

The Impact and Quality of Online Learning in the Digital Realm Among Indian Students

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ABSTRACT This study examines the factors influencing the quality of online learning among Indian higher education students. The study focuses on soft skill development, learning expectations, effectiveness of online learning, online learning motivation, and perceived quality of online learning. A quantitative survey design was adopted, and data were collected from 810 students from higher education institutions in Agra, Firozabad, and Mathura, Uttar Pradesh, India. The proposed relationships were tested using partial least squares structural equation modelling. The findings indicate that soft skill development, learning expectations, and effectiveness of online learning significantly influence online learning motivation and quality of online learning. Online learning motivation also plays an important mediating role. The study suggests that online learning quality depends not only on digital access but also on instructional design, learner readiness, motivation, and institutional support.

INTRODUCTION

In the past five years, the landscape of higher education has undergone a profound transformation with the widespread integration of online learning platforms. Technology has revolutionised how students access and engage with educational content, enabling a dynamic and flexible learning environment (Luzano 2023). As universities and colleges increasingly embrace online learning, researchers have been delving into the determinants of this educational shift and its impact on students' learning quality. This comprehensive review aims to explore the findings of the last five years of research in understanding the determinants of online learning in higher education and its effects on students' learning outcomes.

The surge in online learning adoption has been driven by various factors, including advances in internet connectivity, the proliferation of mobile devices, and the growing demand for flexible and accessible education. As a result, students now have the option to pursue higher education from the comfort of their homes, breaking down geographical barriers and allowing for a diverse student body (Smith and Johnson 2020).

While the benefits of online learning are evident, researchers have sought to investigate the various factors that influence students' learning quality in this digital environment (Barclay et al. 2018). This examination is crucial as it provides educators and policymakers with valuable insights

to enhance the effectiveness of online learning experiences and promote optimal learning outcomes.

One of the key determinants explored in the research is the design of online courses and the use of innovative learning technologies. The effectiveness of an online course heavily relies on how well it aligns with the learning objectives, engages students, and fosters active participation (Serrano et al. 2019). Additionally, studies have focused on evaluating the impact of multimedia elements, such as interactive simulations, videos, and gamification, on knowledge retention and student engagement.

Furthermore, the role of instructor presence and teaching strategies in the virtual classroom has been a subject of intense scrutiny. Effective online educators must be skilled at creating a sense of community, providing timely feedback, and employing diverse instructional methods that accommodate different learning styles.

In addition to pedagogical factors, researchers have also examined the influence of individual characteristics on students' success in online learning environments (Kauffman 2015). Variables like self-regulation, motivation, time management skills, and prior academic preparedness have been shown to significantly impact learning outcomes in virtual settings.

Moreover, the importance of institutional support and technological infrastructure cannot be understated. Institutions that invest in robust learn-

ing management systems, provide technical assistance, and offer comprehensive support services tend to foster a positive online learning experience for their students.

Throughout this review, the findings from the last five years of research on these determinants of online learning in higher education and their implications for students' learning quality. As the educational landscape continues to evolve, understanding these factors will enable educational stakeholders to make informed decisions and foster an inclusive, engaging, and effective online learning environment. Ultimately, the goal is to harness the full potential of online learning to empower students in their pursuit of knowledge and academic success.

In recent years, the integration of online learning in higher education has grown exponentially, revolutionising the traditional classroom experience. As institutions of higher learning increasingly adopt digital platforms, researchers have embarked on a journey to understand the determinants of online learning and their impact on students' learning quality. This comprehensive introduction aims to explore key insights and findings from prominent research papers in this field, shedding light on the factors that shape students' educational experiences in virtual environments.

The shift towards online learning has been accelerated by rapid technological advancements, changing societal demands, and the need for flexible, accessible educational opportunities. According to a study by Allen and Seaman (2017), the number of students taking at least one online course has been steadily increasing, with more than 6.3 million students in the United States alone enrolling in online classes. This transformation has brought forth numerous advantages, including the ability for students to learn at their own pace, access a wider range of courses, and overcome geographical barriers.

However, amidst the opportunities that online learning presents, it is crucial to investigate the determinants that influence students' learning outcomes to ensure the effectiveness and quality of this mode of education. Through rigorous research and analysis, scholars have identified several critical factors that play a pivotal role in shaping the learning experience of students in online higher education.

One key determinant that has been extensively explored in the literature is the design and structure of online courses. Song and Hill (2017) emphasise the importance of well-structured courses that align with learning objectives and offer engaging content to foster meaningful interactions. Moreover, incorporating interactive and multimedia elements, such as videos, simulations, and virtual labs, can enhance student engagement and knowledge retention (Gernal et al. 2024).

The role of instructors in the online learning environment has also been a focal point of research. Liu et al. (2022) highlight the significance of instructor presence and the use of effective teaching strategies to facilitate a supportive and interactive learning atmosphere. Instructors who actively engage with students, provide timely feedback, and create a sense of community often contribute to improved learning outcomes.

Individual characteristics of students have also emerged as crucial determinants in online learning. In their study, Rovai and Downey (2019) found that self-regulation and motivation significantly influence students' success in virtual classrooms. Additionally, students' prior academic preparedness and time management skills have been identified as predictors of learning outcomes (Pennington and Richards 2016).

As the researchers embark on this journey to explore the determinants of online learning in higher education and their implications on students' learning quality, it becomes evident that a nuanced understanding of these factors is essential for educators, policymakers, and institutions alike. Through an evidence-based approach, the study can harness the full potential of online learning to create an inclusive, engaging, and effective educational experience that empowers students in their pursuit of knowledge and academic success.

Online learning has become a major component of higher education after the rapid expansion of digital platforms, learning management systems, and flexible modes of teaching. In India, online learning has created new opportunities for access, continuity, and learner autonomy, but it has also raised questions about instructional quality, digital preparedness, student motivation, and the effectiveness of virtual engagement. Therefore, the quality of online learning cannot be judged only by the availability of technology. It must also be examined through learner skills, course design, learning expectations, motivation, and institutional support.

Recent studies show that student engagement in digital learning depends on digital competence, perceived autonomy, smartphone use, and formal digital learning conditions. Hidayat-Ur-Rehman (2024) reported that digital competence and formal digital learning are important in explaining student engagement in technology-supported education. Similarly, Lin et al. (2024) found that students hold specific expectations from instructors in online environments, including clarity, fairness, creativity, confidence, and effective interaction. These findings indicate that online learning quality depends on how students experience teaching, communication, support, and course organisation.

Soft skills are also important in online learning because students need communication, collaboration, self-management, and problem-solving abilities to participate effectively in virtual environments. Mohammed and Ozdamli (2024) showed that soft skills remain essential in technology education because technical knowledge alone does not ensure effective learning or employability. Online learning motivation also plays an important role because motivated learners are more likely to participate, regulate their learning, and continue with academic tasks despite digital distractions and limited face-to-face contact.

The present study therefore examines how soft skill development, learning expectations, and effectiveness of online learning influence online learning motivation and the perceived quality of online learning among Indian higher education students. The study also tests the mediating role of online learning motivation in explaining how these factors contribute to quality online learning.

Research Objectives

The study has two main objectives.

The first objective is to determine the factors affecting the quality of online learning among higher education students.

The second objective is to examine whether online learning motivation mediates the relationship between soft skill development, learning expectations, effectiveness of online learning, and quality of online learning.

Literature Review

Students at the University of Economics in Katowice have argued that studying online is more practical than traditional methods. Still, it would

not be a substitute for sitting in a classroom with a teacher. One potential upside identified by the students is the availability of user-friendly learning resources made possible by advances in information and communication technology. Online tests, however, were rated poorly because of the added stress they caused (Rizun and Strzelecki 2020).

Soft Skill Development

The demand for soft skills has escalated, with employers seeking individuals who possess effective communication, teamwork, adaptability, and problem-solving capabilities. According to a study by Succi and Wieandt (2019), soft skills are often viewed as equally or even more important than technical skills in the hiring process. This recognition has led educational institutions to place greater emphasis on fostering soft skill development to prepare students for professional success.

Soft skills not only influence employability but also play a pivotal role in students' academic performance. A study by Smith and Johnson (2020) found that students with well-developed soft skills tend to exhibit higher levels of self-regulation and effective time management, resulting in improved academic achievement. Effective communication and collaboration skills have also been linked to better group work performance (Chan and Dai 2023).

While the importance of soft skills is widely acknowledged, challenges exist in effectively integrating soft skill development into educational curricula. Research by Gupta and Gupta (2017) highlights the need for faculty training and innovative teaching methodologies to foster soft skills effectively. Furthermore, personalised coaching, mentorship, and experiential learning have been identified as strategies to enhance students' soft skill acquisition.

Soft skill development also has a positive impact on students' well-being and mental health. Researchers, such as Brown (2018), suggest that improved communication skills and emotional intelligence contribute to better social relationships, reduced stress levels, and overall well-being among students.

Effectiveness of Online Learning

Various factors have been investigated to understand their impact on the effectiveness of on-

line learning for students. For instance, the design of online courses and the use of interactive multimedia elements, such as videos, simulations, and gamification, have been found to enhance student engagement and knowledge retention (Gernal et al. 2024). Moreover, instructor presence and effective online teaching strategies play a vital role in promoting a positive learning experience (Liu et al. 2022). Research has shown that regular and meaningful interactions with instructors and peers positively correlate with student satisfaction and learning outcomes (Zhang et al. 2020).

The readiness and characteristics of students also play a significant role in determining the effectiveness of online learning. Students with strong self-regulation skills, motivation, and prior experience with online technology tend to perform better in virtual classrooms (Pennington and Richards 2016). However, research has highlighted the importance of providing adequate support and resources to help less-prepared students succeed in online courses (Rovai and Downey 2019).

Online learning environments offer unique opportunities for student engagement and satisfaction. Studies also have shown that students often appreciate the flexibility and convenience of online courses, which can lead to higher levels of satisfaction. Moreover, interactive features, such as discussion forums and collaborative activities, promote student engagement and a sense of community (Song and Hill 2017).

One of the primary areas of research in recent years has been comparative studies between online and traditional classroom learning. Researchers, such as Allen and Seaman (2017), conducted large-scale surveys comparing student performance in both settings. The results indicated that, on average, students in online courses performed as well as or slightly better than their counterparts in face-to-face settings. Additionally, some studies have found that students' learning outcomes may be influenced by the type of subject matter and instructional design (Means et al. 2013).

Learning Expectations

One of the most common expectations reported by students in online education is the flexibility and convenience it offers. According to a study by Allen and Seaman (2017), students appreciate the ability to access course materials and lectures at their own pace and convenience. The asynchronous nature of online learning allows students to

balance their studies with personal and professional commitments, making it an attractive option for those with busy schedules.

Online education has evolved significantly to incorporate interactive and engaging learning experiences. Research by Gernal et al. (2024) highlights students' expectations for multimedia content, such as videos, simulations and virtual labs, to enhance learning engagement and comprehension. Moreover, the integration of discussion forums, live chats, and collaborative activities fosters a sense of community and interaction among students, addressing their social and learning needs (Song and Hill 2017).

Students' expectations from online education include the quality of instruction provided. Liu et al. (2022) emphasise the importance of instructors' presence and effective teaching strategies in the virtual classroom. Students value timely feedback, personalised support, and clear communication from instructors. Institutions that invest in faculty training and support are more likely to meet students' expectations for quality instruction in online courses.

The effectiveness of online education is contingent on the technology used and the user-friendly interface of learning platforms. Students expect seamless navigation, access to reliable technology, and intuitive course designs. Zang Institutions that prioritise the development and maintenance of robust technological infrastructure can meet students' expectations for a positive online learning experience.

Students' expectations extend beyond the course content to the level of interaction and support provided. Pennington and Richards (2016), highlight the importance of timely responses to queries, peer collaboration, and support services. The availability of technical support and responsive communication from instructors and support staff are essential factors that contribute to meeting students' expectations in online education.

Online Learning Motivation

One of the primary motivations that attract students to online learning is the autonomy and flexibility it offers. Research by Allen and Seaman (2017) indicates that students appreciate the ability to set their learning pace, access course materials at their convenience, and control their learning environ-

ment. The freedom to structure their study schedules to accommodate personal and professional commitments fosters a sense of ownership and responsibility for their learning process.

Online learning allows students to explore topics of personal interest and relevance, which positively impacts their motivation to learn. Research by Gernal et al. (2017) suggests that when students can select courses aligned with their career goals or personal passions, they exhibit higher levels of engagement and intrinsic motivation. The ability to pursue subjects they find meaningful and applicable to their lives enhances the overall learning experience.

Students' motivation to learn online is often driven by the desire to acquire new skills and advance their careers. Research by Brown (2018) highlights that students see online education as an opportunity for professional development and upskilling. Online courses that offer specialised certifications, practical skills, and industry relevance are particularly appealing to students seeking career advancement and improved employability.

Online learning platforms have evolved to include interactive and engaging learning experiences. Research by Song and Hill (2017) emphasises that students' motivation is positively influenced by the use of multimedia elements, such as videos, simulations, and interactive quizzes. Furthermore, online discussions, peer collaboration, and virtual group projects create a sense of community, promoting social engagement and motivation.

The availability of support and timely feedback plays a crucial role in students' motivation to learn online. Studies by Liu et al. (2022) highlight the importance of instructor presence, responsiveness to queries, and personalised feedback. Students' perceptions of their instructors' engagement and support positively correlate with their motivation to actively participate in online courses.

Students' motivation to learn online can be influenced by their ability to overcome challenges and persist in their studies. Research by Pennington and Richards (2016), demonstrates that students with higher levels of self-regulation and resilience are more likely to persevere in the face of difficulties. Providing students with resources and strategies to overcome technical, time management, or academic challenges can bolster their motivation and learning outcomes.

Quality of Online Learning

Previous work by Oliver and Herrington (2003) investigates what constitutes a high-quality educational experience for students and how it might be improved in virtual classrooms. The authors believe that traditional measures of quality and success in online learning should be replaced with measures that are more accurate reflections of online learning's nature and features. Four components, namely, engagement, alignment, support and authenticity, are proposed as a framework for high-quality online learning experiences. The authors further illustrate how these features might be included in digital classrooms.

Learner viewpoint, instructor perspective, course design perspective, technology perspective, institutional perspective, and external perspective are the six themes the authors utilise to define and classify the online learning quality elements. Each topic and component is examined for its prevalence and general trend in the literature as well. The viewpoint of the student is found to be the most prevalent, followed by that of the course designer and the teacher. Another key finding is that, throughout time, the technological perspective has gained ground more than any other, external, or institutional one (Laurillard 2013).

In a study by Yu (2022) who surveys the literature on the topic of online learner, instructor, platform, and instructional design satisfaction (OLS). 'Online Learning Satisfaction' or OLS, is defined by the author as "a psychological response to online learning contents and learning environment that is formed after a rational and emotional comparison between the actual perceived online learning effect and expectations of the perception". Learner and teacher traits, as well as instructor behaviour, platform features, and instructional tactics, are only a few of the aspects the author notes as having an impact on online learning success (OLS). Future research on OLS is also discussed, with the author speculating that significant advances can be made through the use of novel research methodologies, a broader range of study subjects, and more nuanced research themes.

The findings of a state-wide poll on the perspectives of remote learning in the epidemic era performed by Przymusza^{3a} (2022) among 1,232 students from 76 Polish institutions corroborated this.

Forty-one percent or more of the students questioned felt that the quality of distance learning was lower than that of regular education. Many elements contribute to a decline in this quality, including lecturers' lack of expertise in delivering online classes and students' inability to interact with them on a personal basis.

Theoretical Framework and Hypothesis Development

Studying through the review of the literature, it can be seen that many of the independent variables are impacting the quality of online learning. However, the purpose of this study is to examine the effect of soft skill development, effectiveness of online learning, and learning expectations on quality online learning. By examining the mediating role of learning motivation, the study also looks at the links between the three variables that are now present. SEM is used to investigate the relationships between the variables. Figure 1 is drawn from the diverse literature of the study by the author.

The following are the hypotheses for the study:

- ♦ H1: Soft skill development significantly influences students' online learning motivation.
- ♦ H2: Learning expectation significantly influences students' online learning motivation.

- ♦ H3: The effectiveness of online classes significantly influences students' online learning motivation.
- ♦ H4: Soft skill development significantly influences the students' Online learning Quality through online learning motivation.
- ♦ H5: Learning expectation significantly influences the students' Online learning Quality through online learning motivation.
- ♦ H6: The effectiveness of online classes significantly influences the students' online learning Quality through online learning motivation.
- ♦ H7: Online Learning Motivation significantly influences the students' Quality of Online learning.

RESEARCH METHODOLOGY

The study adopted a quantitative survey-based research design. Data were collected through a structured questionnaire administered to students enrolled in higher education institutions located mainly in Agra, Firozabad, and Mathura, Uttar Pradesh, India. The respondents belonged to different academic streams, including engineering, medical science, commerce, management, law, and humanities. A total of 838 responses were received. After data screening and removal of incomplete or

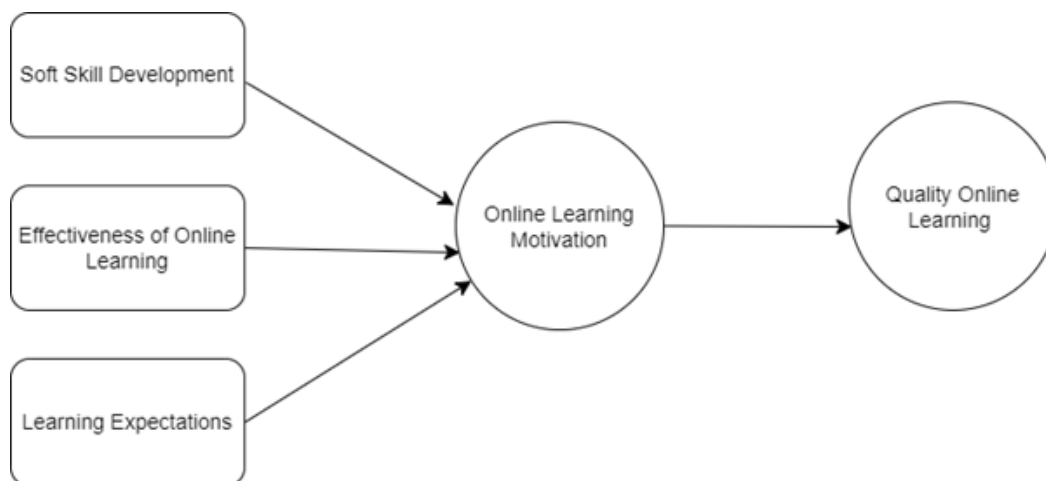


Fig.1. Theoretical framework
Source: Author

unsuitable responses, 810 valid responses were retained for analysis.

The questionnaire consisted of two parts. The first part collected demographic information, including age, gender, educational qualification, type of institution, academic discipline, and family income. The second part included items measuring the main constructs of the study, namely soft skill development, learning expectations, effectiveness of online learning, online learning motivation, and quality of online learning. The items were developed and adapted from the relevant literature and modified according to the context of the present study.

The responses were measured on a five-point Likert scale, where 1 indicated strongly disagree, 2 indicated disagree, 3 indicated neutral, 4 indicated agree, and 5 indicated strongly agree. Partial least squares structural equation modelling was used to assess the measurement model and structural model. The measurement model was examined through reliability, convergent validity, and discriminant validity. The structural model was used to test the proposed hypotheses and the mediating role of online learning motivation.

RESULTS

Demographics of the Study

A total of 810 respondents participated in the study. Non-metropolitan (62.1 %) 65 males and 159 females are from the age group of 19-21 years, and 150 males and 100 females are from the age group of 22-25 years. A total of 114 students are below 18 years and 122 students are above 25 years of age. The data shows the cross-tabulation between education qualification and the type of educational institution where a total of 591 students are pursu-

ing graduation, while 235, 279 and 73 students are from private, government and semi-government institutions, respectively. 93 of them are from post-graduation, which includes 47 from private institutes, 34 are from government institutes and 11 are from semi-government institutions, and 20 of them are research scholars. Another table shows the different academic areas of respondents, wherein 35.2 percent are from the field of medical sciences, 26.5 percent are from the field of management, and 17.2 percent, 9.4 percent and 6.8 percent are from the engineering, commerce and law fields, respectively. The data show the family income per annum where more than half of the population falls under the category of 2-4 lacs per annum, that is, 52.2 percent.

Above 10 lacs per annum are 12.6 percent of the population, and 15.2 percent fall in the slab of 4-6 lacs per annum.

Reliability

Table 1 explains the reliability and validity test results reveal that every one of the instruments utilised in the review are legitimate and solid. A regularly used estimation for measuring internal consistency is two-composite reliability and Cronbach's alpha. This estimates data accuracy concerning the interrelatedness of noted variables. The model sorts the values as per each indicator's reliable figures. The result must go from 0 to 1, a higher value indicating higher reliability levels. However, concerning exploratory research, the upsides of Cronbach's alpha between 0.60 to 0.70 also seem to be acceptable, although, in the developed stage, it must be greater than 0.70 (Alarcón et al. 2015). Since the values in the outcome show that they are higher than 0.60, these results prove to be reliable.

Table 1: Construct reliability and validity

	<i>Cronbach's alpha</i>	<i>Composite reliability (rho a)</i>	<i>Composite reliability (rho c)</i>	<i>Average variance extracted (AVE)</i>
<i>EOL-</i>	0.650	0.676	0.849	0.738
<i>LE-</i>	0.765	0.839	0.838	0.565
<i>OLM-</i>	0.681	0.686	0.806	0.510
<i>QOL-</i>	0.701	0.705	0.833	0.625
<i>SSD-</i>	0.670	0.670	0.820	0.602

Source: Author

Convergent Validity

According to the Hair et al.'s (2011) criteria, validity based on convergence could be gauged by various methods including Composite Reliability, Average Variance Extracted and respective loading of the items. AVE estimates the level of variance compared to the level of error in measurement. Output over 0.7 is considered to be very good, while 0.5 is also quite acceptable. Composite reliability is a slightly biased measurement as compared to Cronbach's alpha. A suitable result is considered to be 0.7 and above (Alarcón et al. 2015). Standardised factor loadings of each item must not be less than 0.5 (Chang et al. 2017). The researchers tested the same, and as concluded from the results obtained in Table 1, can conclude that the data stands valid.

Discriminant Validity

Discriminant validity is used to ensure that a construct is significantly distinctive and considers the interest item that other constructs often fail to capture, as per Hair et al. (2017). Farrell (2010) states if the validity is not established, it implies that the constructs variate way more than these observed variables to which they are otherwise related theoretically. This means that researchers are not affirmed if the results confirming whether their paths structured in the hypothesis are real or a result of statistical discrepancies.

As per Gefen and Straub (2005), in cross-loadings, the analyst looks at the various items to examine the high loading factors on the same construct and the factors that may load highly on multiple constructs. Hence, to maintain an item-level discriminant validity, there has to be a high correlation among items of the same construct and an exceptionally frail connection among items of different constructs (Henseler et al. 2015).

The bolded items address the factor loadings for each construct and the cross-loadings are those unbolded for a similar build. As can be seen, the cross-loading for each construct is exceptionally low, implicating good discriminant validity, and loadings of the same constructs are extremely high showing the same in the Table 2.

Heterotrait-Monotrait Ratio (Htmt) – Matrix

The recently proposed approach to assess discriminant validity is the Heterotrait-monotrait ratio (Henseler et al. 2015). HTMT values lower than 1 recommend that there exists a true correlation between the two constructs ought to vary. If the HTMT is higher, there is an absence of discriminant validity. A few researchers also opine on a limit of 0.85 (Kline 2018), while some suggest a value of 0.90 (Teo et al. 2008). An interval including 1 indicates an absence of discriminant validity. Since each one of the values is less than 0.90, we conclude that this data is to be approved (Table 3).

Table 2: Cross loadings

	<i>EOL-</i>	<i>LE-</i>	<i>OLM-</i>	<i>QOL-</i>	<i>SSD-</i>
<i>EOL-1</i>	0.895	0.061	0.425	0.490	0.476
<i>EOL-2</i>	0.822	-0.069	0.283	0.423	0.417
<i>LE-1</i>	0.107	0.801	0.304	0.243	0.101
<i>LE-2</i>	-0.079	0.730	0.190	0.046	-0.020
<i>LE-3</i>	-0.025	0.763	0.211	0.084	-0.021
<i>LE-4</i>	-0.104	0.710	0.173	0.033	-0.053
<i>OLM-1</i>	0.326	0.148	0.717	0.384	0.367
<i>OLM-2</i>	0.209	0.344	0.680	0.341	0.257
<i>OLM-3</i>	0.308	0.217	0.704	0.380	0.376
<i>OLM-4</i>	0.346	0.196	0.754	0.454	0.431
<i>QOL-1</i>	0.497	0.063	0.426	0.817	0.582
<i>QOL-2</i>	0.368	0.179	0.467	0.787	0.492
<i>QOL-3</i>	0.394	0.175	0.412	0.767	0.482
<i>SSD-1</i>	0.411	-0.045	0.405	0.481	0.790
<i>SSD-2</i>	0.415	0.089	0.382	0.545	0.770
<i>SSD-3</i>	0.388	0.020	0.392	0.505	0.767

Source: Author

Table 3: Heterotrait-Monotrait ratio (HTMT) – Matrix

	<i>EOL-</i>	<i>LE-</i>	<i>OLM-</i>	<i>QOL-</i>	<i>SSD-</i>	<i>EOL-</i>
<i>LE-</i>	0.178					
<i>OLM-</i>	0.612	0.404				
<i>QOL-</i>	0.782	0.232	0.790			
<i>SSD-</i>	0.786	0.135	0.741	0.855		

Source: Author

Fornell-Larcker Criterion

The Fornell-Larcker criteria (1981) estimates a shared variance degree among latent variables. Discriminant validity is realized, by differentiating the variance amount captured by the shared variance with other constructs and by the construct as well (Hamid et al. 2017). Though, all the values in this analysis Table 4 are less than the square root of AVE, we can conclude a high degree of validity.

Model Fit

The Standardised Root Mean Squared Residual showcases the distinctiveness of observed correlation from implied correlation through the model. It helps in judging the average extent of the variation between the expected and observed correlations as an absolute construct of model fit. Here, the value resulted is 0.071. SRMR values lower than 0.10 or 0.08 as per Hu and Bentler (1999) are considered to be an appropriate fit. Henseler et al. (2014) have established this measure as an appropriate goodness of fit aspect that helps to steer clear of model misspecification (Table 5).

Figure 2 is drawn from SEM analysis on PLS-SEM and depicts the flow chart of the dependent and independent variables through the mediating effect of the variable with the effect of each item on the factors.

Table 4: Fornell-Larcker criterion

	<i>EOL-</i>	<i>LE-</i>	<i>OLM-</i>	<i>QOL-</i>	<i>SSD-</i>
<i>EOL-</i>	0.859				
<i>LE-</i>	0.004	0.752			
<i>OLM-</i>	0.420	0.311	0.714		
<i>QOL-</i>	0.534	0.171	0.549	0.791	
<i>SSD-</i>	0.522	0.029	0.506	0.658	0.776

Source: Author

Table 5: Model fit

	<i>Saturated model</i>	<i>Estimated model</i>
SRMR	0.086	0.086
d_ULS	1.017	1.017
d_G	0.277	0.277
Chi-square	1369.452	1369.452
NFI	0.644	0.644

Source: Author

Path Coefficient

The path coefficient determines the strength of the proposed hypothesis, which is often in the range of -1 and +1. The figures given showcase the output for the same and its relevance.

Through Table 6, it can be analysed the significant impact of different factors on the quality of online learning, through their p values. Since the p-value of all 3 factors, that is, Soft Skill

Development, Learning Expectations and Effectiveness of Online Learning, initiatives are less than 0.05, that is, at a 95 percent confidence level, it can be conclude that they have a significant impact on the Quality of online learning.

The impact of learning motivation was also tried as a mediator, and it is observed that it has a significant impact on the quality of online learning.

DISCUSSION

The findings show that soft skill development, learning expectations, and perceived effectiveness

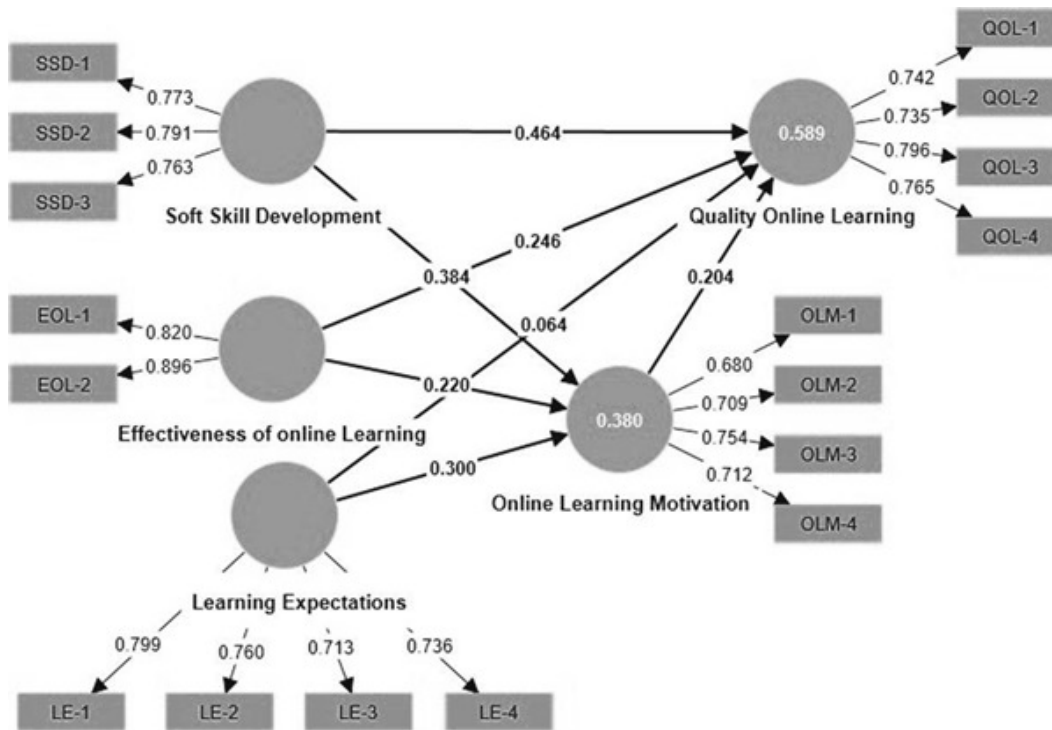


Fig.2. SEM analysis

Source: Author

Table 6: Path coefficient

Hypothesis	Path coefficient	P values	Decision
H1	Soft Skill Development > Online Learning Motivation	0.000	Accepted
H2	Learning Expectations > Online Learning Motivation	0.000	Accepted
H3	Effectiveness of Online Learning > Online Learning Motivation	0.000	Accepted
H4	Soft Skill Development > Quality Online Learning	0.000	Accepted
H5	Learning Expectations > Quality Online Learning	0.000	Accepted
H6	Effectiveness of Online Learning > Quality Online Learning	0.000	Accepted
H7	Online Learning Motivation > Quality Online Learning	0.000	Accepted

Source: Author

of online learning significantly influence online learning motivation and perceived quality of online learning. This result suggests that online learning quality is not determined by digital access alone. It depends on the combined role of learner capability, instructional design, course expectations, motivation, and institutional support.

The significant effect of soft skill development on online learning motivation indicates that students who are better able to communicate, manage time, collaborate, and adapt to digital learning con-

ditions are more likely to remain motivated in online classes. This finding is consistent with recent work showing that soft skills, including collaboration, communication, interpersonal ability, and problem-solving, remain important for student success in technology-based learning environments. Mohammed and Ozdamli (2024) reported that soft skills are central to information technology education because technical competence alone is not sufficient for effective academic and professional performance.

The positive relationship between learning expectations and online learning motivation also supports the argument that students' prior expectations influence their learning behaviour. When students expect clear instruction, fair assessment, useful content, and timely teacher support, they are more likely to participate actively. Lin et al. (2024) found that students in online learning environments expect instructors to be confident, fair, creative, engaging, and capable of supporting meaningful interaction. This supports the present finding that learning expectations are not passive beliefs but active predictors of motivation in digital education.

The effectiveness of online learning also showed a significant influence on motivation and quality. This finding indicates that students are more motivated when online classes are structured, interactive, technically stable, and supported by responsive instructors. Hidayat-Ur-Rehman (2024) reported that digital competence, smartphone use, perceived autonomy, and formal digital learning are associated with student engagement in digital learning contexts. This supports the present study's argument that student engagement and motivation improve when learners have both digital capability and an enabling learning environment.

The mediating role of online learning motivation is important because it shows that quality improvement does not occur only through course delivery. Motivation works as a psychological mechanism through which soft skills, expectations, and learning effectiveness are translated into better perceived learning quality. Zheng and Xiao (2024) found that online self-efficacy and online self-regulated learning were related to online course satisfaction. Their findings support the present model because they show that learner-level psychological factors help explain the quality of online learning experiences.

At the same time, the findings should be interpreted critically. Online learning offers flexibility and access, but it also creates problems related to limited interaction, uneven digital infrastructure, distraction, weak self-discipline, and reduced face-to-face academic support. Chanda and Phiri (2024) found that online learning offers flexibility and accessibility, but its effectiveness may be affected by technological barriers, lack of direct interaction, and differences in student self-discipline. This is relevant to the present study because the Indian higher education context also includes differences

in internet access, institutional support, and learner readiness.

The integration of soft skills into digital education is crucial for improving overall student experiences and ensuring holistic learning. Gernal et al. (2024) found that online learning combined with soft skill development significantly impacts college student satisfaction and positive course feedback. Their findings support the present model because they show that technical delivery must be complemented by personal skill enhancement to create a truly engaging and effective virtual learning environment.

Furthermore, the quality of online education heavily depends on the pedagogical preparedness of the educators delivering the content. Steinert et al. (2016) examined faculty development initiatives and found that structured, longitudinal training is essential for enhancing teaching effectiveness across platforms. This is relevant to the present study because it highlights that continuous institutional support and instructor training are foundational elements required to improve the overall quality of higher education.

Alongside faculty development, instructional design must account for diverse learner backgrounds to foster active participation. Williams (2024) found that applying culturally responsive strategies promotes higher engagement and student success in online courses. Their findings support the present study by demonstrating that humanizing digital learning environments and making them inclusive directly addresses the learning expectations and motivation of a diverse student population.

Overall, the results indicate that quality online learning requires more than the availability of digital platforms. It requires well-designed courses, clear learning expectations, trained instructors, student-centred interaction, digital competence, and continuous academic support. The findings therefore contribute to online learning literature by showing that motivation functions as a key mediating mechanism between learning inputs and perceived learning quality among Indian higher education students.

CONCLUSION

The study concludes that soft skill development, learning expectations, and effectiveness of

online learning significantly influence online learning motivation and perceived quality of online learning among Indian higher education students. The findings show that online learning quality is shaped by both instructional and learner-related factors. Students are more likely to experience quality online learning when courses are well structured, expectations are clear, instructors are supportive, and learners possess the skills needed to participate effectively in digital environments. The mediating role of online learning motivation further indicates that motivation is a key mechanism through which these factors improve perceived learning quality. The study therefore suggests that online learning should not be treated only as a technological arrangement but as a complete educational process requiring learner readiness, teacher engagement, institutional support, and continuous quality improvement.

RECOMMENDATIONS

Higher education institutions should improve online learning quality by strengthening digital infrastructure, providing reliable learning platforms, and ensuring regular technical support for students and teachers. Faculty members should receive training in digital pedagogy, online assessment, feedback practices, and student engagement strategies. Courses should be designed with clear learning outcomes, interactive activities, fair assessment methods, and timely communication. Institutions should also support students from lower-income backgrounds through affordable internet access, subsidised devices, and digital literacy training. Online learning should include peer interaction, discussion forums, group work, and counselling support to reduce isolation and improve motivation. Regular student feedback should be used to revise course design, teaching methods, and institutional support systems.

IMPLICATIONS

The findings have practical implications for higher education institutions, teachers, students, and policymakers. For institutions, the study indicates that online learning quality depends on course structure, teacher support, student motivation, and digital access. For teachers, the findings show the importance of timely feedback, clear communica-

tion, and interactive teaching strategies. For students, the study highlights the role of soft skills, motivation, and self-regulation in achieving better online learning experiences. For policymakers, the findings suggest that online education policy should focus not only on infrastructure but also on training, student support, digital inclusion, and quality assurance.

LIMITATIONS AND SCOPE OF RESEARCH

The study has some limitations. First, the data are cross-sectional, so causal relationships among the variables should be interpreted with caution. Second, the sample is limited mainly to selected districts of Uttar Pradesh, India. Future studies may include students from different regions of India to allow broader comparison. Third, the study focuses on students' perceptions, while future research may also include teachers, administrators, and policymakers. Future studies may also examine additional factors such as digital divide, teacher readiness, institutional support, mental wellbeing, and learning analytics in online education.

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