

## Blended Learning the new normal of Education

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### Abstract

Online Learning is part of Blended learning and is a learning technique in which use of both ordinary teaching and advanced modern online teaching, online learning materials are largely used. It has been around for more than two decades however it has not gotten the approval it sought to have. It is the dissemination of e-learning module courses using internet infrastructure and sources. This study, therefore, aims to review students, teachers, professionals' perceptions of blended online learning on various aspects of the learning process. The study seeks to answer the question as to whether there is any correlation between stakeholders derived independent variable and their perception concerning the merits and demerits of online blended learning. The aim of the study is also to show how well students and business professionals accept blended learning as a new normal. The primary and secondary methodology used by conducting a survey and further analysis of the information got is applied. The data collection involves 385 education stakeholders who participated in the online survey and the results were analyzed using modern PLS. Online education seems to stay for the time and in the future as per consensus through interviews and surveys conducted. Online blended learning has been seen to optimize the maximum benefits of old teaching methods and access to online learning materials. Also, will allow more students to access the learning and will develop professor skills in adjusting the assessment for digital.

**Keywords:** distance education; faculty satisfaction; higher education; online teaching, Stakeholder satisfaction, Technology Acceptance, blended learning

## Introduction

Online Education, which has been around for more than a decade and had resistance from various stakeholders, has now a consensus. There are indications this will be around in the future and might be the main option. The COVID 19 situation has forced the experimentation with Online education and has induced a liking for the same and acceptance along with its limitations (Nambiar,2020). World bodies like UNESCO provide support to various countries through solutions for inclusive distance learning. UNESCO together with other local bodies works to ensure continuity of learning for all, especially disadvantaged children and adolescents who tend to be hardest hit by school closures (UNESCO, 2020). There have been many challenges and issues envisaged due to Online Education which seem to be more psychological and slowly melting down as more people are having hands-on experience (Larmuseau et al., 2020). Even most companies have now experienced with the work from home experiments and many corporates want to continue in the future into the next 5 years. It is of interest to know the general opinion and experience of various stakeholders on Online Education which this article hopes to capture through interviews and primary research by survey questionnaire. The various advantages, challenges and issues are captured in the article. Smart classes, Infrastructure needs, Learner needs, Learner and Teacher interaction, Learner interaction, Classroom ambience, Environment need to be addressed urgently (Nguyen, 2017). So, **blended learning**, a combination of face-to-face teaching and online teaching is catching up and seems to be preferred by the students as it supports student-centric program courses and is flexible to the student needs. Learners can avail themselves of the attendance option of online, offline or face to face as it might suit them. However, blended learning has the potential to enrich classroom learning, redesigning the learning environment with greater freedom for learners (Smith & Hill, 2019); (Vo et al.,2017). Students can decide to study independently at their convenience of time and place and determine content and learning pace individually.

## Traditional Education Vs. Online Education

In the current COVID 19 situation, due to social distancing norms, most of the institutes and Universities across the Globe, have been pushed to offer online courses for different types of diplomas, certifications, and academic degrees. This research study will focus on the pros and cons of online education. The Internet is already changing the world of Education. It is making a major difference to not only the Learners, teachers but also to the regulators and the administrators (Yarychev et al., 2020).

**Online Education Pros:** The students get more flexibility to set their schedules and programs using online education. It gives busy people the option to use online courses

and still enjoy their workplace and home life and maintain balance in their lives. It gives the learners to upgrade their skills without taking out time from their workplace. For busy people, this is probably the only way that they can study to go further in their Life (Vaida, 2020). The journey during weekends and or after office hours is tiring and a lot of time, cost of commuting is saved. The cost of education comes down further due to fewer tuition fees and premises maintenance and uptime cost. Space is not a constraint if one studies in a home comfortable environment (Gupta et al., 2021). If the necessary bandwidth is available students can study from anywhere on the globe, thus increasing the volumes and reducing the cost incurred per student. The initial cost of investment is high however it is a one-time investment and the profit flows in the months to come later as the Business grows (Pesha et al., 2020).

**Online Education Cons:** Online education requires self-discipline as one has to manage everything on one's own, whereas in a brick-and-mortar situation the environment is set by the college administration. Studying from home sometimes has a negative effect on the motivation to work and sometimes the work environment needed. However, some people relish the comfort of home with family and do well (Milicevic et al., 2020). The Learners have the option of remaining in the classroom keeping their videos and mike muted which is convenient for the student however not so liked by the teachers. This leads to the students having a greater hold on the education process. For example, even the teachers might post online education, audio and video clips with the same dedication, the students might not display the same dedication that they would in a face-to-face classroom (Seethal et al., 2019). The University/college campus has been the meeting place for the learners which they cherish, and this has become rare these days due to the COVID situation and more so in the future, as students opt for online education. The college campus culture will slowly get eradicated due to the online education model (Anthony et al., 2020). Also, the lack of internet facilities in certain areas or the bandwidth being low students struggle to be connected for online classes which was not a limiting factor in the face-to-face module. Internet Connectivity and Infrastructure can be a negative point on online education. These are just some of the distinguishing points between online classes and traditional classes (Yarychev et al., 2020).

**Blended learning** means using face to face learning, teaching and partly online education using internet facilities, enabling students to learn offline, online and face to face physically at the Campus. So flexible Blended learning is referred to as blended learning in this research article (Zhang et al., 2020). Blended learning is the only answer for the flexibility needs of the current learners, to decide the topic they want to study, when, where, how, and to cater to student-centric model education. It would reach more students globally and attain the goals of various economies globally and the UN, sustainability goals (Jdaitawi, M. (2020).

### Comparison between face to face, Vs online learning and blended learning

<b>Face to Face</b> (Dang et al., 2016)	<b>Online learning</b> (Joo et al., 2017)	<b>Blended learning</b> (Jdaitawi, 2020)
Face to Face relies mainly on delivering lessons face to face on campuses.	Relies on online resources to deliver learning courses, online and offline material	Combine both online and offline learning along with face to face learning
Ensures Campus environment	No Campus environment	Partly exposing the learners to the Campus environment
Traditional and wide acceptance	Technology-based and just now catching up	This is a compromise between the two models and slowly gaining acceptance.
Costly to maintain the brick-and-mortar resources	Only initial Investment in technology is needed and a cheaper option	The investment is more than online resources but lower than face to face learning programs
Teachers and staff are already well trained	Employees are learning and getting training	Employers are getting trained in these using this model
Not possible to use this model due to Social distancing in the COVID situation	Popular option during the COVID situation	Popular option during post-pandemic COVID situation and poised to be the future of education
No such technology-related issues	Internet Infrastructure and Bandwidth issues	Internet Infrastructure and Bandwidth issues

**Table 1**



5 W AND 1H Blended learning Model

Figure 1

## The blended Learning design process

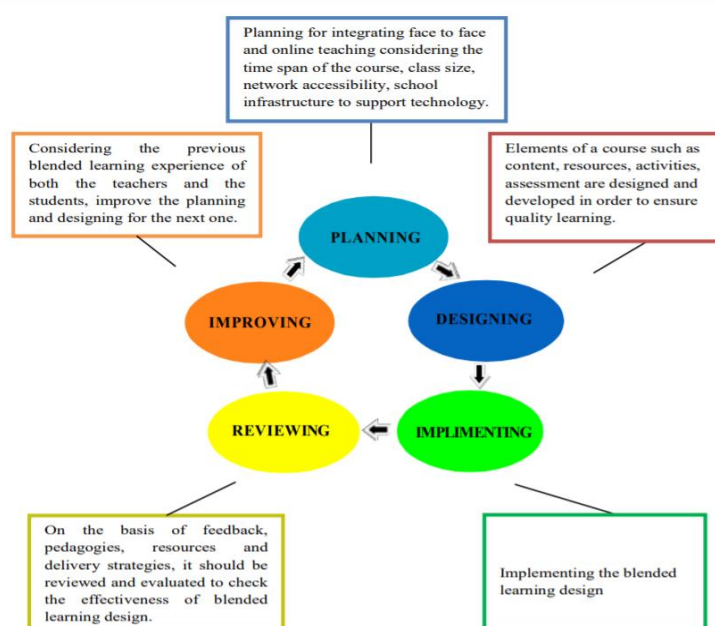


Figure 2

Themes	References
Customized learning programs, student-centric programs	(Iyer et al., 2020)
Increased learner engagement and motivation	(Bazelais et al., 2018)
Better participation	(Castro, 2019)
Learning according to own style and pace	(El Rizaq et al., 2021)
Flexibility	(Howells, 2018)
Improved performance and outcomes	(Serrano et al., 2019)
Better critical thinking skills imparted	(Lackovic et al., 2017)
One to one tutoring is possible	(Mata et al., 2016)
Group activity	(Dabbagh et al., 2012)
Feedback possible	(Nambiar, 2020)

**Table 2 Blended Learning System Benefits**

Blended learning has gained importance as it is different from the traditional teaching method and liked by the technology savvy learners, customized for every single learner. It enables students to follow their flexible learning time and style and to learn at their own pace. It offers availability flexibility, it allows a student to access the materials from anywhere at any time while enjoying the benefits of face-to-face support and instruction (Bruggeman et al. 2021). It supports more effective interactions between the learners and their instructors through the use of emails, discussion boards and chat rooms. Learners and teachers can track student progress. It supports activities that nurture different learning styles. E-learning improves teaching and learning quality using technology (Musdalifah et al., 2021).

### **Theoretical background and literature review**

The TOE theory, DOI and TAM are relevant for this topic however individually they do not explain the full situation so the research study has used the integration of the three theories for making the conceptual model (Hoi, 2020). The TOE theory involves technology, environmental, Organizational factors which affect the implementation of any new technology or innovation at the organization level and the diffusion of innovation theory will focus on the time and effort required for the diffusion of

innovation to happen (Jones et al., 2021). Technology acceptance Model TAM is about the perceived use of the user, the perceived usefulness of blended learning which will lead to behavior change to implement the blended learning system (Sánchez et al., 2017); (Wu et al., 2017).

### **Technology Factors:**

Modern Education needs to align with the Learner expectations to use technology to reach out to them and learning, delivering, recording, verifying, submissions are all technology-based. Compatibility, Complexity, Perceived Barriers, Perceived Benefits, Perceived risks, Relative Advantage, Trialability. Technology is the main cause of blended learning happening smoothly (Lazar et al., 2020). It depends on the technical resources, technical competencies of the IT team. It involves an initial high investment in technology and it can reap the rewards for the long term. The COVID situation has made blended learning a priority and technology is the main recourse to pursue it. So, this technology need has made the use of technology, expertise and technical know-how a must for all teachers and administrators along with the students (Apandi et al., 2020). The main factor that influences the usage of the technology is the perceived value of the technology to the Business, organization. The perceived ease of using technology for education in teaching and learning will influence the actual use of the Blended learning system. The use of technology is favored by most learners on mobile applications, iPad or smart gadgets, so the compatibility, complexity, is much reduced (Kim et al., 2017). The relative advantage of using technology for implementing blended learning reduces the barriers and enhances the benefits, the perceived risks are minimum in the current COVID situation. The new system is already under trial and the improvements are being considered in the last two years. Gamification can be used to keep the interest of the students and improve the skills required by the industry (Ramírez et al., 2021).

### **Environmental Factors:**

Competition, Customer Pressure, Customer readiness, Government policies, Market uncertainties, third parties, Social distancing regulations are the environmental factors which have affected the implementation of the Blended learning system are mentioned above. The education sector has changed due to the COVID situation. All learners had to depend on the remote lessons on virtual platforms using Skype, Zoom, Microsoft Teams, Google hangout to list a few popular platforms (Ching et al., 2020). So, the forced social distancing norm in recent times has accelerated the shift to blended learning implementation. The student's readiness to use blended learning is evident in earlier research studies. The government policies to maintain social distancing and closing of all educational institutes to shift to alternate learning methods has created



the environment for online education to take off and using technology infrastructure availability, enable students to study from their homes (Ergado et al., 2021). The market recession, job losses and closing of all trade activities have led to economic turmoil never seen before and most sectors including the education sector are facing the brunt of the COVID (Salmi, 2020).

### **Organizational Factors:**

The Organizational factors have been identified as Return on Investment, Brand name, Top Management, Culture, Training & Supervision, Financial readiness, Firm size, Internal needs, IT Preparedness which influences the implementation of blended learning. Most organizations have inertia to change and to adopt anything new due to the financial, cultural and managerial considerations (Menon et al., 2021). The return on investment for the earlier investments has been poor and leaves the organization in a dilemma whether to invest in new technology or wait to recover the earlier investments made in brick and mortar premises. Some of the educational organizations have their reputation at stake if all institutions were to offer similar programs online and there won't be any niche areas. The attitude and mindset of the top management in most cases are an obstacle to the adoption and implementation of the blended education system (Kamaludin et al., 2021). The culture of the organization towards stability, flexibility to change and to train employees for future work skills. The firm financial condition and readiness to invest further is another factor influencing the implementation of the blended system (Gromakova et al., 2021). The number of employees and the internal needs to make a profit is other factors for the organization to consider before implementing the blended learning system. The IT preparedness and the technology acceptance of the employees play an important role in implementing blended learning (Anthony, 2021).

### **Human Factors:**

Awareness of the need to change in existing Education System, Desire to Change, Implementation Knowledge of change, Ability to demonstrate skills and behaviors, reinforce to make the changes to system stick. The human factors are most important in the adoption and implementation of the blended learning system (Aditya et al., 2021); (Huy et al., 2020). The major resistance to any adoption comes from the employees who find it difficult to change and adopt new technology. So, the awareness of the need to change should be spread, then the desire to change should be encouraged by knowing the benefits and the easiness to change. The skills and knowledge need to be imparted by the organization to their employees (Oliveira et al., 2021). Then the ability to demonstrate the skills, attitude and behavior to these changes and implementation by the employees. The reinforcement to make these changes and



ensure they stay and not go back to the old systems is the last step of the change envisaged (Siegel et al., 2017); (Vaportzis et al., 2017)

**Actual implementation of system for blended learning:** (AIS) Infrastructure, regulation, forced situation, Government support, Peer pressure, Education needs are the sub-variables identified for the dependent construct in the research framework. The blended learning system has infrastructure needs like Internet availability, the bandwidth required, the quality assurance for the blended courses, regulations (Medina, 2018). Peer pressure to ensure the classes go on despite the COVID situation and the necessary education needs of society to be met. Government support in terms of policies, tax breaks for the educational organization and regulation to recognize blended learning courses accreditations are some of the points currently under discussion and will decide the way forward of future learning and education (Arghya et al., 2019).

### **Methodology**

The research study identified the independent construct and the dependent construct along with the sub-variables by finding the suggestions and gaps in the scholarly articles on the topic. Then the secondary research leads to primary research of formulating questionnaires and circulating to the experts in the field to get their opinion to refine the same. The research involved an online survey using google forms send to about 1000 respondents and a direct response from about 385 of them analyzed to arrive at the findings and further direction of research. Then the data collected using google forms is analyzed using Adanco and tabulating the findings (Chuang et al., 2015).

### **Hypotheses Suggested**

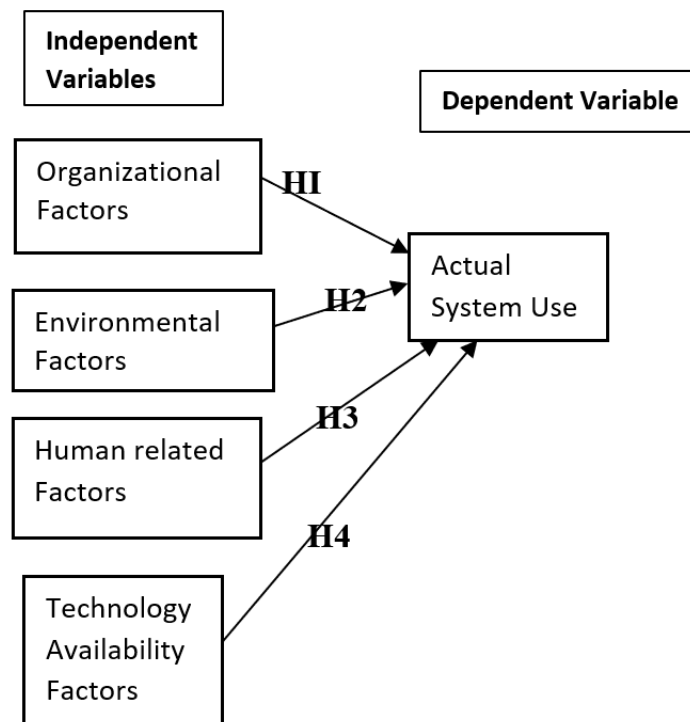
**H1: There is statistically significant relationship between Organization related factors and the actual implementation of system for blended learning.**

**H2: There is statistically significant relationship between environmental related factors and the actual implementation of system for blended learning.**

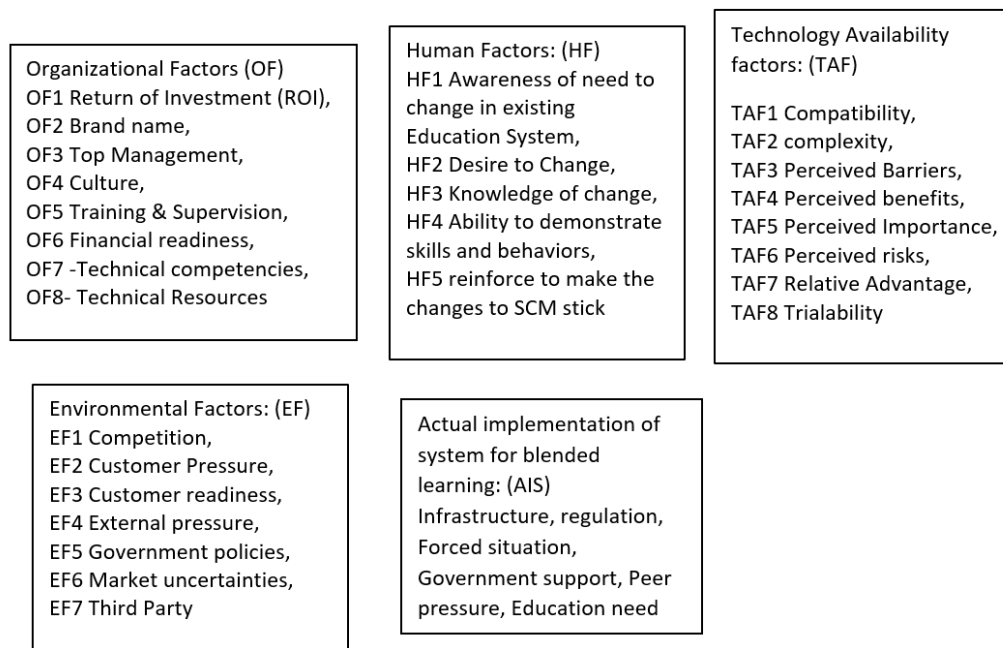
**H3: There is statistically significant relationship between technological factors and the actual implementation of system for blended learning.**

**H4: There is statistically significant relationship between Human related factors and the actual implementation of system for blended learning.**

### **Research Framework**



**Figure 3**



**Figure 4**

**Findings and discussions**

**Demographics**

Demographic Variable	Category	Percentage	Numbers
Age Group	18-24	36.01	139
	25-34	33.16	128
	35-44	15.02	58
	45-54	13.21	51
	55+	2.59	10
Gender	Male	53.10	205
	Female	46.89	181

Demographic Variable	Category	Percentage	Actual Numbers
Respondents using smart devices regularly (386 participants and some participants gave multiple answers as most of them use multiple devices)	Smart Phones	95.85	370
	iPad	41.70	161
	PC's	78.49	303
	Smart TV	40.41	156
	Accessories working on Blue tooth	56.73	219

**Table 3**

Country-wise Breakup of participants (386 responses- 100%)				
Australia 18 (4.67%)	Singapore/Malaysia 38 (9.84)	India/Pakistan/Bangladesh 127 (32.90)	UAE/Oman/Kuwait/Bahrain 148 (38.34)	Others (USA/Europe) 55 (14.25)

Demograph ic Variable	Category	Percenta ge	Demograph ic Variable	Category	Percenta ge
Education	Highschool	1.81 (7)	Income Level	Under 6000 AED	15.28 (59)
	Undergradu ate	13.99 (54)		6001-12000 AED	26.42 (102)
	Graduate	37.82 (146)		12001-18000 AED	33.16 (128)
	Masters	39.37 (152)		18001-24000 AED	10.5 (59)
	Doctoral	6.99 (27)		Above 24001	30.5 (38)

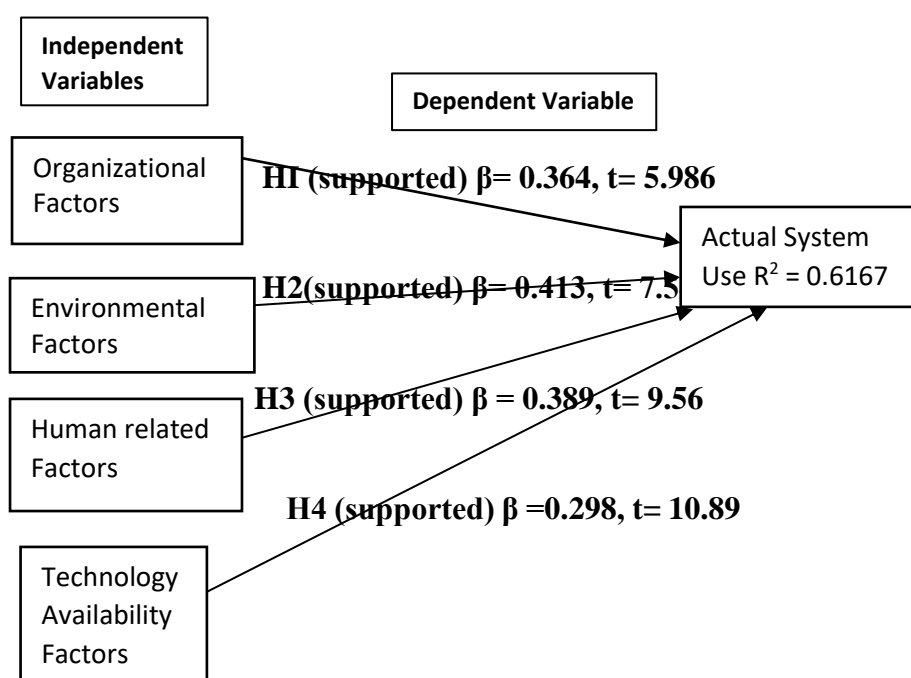
Parameter to be considered	Parameter range	What it means	Comments related to our study
Goodness of model fit (saturated model)	SRMR value should be below 0.08 to be acceptable model, If the dULS exceeds the bootstrapping values given by Adanco HI 95 and less than - H 199-values, it is very likely that the model is true	The parameter range decides whether the model is acceptable or not acceptable and changes are required to the conceptual model suggested earlier	The values of SRMR was well below 0.02 indicating the model is acceptable and the values of dULS was well in the range of HI95% and HI99% signifying that the suggested conceptual model is acceptable and very likely to be true (Supported)
Reflective measurement model- Indicator reliability (loadings)	Indicator loadings score needs to be above 0.7	It means that the construct explained more than 50 percent of a variable for every construct loading score above 0.7	The values in the indicator loading scores of Adanco output shown all values well above 0.7 as required.
Reflective measurement model- Internal consistency reliability	The measure is given by Jöreskog's rho (pc) and needs to be 0.6	Scores above 0.6 indicate higher significance and high reliability	The values of Jöreskog's rho (pc) for the model for all constructs were well over 0.6, the minimum acceptable level indicating high reliability of the constructs shown in the model.
Reflective measurement model- Construct reliability	Cronbach's alpha was used to measure and examine the reliability for all the constructs	Cronbach's alpha values of above 0.7 or above is acceptable as and the higher the Cronbach's alpha, the higher the reliability of multiple measures for the measurement of each construct	All the values of Cronbach alpha in the Adanco Output were well over 0.75 for the model indicating high reliability of multiple measures for each construct measurement.
Reflective measurement model- Convergent validity	Convergent validity examines the extent that a construct converges with the specific construct's indicators by explaining the items' variance with other constructs.	The mean of the squared loadings for all indicators AVE Average variance extracted should be over 0.5 to be acceptable and explains more than 50 percent of the variance of construct items	The Adanco output of Convergent validity showed all values AVE well over 0.65 thus acceptable for this research model.
Reflective measurement model- Discriminant validity	Discriminant validity methods used to measure the different constructs differ in terms of how much a variable correlates with other variables and how much the indicators represent only a single variable.	Fornell-Larcker criterion and cross-loadings, Squared correlations; AVE in the diagonal should be the highest along the diagonals	The Fornell-Larcker values along the diagonal shown in the Adanco table is maximum and indicates the discriminant validity of the constructs of the model.
Structural model assessment- Collinearity	to ensure the results were not biased by collinearity issues, variance inflation factor (VIF) was used to measure for each indicator in the construction	the value of VIF less than 5 is acceptable and assumed to be safe for avoiding any collinearity issues, but there could be exceptions	There is no collinearity issues or bias as all the value are well within 4.5 for the constructs indicating Structural collinearity
Structural model assessment- predictive relevance	The coefficient of determination (R <sup>2</sup> ) was used to measure how well the construct was explained toward all the constructs in the research	the minimum requirement of R <sup>2</sup> was 0.2, and the construct was relevant and significant if the value of R <sup>2</sup> exceeded 0.2	The R <sup>2</sup> Values for the construct was well over 0.25 confirming that the constructs were relevant and significant
Structural model assessment- significance and relevance of path coefficients	The p values and the t values along the R <sup>2</sup> indicate the model significance and path coefficient relevance for the constructs	The two-sided p values should be below 0.02 and closer to 0.00 to indicate good relevance and t values should be minimum 5.0 for the model constructs to be accepted.	The final step in the structural model assessment was significance and relevance of path coefficients. The two-sided p values were well within 0.01 for all constructs and the t values well over 5.5 as shown in the table 4.

**Table 4**

The results showed that all the independent constructs had a positive and significant relationship with Blended education system adaptation and implementation. The results show that all of the hypotheses were authenticated and supported by the data (Abdullah et al., 2016); (Bowyer et al., 2017); (Shiau et al., 2019).

The research objective of this study was to identify the relationship between constructs of technology-related factors, Human related Factors, Environmental related Factors, Organizational related factors and Implementation of a Blended learning system for Education. All the hypotheses are accepted, and the relationships are statistically established through this study to achieve the primary objective (Romero et al., 2020).

### Status of Findings



**Figure 5**

All path coefficients are significant \*\*\* and t- values are above 5, so the model indicates good relationships between the constructs and explains them to the extent of 61.67% (Bowyer et al., 2017), (Sarstedt et al. 2023).

The blended learning system is Technology-based, and it has been accelerated into the forefront due to the forced environment situation of recession and COVID, keeping the government regulations of social distancing to be followed. This calls for technical competence of the employees which is dependent on the investment in technology and the training of the employees (Williamson et al., 2020). The Management support is

crucial and dependent on their mindset and attitude to keep going in a difficult situation and making the whole system student-centric and use gamification to make the implementation interesting to the learners and teachers. The blended education system has the advantage of cheaper mode and the learner's convenience in mind (Abu-Shanab, 2017); (Imran et al., 2023) . The earlier Academicians' resistance to online education or blended education has melted down due to the COVID situation. The main reasons for resistance have been the mindset of the concerned people, the ROI expected in the brick-and-mortar model already made by the reputed Institutions and future devaluation of their brands expected if they agree to the blended learning system (Acosta et al., 2018); (Alammary, 2019).

### **Limitations and Future Research suggestions**

More barriers to blended learning need to be researched in specific areas like medical, engineering or vocational skills education. The correlation between abilities to learn online, speed of online information capture, the Increased capacity of knowledge acquisition, and their perception concerning the merits and demerits of blended learning need to be researched and evidence established by future studies. A bigger sample size of various stakeholders will help to establish more blended learning benefits over the traditional methods of learning. More research studies in future can help identify the reasons for a resistance from top management, employees and government to the blended learning system and the ways to overcome these resistances to enable change management. The emerging technologies that will improve the blended learning system and the quality assurance measurement. Video clips of teaching, delivery methods, class activities and continuous evaluation can ensure quality in education using blended learning. Some standards can be suggested based on these studies (Ching et al., 2020).

### **Research Contribution-**

Use of SPSS to prove Hypotheses and New Technology Adaptation Model tested and validated by SEM using PLS to confirm the results. The primary data collected and presented is the main contributor as there is a dearth of current data. The future way forward for research studies to establish quality assurance and standardization method been suggested for the effectiveness of the system (Arghya et al., 2019).

### **Social and Economic Implication of using Blended Education:**

Reach Customers and the safety of the Learners and teachers is ensured in such a COVID situation, saving the cost, time and effort. Also, not having a big crowd around and having the opportunity to set up a learning environment as per preferences will help students to access this model (Hoi, 2020) more comfortably. Blended education



ensures that cheaper and volumes of scale can be achieved, More savings, increased revenue in terms of more reach, but devaluation in brand and premium names (Degirmenci, 2019).

## Conclusion

This study has achieved its objective to build a model and validate it statistically on the relationship between environmental factors, technology availability, the organization readiness and human resource competencies, skills and acceptance to the implementation of the blended learning system. Most evidence-based studies conclude that blended learning has been successful to some extent in the COVID situation and is preferred by learners over complete online or wholly face to face learning encounters. Blended learning optimizes the advantages of traditional teaching methods and access to online resources. This study confirms education stakeholder's preference for blended learning over traditional learning techniques. Most students irrespective of their age, differ in their learning styles and teaching, delivery methods should consider this, to design teaching lessons in a way that is amicable to visual, auditory, and kinetic impaired learners alike (Del Río et al., 2021). Blended learning uses emerging technologies to enhance teaching, information retention, engagement, responsibility, and enjoyment. Students never outgrow their learning styles, implying that blended learning is more important than ever, no matter which industry or corporation they belong to (Themelis et al., 2020). Blended learning seems to support a student-centered schooling education system as it combines customized learning and competency-based learning (Aditya et al., 2021). The main novelty of the paper lies in its synthesis of emerging trends, research findings, and best practices to advocate for a transformative approach to education. Unlike traditional educational models, blended learning combines face-to-face instruction with online learning tools and resources, offering a flexible and personalized learning experience. The paper has explored how blended learning harnesses the power of technology to enhance student engagement, improve learning outcomes, and increase access to education. By providing evidence-based insights and practical recommendations, the paper has contributed to the global conversation on educational reform and highlighted the potential of blended learning to shape the future of education worldwide (Bourqaiba, 2023).

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