is on the higher side of the neutral point 4 (here, overall mean is 4.40), agreement of affect influencing on online learning can be understood. Since the mean is on the higher side of the neutral, at 4.79, the agreement of learner's perception influencing online learning can be inferred. As the mean is on the higher side of the neutral, at 4.11, little agreement of Perceived leaning influencing on online learning can be said. As the mean is on the higher side of the neutral, at 4.52, the relative agreement of price influencing online learning is understood. Belief varies from person to person. As the mean is slightly on the higher side of the neutral, at 4.10, relative agreement of belief as an influencing factor on online leaning influencing is understood. As the mean is slightly on the higher side of the neutral, at 4.27, external persuasion as an influencing factor on leaning influencing is understood, even though some may prefer not to accept or disclose it. As the mean is on the higher side of the neutral, at 4.63, a moderate relationship of brand of the platform influencing on online learning can be said. As the mean is on the higher side of the neutral, at 4.73, accessibility, such as connectivity and user interface play a strong role on online learning. As the mean is on the higher side of the neutral, at 5.38, health issues is inferred as the strongest issue influencing on online learning.

8. Reliability Statistics

Construct	Cronbach's Alpha	No. of items
Affect (A)	0.874	7
Learner's perception (B)	0.731	4
Perceived learning (C)	0.820	6
Using OLP (P)	0.708	4
Belief (K)	0.731	5
Persuasion (G)	0.735	5
Brand (H)	0.733	6
Accessibility (I)	0.710	5
Health issues (J)	0.835	3

Table 4.
Cronbach's Alpha value of the constructs and no. of items

The reliability statistics evaluate the degree of consistency among the constructs using the Cronbach's Alpha value. The main purpose is to verify whether the data taken through the questionnaire is reliable to perform the significance test. Cronbach's Alpha value, ranging from 0-1, a value greater than the value 0.700 is considered to be reliable (Nunnally, 1978). The data is coded and analyzed in SPSS Version 25 to check the reliability and is found all of them above the threshold point of 0.700.

The codes used to run the data in SPSS and for modelling in AMOS are already listed in the descriptive statistics. For easy review of the codes, the alphabetical labelling is listed in the brackets in the table below.

9. Result of Structural Equation Model (SEM):
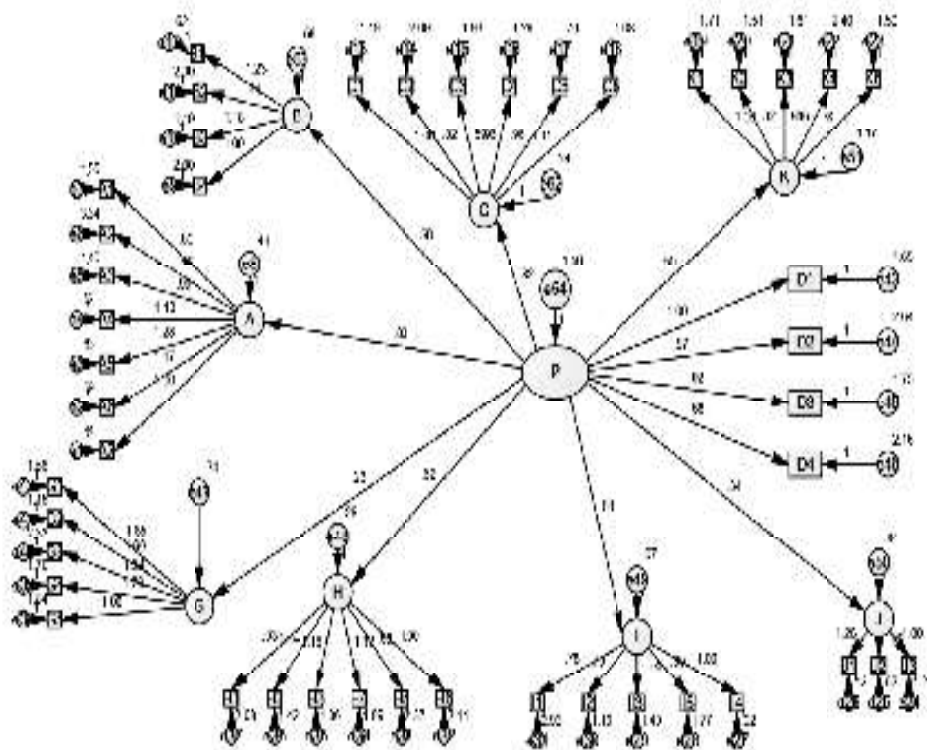
Figure 4.
Structural Equation Model

VALUE	RESULT
Model type	Recursive
Sample size	190
Degrees of freedom	937
Chi-square	3971.678
Probability level	0.000
CMIN/DF	4.239
GFI	0.898
AGFI	0.887
TLI	0.901
CFI	0.911
RMSEA	0.071

Table 5.
Model fit summary

10. Results of Hypothesis

Hypothesis	Hypothesis path	Estimates	Standard error	p	Result
H1	A<---P	0.829	0.093	***	Significant
H2	B<---P	0.232	0.061	***	Significant
H3	C<---P	0.577	0.095	***	Significant
H4	K<---P	0.817	0.097	***	Significant
H5	G<---P	0.503	0.099	***	Significant
H6	H<---P	0.623	0.102	***	Significant
H7	I<---P	0.805	0.09	***	Significant
H8	J<---P	0.337	0.073	***	Significant

Table 6.
Result of Hypotheses

Estimates (Group number 1 - Default model)
Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

11. Overall analysis and interpretation

The model fit estimates the probability value which is observed to be significant level (0.05). P values for the independent variables taken as factors to the ultimate using decision of using online learning platforms. The significance shown as *** in the above table shows p value to be less than .05, thus highly significant. This proves our hypothesis that these factors, viz, affect, learner's perception, perceived learning, belief, persuasion, brand, and accessibility and health issues, influence online learning.

On the other hand, the table with CMIN/DF, GFI (Goodness of fit), RMSEA (Root Mean Square Error of Approximation) are used to determine whether the model is fit or not. The CMIN/DF should be under 5.000 to be considered for fit. The analysed value is found to be 4.239 under the threshold level. Thus the model fits. However, the Goodness of Fit Index (GFI) is 0.527, thus is a poor fit. GFI ranges from 0 to 1. Higher is the value of GFI nearer to 1.000, the better. It shows the how well the hypothesized model fits together with the observed covariance matrix. Similarly, the RMSEA value less than .05 is considered fine, 0.05-0.08 is considered satisfactory, 0.08-1 is considered moderate, and greater than 0.1 is considered poor. The observed RMSEA is 0.071 which makes the model poor fit. This is because of not highly reliable responses and lesser sample size. However, as the model fits, the relationship is explored and significance of the factors on the ultimate action of online learning can be inferred. For better model fit, scope lies ahead for conducting similar research with greater sample size.

12. Pearson Correlation

Pearson Correlation	
	Using Online Learning Platform (P)
Affect (A)	0.521**
Learner's perception (B)	0.471**
Perceived learning (C)	0.569**
Belief (K)	0.491**
Persuasion (G)	0.282**
Brand (H)	0.525**
Accessibility (I)	0.600**
Health issues (J)	0.270**

**Correlation is significant at the 0.01 level (2-tailed).

Correlation is a concept that describes the effect of two or more phenomena occurring at the same time and thus being related. Here in the research, bivariate correlation is done based upon Pearson correlation coefficient. The value ranges from -1 to 1. It is done to study the linear correlation between the constructs and the ultimate intent, i.e. using online learning platform. The values are listed in the table above. Here affect is highly correlated with using OLP showing Pearson coefficient value of 0.521**. Learner's perception is positively correlated with using OLP showing Pearson coefficient value Perceived learning is correlated with using OLP showing Pearson coefficient value of 0.569**. Belief is correlated with using OLP showing Pearson coefficient value of 0.491**. Similarly, persuasion is correlated with using OLP showing Pearson coefficient value of 0.282**. Health issues correlates with using OLP with a value of 0.270**. Brand correlates with using OLP showing Pearson coefficient value of 0.525**. Accessibility is correlated with using OLP showing Pearson coefficient value of 0.600**.

13. Discussion

The purpose of this research is to look into the elements that influence students' opinions and acceptance of online learning and educational technology. The study's findings indicate that all elements have a substantial impact on students' attitudes and adoption of educational technology (Ed-tech). factors such as affect, learner perception, perceived learning, using online learning platform, belief, persuasion, brand, accessibility, and health issues all play important roles in shaping students' perceptions. The technology acceptance model is built on external factors such as: IT infrastructure, educational support system, institutional culture, awareness, ease-of-use, and perceived utility, all of which play a key role in boosting student acceptance of online learning. It is also supported by the findings of earlier studies (Abu-Taieh et al., 2022; Alshehri et al., 2019; Ituma, 2011). The findings of this study indicates that, the majority of students had a favourable perception towards the e-learning system and Ed-tech. A potential justification for the respondents' positive attitudes towards online learning and acceptance of educational technology due to high utilisation of technical support from institutes and fellow students. When it comes to the perception of the various components of online learning and Ed-tech, the results demonstrate that almost all of the students ranked the courses component as extremely valuable and useful. The lecture slides, seminar notes, a study guide, and pertinent articles were among the course content components easily available to students. All of the lecture slides were uploaded prior to the lecture dates. The highest ranking for this component is most likely due to the fact that it helps students prepare for lectures, frees up time for note taking and active participation in lectures, and provides them with catch-up material. Having a favourable perceptions towards online learning and Ed-tech may aid in easier assignment submission, effective time management, and so on. This shows that students will be utilising these components effectively through online learning.

Online learning makes it possible to become updated about each activities done by your

respective subject teacher. Therefore, not only students but also parents are also able to see the progress of their children. In today's time effective monitoring and anytime learning is possible through educational technology. It is available as per your convenient. It is observed that various institutions are running their courses using educational technology effectively and smoothly.

Factors Influencing Online Learning and Adoption of Ed-tech:

124

14. Implication

The research has highlighted the factors which affects the perception and acceptance of Ed-tech for online learning. The study has found that there are multiple factors which influences the perceptions of students and parents towards the Ed-tech. This research provides several theoretical and practical implications. First, by offering a comprehensive model that encompasses the most relevant factors of Ed-tech acceptance among students, this research adds to the body of information on educational technology adoption. Second, this study demonstrates that important factors such as affect, learner's perception, perceived learning, using OLP, belief, persuasion, brand, accessibility, and health issues played a significant role in having a positive perception towards online learning and acceptance of Ed-tech. It ensures the continuity of the learning process by using such tools. Third, the study's findings can assist students and in better understanding the process of various Ed-tech applications and deployment. In order to optimise the use of educational technology, institutions should address essential elements linked to online learning. Finally, the findings of the study will help decision makers, educators, and developers in educational institutions ensure that students actively participate in utilising and accepting educational technology.

15. Conclusion

Education is evolving, and technology is bringing new ways of delivering and learning knowledge: online learning platforms including the Ed-tech platforms are one of its gifts. Ed-tech platforms that use technology to change the way of learning are seen as a boon by some, while a bane by others. In this study, trail was made to explore a few dimensions that may influence on the use of online learning and as per our results, they were found to be influencing in a way. However, these dimensions and issues aren't exhaustive; thus, the results may not be generalized for online learning and the globe. Yet, one can infer some degree of relationship and may further study on the same. How will the online learning grow in the next few years is a matter to look upon, as well as its impact on traditional offline classroom learning. In India, online learning is in the growing phase, also in the study it is seen that issues like internet connectivity is still a big concern for online learning. With growth of technology, we may see more forms of blended learning of both offline and online learning and in many cases; online learning may take the lead, replacing the traditional way of learning. What will be the future? Only time will say.

16. Limitations and Scope for Future Research

This study aimed to explain the main determinants of online learning and Ed-tech acceptance in India. The results of the study indicated that Affect, Learner's perception, perceived learning, Using OLP, Belief, Persuasion, Brand, Accessibility and Health issues had primary roles in influencing their perception and Ed-tech acceptance. The findings indicated that all factors had a significant influence towards online learning platform and educational technology acceptance among students. However, this paper has made significant contributions to the existing literature. The limitation of this study was that neither the teachers nor the students were trained to teach and study online as everything was sudden due to the pandemic, thus the results of this study might differ with similar kind of other studies done so far. Other limitation was the time constraint. Further, this study has only focused on students but the results might differ if other set of respondents are also included in the study. In future, the comparative study between the local and international institutions might be conducted to see if there are any differences in students' intentions towards online learning and educational technology acceptance. Future studies can also focus on the differences in enjoyment and learning intentions between students studying in institutions

and schools. Finally, cross-country studies in Asia might help to understand whether the learners' learning styles in different cultures can be one of the reason in their choice of learning mode and educational technology acceptance. The sample was taken from the students only. It may be possible that both of the methods like quantitative and qualitative can be added in future research.

Declarations

References

Abu-Taieh, E. M., AlHadid, I., Alkhawaldeh, R. S., Khwaldeh, S., Masa'deh, R. E., Alrowwad, A. A., & Al-Eidie, R. (2022). An empirical study of factors influencing the perceived usefulness and effectiveness of integrating e-learning systems during the COVID-19 pandemic using SEM and ML: a case study in Jordan. Sustainability, 14(20), 13432.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), Action control: From cognition to behavior (pp. 11-39). New York: Springer.

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. New Jersey: Pretice-Hall.

Alfadda, H. A., & Mahdi, H. S. (2021). Measuring students' use of zoom application in language course based on the technology acceptance model (TAM). Journal of Psycholinguistic Research, 50(4), 883-900.

Allen, I. E., & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. Babson Park, MA: Babson Survey Research Group and Quahog Research Group. http://www.onlinelearningsurvey.com/reports/changingcourse.pdf

AL-Nuaimi, M. N., Al Sawafi, O. S., Malik, S. I., Al-Emran, M., & Selim, Y. F. (2022). Evaluating the actual use of learning management systems during the covid-19 pandemic: an integrated theoretical model. Interactive Learning Environments, 1-26.

Alshehri, A., Rutter, M. J., & Smith, S. (2019). An implementation of the UTAUT model for understanding students' perceptions of learning management systems: A study within tertiary institutions in Saudi Arabia. International Journal of Distance Education Technologies (IJDET), 17(3), 1-24.

Bell, Bradford S., and Jessica E. Federman. "E-Learning in Postsecondary Education." The Future of Children, vol. 23, no. 1, 2013, pp. 165-85. Crossref, doi:10.1353/foc.2013.0007.

Cheung, R., & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. Computers & Education, 63, 160-175.

Davis, F. D. (1989). Perceived usefulness: Perceived ease of use and user acceptance of information technology. Management Information Systems Quarterly., 13(3), 983-1003.

Davis, F. D. (2011). Foreword in technology acceptance in education: Research and issues. Rotterdam, The Netherlands: Sense Publishers.

Doll, K., Ragan, M., Calnin, G., Mason, S., & House, K. (2021). Adapting and enduring: Lessons learned from international school educators during COVID-19. Journal of Research in International Education, 20(2), 114-133.

Grani?, A., & Maranguni?, N. (2019). Technology acceptance model in educational context: A systematic literature review. British Journal of Educational Technology, 50(5), 2572-2593.

Gupta, M. A., & Kumar, S. (2019). Do Emotional Intelligence Influence Investment Decision Making Among Generation Y?. Think India Journal, 22(10), 1340-1348.

Gupta, S. (2022). Gamification and e-learning adoption: a sequential mediation analysis of flow and engagement. VINE Journal of Information and Knowledge Management Systems, (ahead-of-print).

Gupta, S., Mathur, N., & Narang, D. (2022). E-leadership and virtual communication adoption by educators: An UTAUT3 model perspective. Global Knowledge, Memory and Communication, (ahead-of-print).

Gupta, S., Mishra, O. N., & Kumar, S. (2021). Citizen empowerment and adoption of E-governance services: the role of online citizen skills, awareness, and engagement. International Journal of Electronic Governance, 13(4), 386-407.

Ituma, A. (2011). An evaluation of students' perceptions and engagement with e-learning components in a campus based university. Active Learning in Higher Education, 12(1), 57-68.

Jindal, Aman&Chahal, Bhupinder. (2020). Challenges and Opportunities for Online Education in India. Pramana. 8. 99.

Kelly, Deborah., Rebman, Carl M., "perception and acceptance of online education: do online courses pass the muster?" Issues in Information Systems, 2014. Crossref, doi:10.48009/2_iis_2014_49-58.

Kulal, Abhinandan, and AnupamaNayak. "A Study on Perception of Teachers and Students Toward Online Classes in Dakshina Kannada and Udupi District." Asian Association of Open Universities Journal, vol. 15, no. 3, 2020, pp. 285-96. Crossref, doi:10.1108/aaouj-07-2020-0047.

Kumar, S., & Gupta, A. (2019). Impact of IT support system and Organizational Culture on Innovation and Job Performance: Mediating role of KM Attitude. Ramanujan International Journal of Business and Research, 4, 137-160.

Kumar, S., Lochab, A., & Mishra, M. K. (2023). Challenges Faced by Affiliated Institutions (Tier-II) in Outcome-Based Education (OBE) Implementation: A Literature Survey. Technology-Driven E-Learning Pedagogy Through Emotional Intelligence, 182-193.

Kumar, S., & Gupta, A. (2019). Impact of IT support system and Organizational Culture on Innovation and Job Performance: Mediating role of KM Attitude. Ramanujan International Journal of Business and Research, 4, 137-160.

Larreamendy-Joerns, Jorge, and Gaea Leinhardt. "Going the Distance with Online Education." Review of Educational Research, vol. 76, no. 4, 2006, pp. 567-605. Crossref, doi:10.3102/00346543076004567.

Mishra, M. K., & Kumar, S. (2023). Impact of digitalisation on youth consumer dynamics: a review of literature using R-software. International Journal of Public Sector Performance Management, 11(2), 177-190.

Mitra,S., (2018) "Billion Dollar Unicorns: Byju's Is India's First EdTech Unicorn." 21 Sept. 2018,www.sramanamitra.com/2018/09/17/billion-dollar-unicorns-byjus-is-indias-first-edtech-unicorn.

Mondal, Ajit. "Free and Compulsory Primary Education in India Under the British Raj: A Tale of an Unfulfilled Dream." SAGE Open, vol. 7, no. 3, 2017, p. 215824401772703. Crossref, doi:10.1177/2158244017727037.

Moreno-González, A., Calderón-Garrido, D., Parcerísa, L., Rivera-Vargas, P., & Jacovkis, J. (2023). Survey data on Families' perceptions of ed-tech corporations, educational digital platforms and children's rights. Data in Brief, 47, 109017.

Murday, Kimmaree, et al. "Learners' and Teachers' Perspectives on Language Online." Computer Assisted Language Learning, vol. 21, no. 2, 2008, pp. 125-42. Crossref, doi:10.1080/09588220801943718.

Ni, Anna Ya. "Comparing the Effectiveness of Classroom and Online Learning: Teaching Research Methods." Journal of Public Affairs Education, vol. 19, no. 2, 2013, pp. 199-215. Crossref, doi:10.1080/15236803.2013.12001730.

Park, N., Lee, K. M., & Cheong, P. H. (2008). University instructors' acceptance of electronic courseware: An application of the technology acceptance model. Journal of Computer-Mediated Communication, 13, 163-186.

Perez, E., Manca, S., Fernández-Pascual, R., & Mc Guckin, C. (2023). A systematic review of social media as a teaching and learning tool in higher education: A theoretical grounding perspective. Education and Information Technologies, 1-30.

Pham, H. H., & Ho, T. T. H. (2020). Toward a 'new normal'with e-learning in Vietnamese higher education during the post COVID-19 pandemic. Higher Education Research & Development, 39(7), 1327-1331.

S. Anisha., A. Kalaivani. (2016) "factors influencing buyers behaviour while purchasing" Shanlax International Journal of Commerce, ISSN: 2320-4168

S.H., Salman. "BYJU's Acquires Code Training App WhiteHat Jr for $300 Million." Mint, 5 Aug. 2020, www.livemint.com/companies/news/byju-s-acquires-code-training-app-whitehat-jr-for-300-million-11596647959030.html

Saad, By Brandon Lydia Busteed. "In U.S., Online Education Rated Best for Value and Options." Gallup.Com, 14 Jan. 2021, news.gallup.com/poll/165425/online-education-rated-best-value-options.aspx.

Saadé, Raafat George, et al. "Exploring Dimensions to Online Learning." Computers in Human Behavior, vol. 23, no. 4, 2007, pp. 1721-39. Crossref, doi: 10.1016/j.chb.2005.10.002.

Sarin, M. N. (2019). The Right of Children to Free and Compulsory Education Act (RTE) in India (Doctoral dissertation, UCL (University College London)).

Sheldon, P. (2016). Facebook friend request: Applying the theory of reasoned action to student-teacher relationships on Facebook. Journal of Broadcasting & Electronic Media, 60(2), 269-285.

Triandis, Harry C. "Some Universals of Social Behavior." Personality and Social Psychology Bulletin, vol. 4, no. 1, 1978, pp. 1-16. Crossref, doi:10.1177/014616727800400101.

Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. Information and Software Technology, 52(5), 463-479.

Weerasinghe, S., & Hindagolla, M. (2017). Technology acceptance model in the domains of LIS and education: A review of selected literature. Library Philosophy & Practice, 1582, 1-26.

Yagelski, Robert P., and Jeffrey T. Grabill. "Computer-Mediated Communication in the Undergraduate Writing Classroom: A Study of the Relationship of Online Discourse and Classroom Discourse in Two Writing Classes." Computers and Composition, vol. 15, no. 1, 1998, pp. 11-40. Crossref, doi:10.1016/s8755-4615(98)90023-8.