

Student's Online Learning Satisfaction and Social Factor Predictors Using Structural Equation

By

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Abstract

Since the results of the COVID-19 referendum were released, many individuals have been dissatisfied with the perceived social barrier that it has established. Concerns have been raised about the possible lack of social interaction and engagement in online learning. The purpose of this research was to examine and make predictions about the social factors that affect students' enthusiasm for distance education. Extensive citation analysis was necessary to create a model using data from this study's examination of key social elements. In order to get accurate numbers, 280 students were surveyed quantitatively. The information was analysed using structural equation modelling. "Students' satisfaction with online learning was shown to be significantly influenced by all the social features described, including the availability of social contact, social space, social identity, social influence, and support," researchers said. About 56% of the total variation in student satisfaction may be attributed to the variables that were evaluated. Educational practitioners and curriculum implementers might use the study's results to better integrate online education into their practices.

Keywords: Online Education; Learning Management System; Structural Equation Modelling; Students

1. Introduction

Technology has made online education more popular than ever before. Researchers have been looking for methods to make this sort of research more productive (Serrano et al., 2019). It has been decades since online education has been pushed as a more affordable and convenient alternative to conventional classrooms and as a way to provide students more flexibility in completing their degrees. Education is seen as a collective endeavour by many (Crans et al., 2021). In online education, all of these social elements and behaviours are present (Mystakidis, 2021). All of these qualities, including social presence, engagement, space, and connection, are considered essential to online learning effectiveness (Aslan, 2019; Park & Kim, 2020). When it comes to online education, professors and students are spread out throughout the globe (Syvyi et al., 2022). "As a consequence, students may feel socially separated from their professors and classmates." Learning management systems (LMS) must include a wide range of materials that enable students to engage in socially adaptive interactions with their professors and peers. Online students are more likely to succeed if they have a close relationship with their professors and other students, as well as other online students, according to this study (Elshami et al., 2021). It is possible to evaluate the efficacy of online teaching and learning by looking at a range of success indicators. The level of student satisfaction can be used to measure how well and how well online learning works (Demirdağ, 2021).

There have been a number of studies on students' contentment with online learning, including those focusing on student involvement, teacher satisfaction, social presence, and the overall student experience. An investigation into students' perspectives of online learning is the primary goal of this investigation. An explanation of the problem. After the COVID-19

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epidemic, almost all educational institutions were forced to move to online instruction (Unger & Meiran, 2020). One of the effects of the pandemic has been a drop in social qualities such as participation (involvement), (engagement), and (support) (Alenezi, 2022). Students are more likely to stay interested and satisfied if they are studying in a social context, whether it is in person or over the internet. The spread of COVID-19 to a lack of studies on how students felt about their online education (Dinh & Nguyen, 2020).

2. Literature Review

Customer fulfilment. However, online teaching is not displacing the need for in-person instruction. Access to information is made simple, materials are uniformly distributed, training is tailored to the person, learning is self-paced, and interaction and participation are made simple. Students must be happy with their educational experience for online learning to be effective and productive (Kanwar & Sanjeeva, 2022). For students who prefer online learning, there are a number of factors at play, including student participation in virtual conversations and flexibility, as well as instructional methodologies. Students are more likely to do well in school if they work in groups and listen to feedback.

The academic outcomes of students in online vs. face-to-face programs have been compared in a number of studies. The results, on the other hand, are disappointing. Because online learning is more interesting and results in better outcomes, students are increasingly choosing it (Özgenel & Bozkurt, 2019). In other research, the level of engagement in online education was found to be poor, while other investigations found no change. Instructors, engagement, and technology all contribute to how pleased students are with their educational journeys. There are three components that are interconnected, and this phrase is used to explain how they all interact. This suggests that instructors have the necessary technological pedagogical skills and are willing to put in extra effort to establish online connections with their pupils (Kisa, 2019). Contrary to popular belief, a study comparing online and face-to-face education found no correlation between the two. Social interactions have a critical role in online learning satisfaction. There is a built-in desire in humans to form relationships with other people. There are no exceptions to this rule when it comes to online settings. Even if they're utilizing the internet, they want to feel connected, supported, and appreciated. Online learning is also significantly influenced by social elements; in fact, social interactions are at the heart of online learning. Personal interactions, belonging to a group, being physically present, and receiving emotional support are all components of student life that contribute to their overall well-being.

Participation in a Group (SP). Many individuals have various ideas about what it means to be socially present and how to go about doing so. For the sake of this discussion, we'll use the term "social presence," which refers to the way students relate to and establish a feeling of community with academic and administrative personnel in a virtual classroom or other learning environments. Email or text messaging, bulletin boards, and more complicated online social presences are all options for interacting with others online. Providing additional opportunities for classroom social interaction, prompting feedback, allowing everyone to engage, and providing a chance for self-assessment are a few examples.

Social presence research found that students' emotional attachments were crucial in the early stages of the study. In virtual learning environments, an individual's pleasure and confidence in their ability to learn are intimately linked. Teachers' body language, verbal intonation, and facial expressions all play a role in creating a sense of social presence in online

classrooms (İlğan & Ceviz, 2019). Interaction between teachers and students is essential for fostering critical thinking and ensuring that all students feel included in the learning process. Students' social presence cannot be gauged just by their interactions with others. "A person's social presence can be measured by their ability to make and keep connections, as well as how they feel about being around other people."

A person's social interactions (SI). When educators adopt techniques to foster good interpersonal connections and social inclusion, the exchanges between students and instructors are referred to as "social interaction." Social interactions among students, teachers, and material providers have been recognized by them. Even when instructors are absent, student-to-student discussions may still occur online. "Students' engagement and academic performance will improve if they have access to material from a range of sources, including social media and Web-based courses. Interaction between an instructor and a student happens when an instructor gives facts, helps students understand things they don't understand, and makes learning fun. There are several aspects that contribute to student happiness, including the quality of their social interactions. Learning is more pleasurable when students use a wide range of communication strategies. "The inclusion of extracurricular activities in the academic curriculum has the potential to open doors to a wide range of new acquaintances and connections. " Interaction between students and instructors is critical, but the quality and frequency of contact between students and their instructors are the most important predictors of student satisfaction. " When asked how well they knew their professors, students who gave the best answers indicated that they were more likely to participate in online dialogues regularly.

These results suggest that student-instructor interaction has a positive effect on active learning. In quantitative research of 189 online graduates, students' satisfaction and overall grades were shown to be connected to instructor comments on completed work. Contact between students and teachers is important for students to learn, and our results show how important it is for students to enjoy online learning.

A location where individuals may get together and socialize (SS). The people who make up a group's social network are referred to as its "social space" members. Values and standards, responsibilities, convictions, and aspirations are only a few examples. The term "social climate" is widely used to describe the online environment and its surroundings. Group cohesion, respect, trust, and a feeling of belonging all contribute to a social space's well-being via emotional components of interpersonal interactions (Koçak, 2021). It's possible to have a critical discussion where everyone feels comfortable speaking their minds without fear of offending or being seen as rude by the other members of the group. Each member of a team becomes more committed when knowledge is presented honestly. The explanation says that a pleasant social climate or online environment is made by "a healthy social space within the group."

A person's capacity to interact with others is inextricably linked to his or her ability to be socially present in the world. Collaboration has an effect on the creation and maintenance of social ties in groups and communities. According to the results, "low sociability in a group has a negative impact on the establishment of social space." Despite the fact that social space and sociability are separate, it's important to remember that sociability enhances personal space.

Asynchronous online chats between members of social space are designed to shape its future development. Members may either work toward the group's objectives or take advantage of the educational environment (i.e., sociability). We don't know, however, what characteristics

of social spaces impact people's views of that area. Social presence scholars are unfamiliar with the concepts of social space and sociability; thus, they utilize the "social presence" hypothesis to apply to all three traits.

Participation in the Group's Identity (SID). The theories of self-categorization and social identification are both included in the broader concept of social identity. There are many different ways to describe a person's sense of social group identification. As a result, many individuals identify themselves with a wide range of social groups or classes. To feel like you belong and know who you are, you need to organize your social life into categories.

Research on the link "between students' social identities and their online learning performance found that the latter had a direct influence on the former." Researchers recommend strengthening students' social identities in order to improve students' online learning performance and enjoyment.

Students' motivation, achievement, and general satisfaction with the group's educational program are all boosted when they have a strong feeling of belonging inside the group. Students who succeed in their academic goals are more likely than those who fail to do so to be happy with their educational program and establishment. People's potential and what they can do are directly influenced by their ability to learn, which is why learning and social identification go hand in hand.

Self-perceived academic competence is not uncommon among college students. High school GPAs are often connected with great goal achievement for pupils. Postgraduate students have the social identity characteristic of strong work history, such as that of a junior or mid-level manager. Being seen as a "proven" manager change who you are as a person and how you relate to students and teachers.

Emotional Influence (SIN). As defined by this word, social influence is the act of influencing someone's opinions, attitudes, or conduct by virtue of their presence or activity (Koç & Fidan, 2020). Influence in the form of compliance, obedience, and conformity are all manifestations of social pressure. The impact of social norms of conformity, identity, and compliance on behaviour may be deduced by examining the following: The notion of reasoned action was developed by (Ng, 2020) (TRA). Using a combination of an individual's beliefs and the social impacts known as "subjective norms," it is possible to forecast behaviour. Students' subjective norms may be influenced by teachers, other students, and other influential people in a learning environment. The subjective norm construct has some effect on how students utilize and embrace the online learning system. According to a study based on the impact of peers and teachers, student usage of ICT in education is influenced by their subjective standards. According to research, the views of those in power influence people's decisions to enrol in an online program (like parents or employers). It was revealed in studies that students' motivation, success in school, and views on education are influenced by teachers' engagement and the social effects on their fellow students (Sezer, 2021).

2.1 Taking care of virtual learning environments

Studies have demonstrated that students' peers have an important impact on the adoption and use of e-learning technology. A study found that students' academic performance and their perceptions of online education were negatively impacted by peer pressure. Shin's inquiry did not reveal any evidence of peer influence. Recent studies indicate that students who feel like they belong are happier and more likely to persist with virtual learning over the long term.

Friendliness and companionship. Social support is a three-part concept that encompasses a wide range of characteristics. It is defined as an activity in which people connect with one another in order to gain emotional insight, practical assistance, or information. According to the research, studying in groups with other students gives pupils insight and a positive learning experience. When it comes to student happiness, the study found that having a network of people to lean on for support may make a big difference in how happy they are in school. The importance of social support cannot be overstated in intermediate studies. An important part of socio-educational and socio-psychological research is the use of this method.

Bean's research suggests that close friends and co-workers help students integrate into educational environments. In the research, it was shown that people's connections with one another and with other groups were improved by social support. Students who get social support from peers or family members are more likely to be satisfied with their education. Higher levels of satisfaction are seen in students with strong social networks, according to (Gál et al., 2022).

It is shown that students' well-being rises when they are actively involved in the campus community. Researchers have shown that engaging kids in social activities help them develop a good attitude and improves their academic performance. One's ability to express oneself, preserve one's independence, and form and maintain connections may all be negatively impacted by a lack of social support. Interactions between students and instructors may provide online learners with social support. Schools and other groups are very important for helping students build and keep up social networks as they go through school.

Successful online learning is influenced by social factors. Instructor support is typically linked to social variables (Balçı et al., 2019). Technical assistance, as well as virtual course design and the characteristics of students, all affect online learning. High school students' first contact with online courses was reported to be motivating and empowering (Alenezi, 2022). Because they no longer had direct access to their teachers, students who took online classes reported a greater feeling of self-reliance. As a consequence of this good image, students found their online experiences enjoyable, and this led to excellent results. According to other research (Octaberlina & Afif, 2021), student self-determination is a hallmark of virtual learning. The study concluded about students' feelings toward online education (Yıldızhan & Güçlü, 2019). It is important for virtual learners to have a strong commitment to group processes, as well as the ability to engage with others. It seems that student characteristics have an important effect on student satisfaction with online learning.

Student performance in online learning is influenced by aspects such as virtual course design, in addition to those already stated. A student's motivation and perceptions of learning in the virtual classroom are influenced by three factors: the classroom design, the characteristics of the students, and their own qualities. An important aspect of student engagement in online learning is how they feel about the social environment in which they are taking part. However, the social atmosphere is influenced by interactions with both the teacher and other students. In online learning situations, the aforementioned social elements are significant and powerful. This research examined social elements that may affect online student happiness.

3. Methods

To better understand how students feel about online learning, this research set out to identify and predict the social aspects that influence their happiness with it. Consequently, the

study question was, "Can the hypothesized social elements influence students' happiness with online learning?" Students' satisfaction (SAT) with online learning was evaluated using a model based on a substantial study into social elements and social theories," including SP, SI, SS, SI, SI, SI, SIN, and SSP.

3.1 Participants

Table 1. Distributions of respondent demographics by frequency and proportion

	Profile	Frequency	Stage
Gender	Boys	120	42.7%
	Girls	160	57.3%
Colleges	Science Colleges	65	24.6%
	Medical and Health Colleges	30	10.3%
	Humanity and Management Colleges	75	28.5%
	Education Colleges	98	34.7%
	Community Colleges	12	1.9%
Total		280	100%

Over 280 students from the 2020-2021 academic year at a university participated in the research. 42.7 percent of those surveyed were male, while 57.3 percent were female. Detailed percentages and frequencies of each respondent's profile may be seen in Table 1.

3.2 Hypotheses for Research and Model

In order to meet the goal of the study, a research model including all six of the previously stated variables was created. Figure 1 shows the results of an investigation into the impact of these variables on students' feelings of contentment.

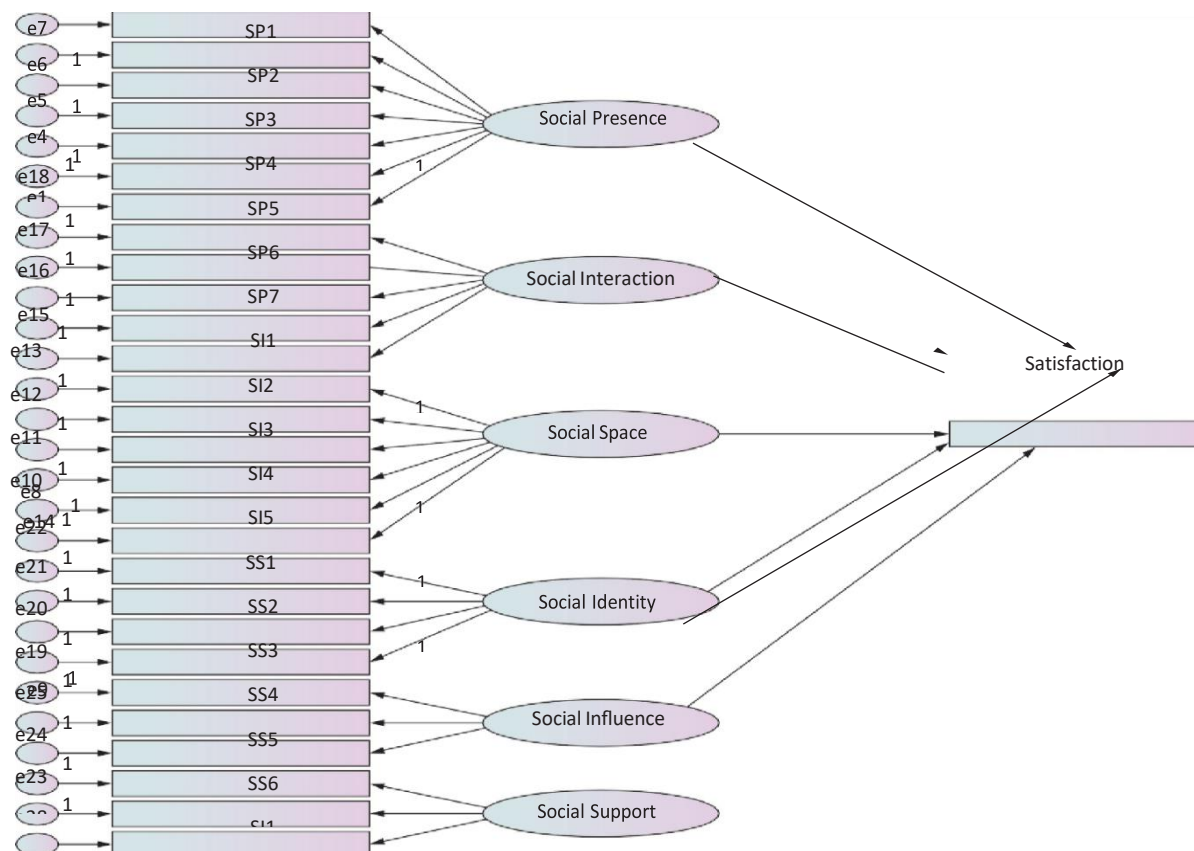


Figure 1. *Framework for Future Study*

Based on the study model and the social elements that were suggested, the following hypotheses were made:

- H1:** Online course completion is connected with students' social engagement levels.
- H2:** A student's level of happiness while enrolled in an online course is significantly impacted by their level of social engagement with other students and faculty.
- H3:** The availability of a community forum has been shown to significantly increase online student happiness.
- H4:** Students' enjoyment of online learning is closely correlated with their feeling of social identity.
- H5:** Social influence has a significant impact on how satisfied students are with their online education.
- H6:** Student happiness with online education is significantly influenced by the availability of social support.

3.3 *Sample Selection and Research Design*

Because of the specifics of the investigation, the researchers opted for numerical techniques. In order to collect this information, the researchers conducted a survey. The research was conducted during the spring semester of the 2020-2021 school year at the participating institution. The data for this research was gathered using a chain-referral sampling strategy. After excluding those who did not finish the survey, we had 280 replies, giving a response rate of 90.8%.

3.4 *Questionnaire Design for Research*

Participants needed to be given a thorough explanation of the research before any questions could be developed for the survey. The survey thus contained the study's title and aims. In order to determine whether or not the instruments were suitable for measuring the dimensions of interest, we polled three ed tech professionals using a questionnaire. For the majority of respondents, who spoke Arabic as their first language, it was essential to apply "back translation" to guarantee that the original English version of the questionnaire maintained its clear and consistent meaning.

Table 2. *Research factors, items, and adapted sources*

Theories	No. of items	Adopted sources
Social Presence	7	[9]
Social Interaction	5	[31]
Social Space	6	[60]
Social Identity	4	[32]
Social Influence	3	[30]
Social Support	3	[30]
Satisfaction	9	[100]
Total	37	

Each student completed a questionnaire divided into two sections, one devoted to demographics and another to the factors of social interaction, space, and identity that were being studied, including student satisfaction and satisfaction with the student's sense of social presence, social interaction, and social space. Adopted sources, linked items, and research parameters are all included in Table 2.

4. Results

4.1 Moment Structure Analysis was used to examine data

Questions to Ask Yourself. Maximum likelihood estimation, skewness, kurtosis, and Mardia's coefficient were used to test for multivariate and univariate normality, and descriptive statistics indicated that all item means were "above the center of the scale." Items with skewness and kurtosis between 0.37 and 1.81 are assumed to fall into a normal distribution. As part of a multivariate normality test, "Mardia's coefficient is 167.06, which is below the permissible level." Without any major outliers, both the multidimensional and univariate normality requirements hold true.

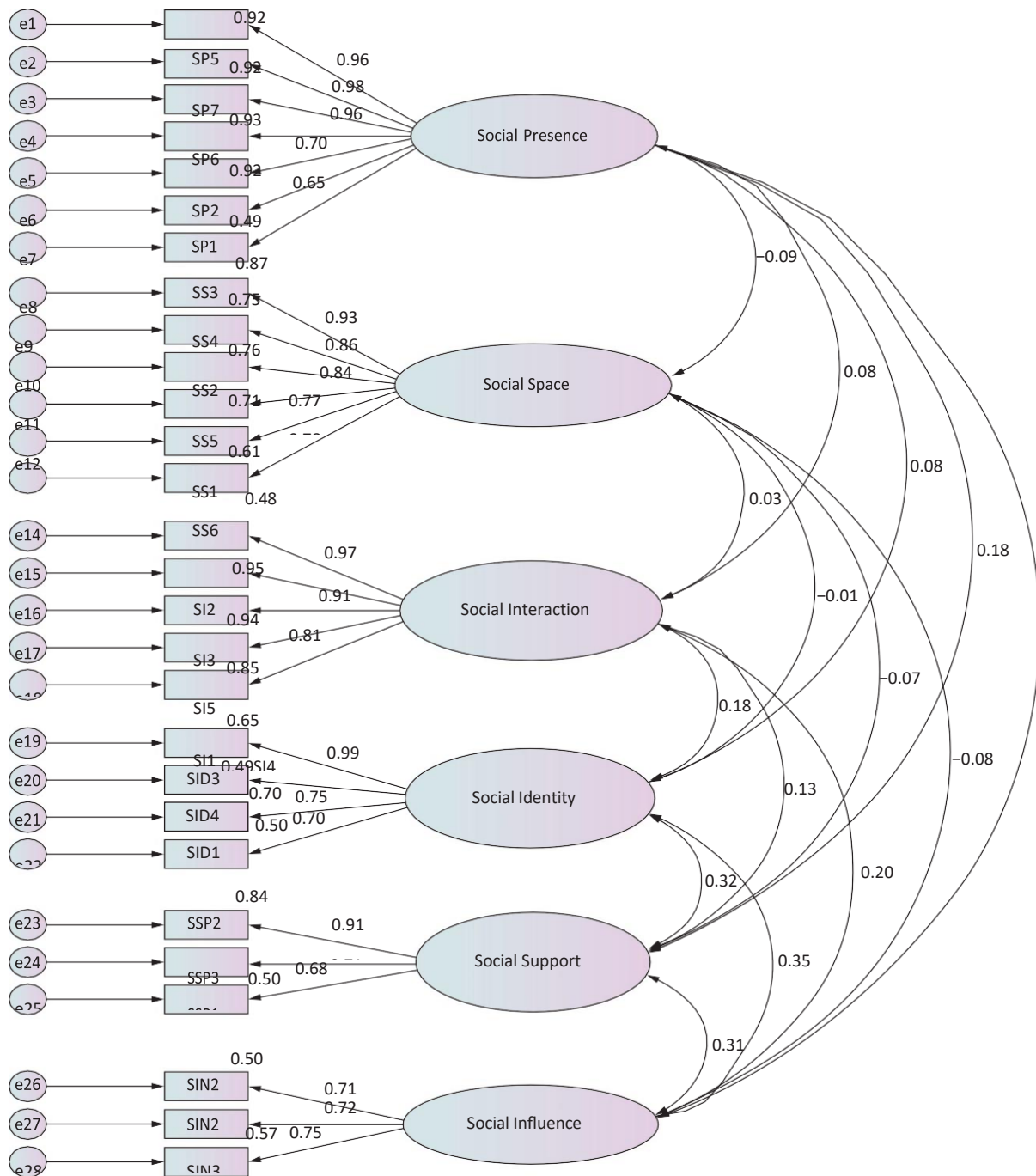


Figure 2. Reaffirming the first conclusions of the investigation using a factor analysis

Table 3. *Affirmative factor analysis findings (n=280)*

Factor	Items	U. E	S. E	Standardized factor loading	Composite Reliability (CR)	Convergent validity (CV)	P
	SP5	1.000		0.961			
	SP7	1.012	0.023	0.981			
	SP6	0.998	0.025	0.965			
	SP2	0.750	0.047	0.723	0.94	0.69	
	SP4	0.750	0.050	0.699			
	SP3	0.663	0.050	0.683			
	SP1	0.707	0.051	0.670			
	SS3	1.000		0.932			
	SS4	0.948	0.046	0.855			
	SS2	0.906	0.046	0.836			
	SS5	0.825	0.049	0.771	0.92	0.66	
	SS1	0.860	0.050	0.780			
	SS6	0.711	0.052	0.694			
	SI2	1.000		0.974			
	SI3	0.989	0.023	0.968			
	SI5	0.948	0.031	0.910	0.90	0.77	
	SI1	0.856	0.042	0.806			
	SI4	0.726	0.048	0.703			
	SID2	1.000		0.987			
	SID3	0.974	0.027	0.948			
	SID4	0.782	0.045	0.749	0.91	0.73	
	SID1	0.738	0.048	0.704			
	SSP2	1.000		0.915			
	SSP3	0.761	0.068	0.706	0.81	0.60	
	SSP1	0.786	0.078	0.675			
	SIN2	1.000		0.710			
	SIN1	0.967	0.106	0.716	0.77	0.53	
	SIN3	1.075	0.122	0.752			

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

The measurement scheme used by AMOS 26 "was validated by means of a Confirmatory Factor Analysis. The results were "calculated using ML." Factor analysis for confirmation purposes is shown in Figure 2. Examining convergent validity, discriminant validity, standardized factor loadings, and measurement model goodness-of-fit are all part of a Confirmatory Factor Analysis study. The results of the factor analysis are shown in Table 3. All estimates, both minimum and maximum, are statistically significant, as shown in Table 3. When total item dependability is more than 0.94, factor loadings over 0.50 are suggested. Convergent validity was evaluated by looking at the standard deviation of the data. The range of values from which the mean of 0.5 in this research was derived is 0.53–0.77. The average of each item must be compared to the averages of all other items in order to establish discriminant validity.

Table 4. *Discriminant validity for the measurement model (n= 280)*

Factors	SSP	SP	SS	SIN	SID	SI
SSP	.775					
SP	.180	.836				
SS	.066	.584	.817			
SIN	.129	.453	.524	.876		
SID	.325	.387	.409	.474	.858	
SI	.303	.156	.276	.199	.544	.729

Table 4 displays the measurement model's discriminant validity when the retrieved variance is averaged as the square root. The average square roots demonstrate the correlation matrix's inter-construct correlation is bigger than projected, proving the findings. This advice may be used for future studies.

Table 5. *Goodness-of-fit indices of the measurement model*

Measuring model goodness-of-fit indices						
X ²	CMIN/DF	NFI	GFI	CFI	SRMR	RMSEA
599.895***	2.155 (<3.00)	.913 (>0.90)	.947 (>0.90)	.95(>0.90)	.054 (<0.08)	.064 (<0.08)

Note: ***. $p < 0.001$.

Table 5 demonstrates that the measurement model's good-fit indices, which show chi-squared/degree of freedom is 1.758, suggest a cut-off value of 3. Both GFI and "comparative fit" are above 0.90. (CFI). The SRMR is .065, well below the allowed maximum of .081. The RMSEA is 0.059, which is good. Overall, the measurement model's fit has been confirmed, allowing for structural model investigation."

Table 6. *Structural model goodness-of-fit indicators*

Measuring model goodness-of-fit indices						
X ²	CMIN/DF	NFI	GFI	CFI	SRMR	RMSEA
599.895***	2.155 (<3.00)	.913 (>0.90)	.947 (>0.90)	.95(>0.90)	.054 (<0.08)	.064 (<0.08)

Note: ***. $p < 0.001$.

A Model and Hypotheses for the Structure. For the structural model route analysis, the same criteria used to evaluate the measurement model's fit were employed to investigate the fit indices (101, 102). According to Table 6, all of the structural model indices are adequate and well-fitted to the data they are meant to represent. As a result, we conducted a route coefficient analysis to determine the importance of the hypotheses presented. Here, in Figure 3, is a breakdown of the structural model's route coefficient analysis.

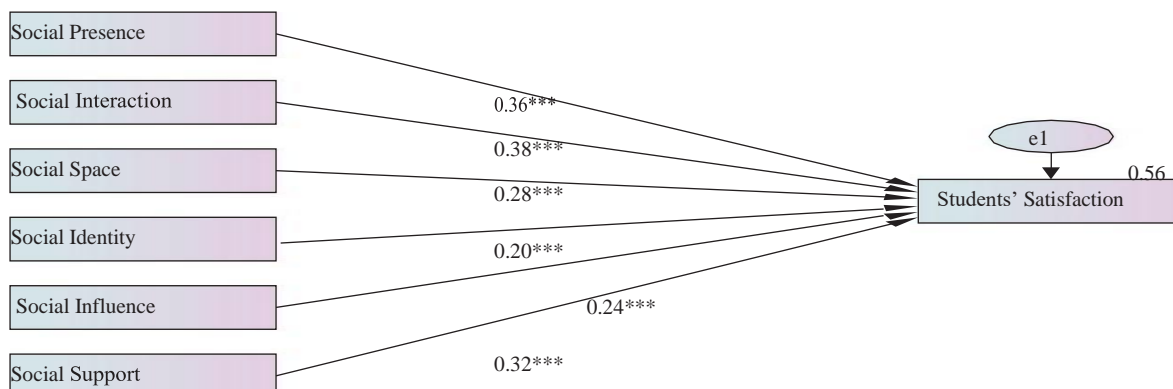


Figure 3. *Path coefficient analysis of proposed hypothesis*

Table 7. *Outcomes of structural model hypothesis testing*

H	Hypotheses	SRβ	UR	S.E.	C.R.	P	Hypotheses Results
H1	SAT< ---SP	.357	.218	.026	7.544	***	H1: Sustained
H2	SAT< --- SI	.384	.245	.025	8.189	***	H2: Sustained
H3	SAT< --- SS	.276	.154	.024	7.695	***	H3: Sustained
H4	SAT< --- SID	.205	.116	.027	5.873	***	H4: Sustained
H5	SAT< --- SIN	.242	.123	.022	6.834	***	H5: Sustained
H6	SAT< ---SSP	.328	.227	.028	8.808	***	H6: Sustained

*SRβ: Standard regression; UR: unstandardized regression; SE: standard error: *** p < 0.001.*

Figure 3 and Table 7 reveal that all of the hypotheses tested had a positive and statistically significant relationship to students' overall levels of contentment. The proposed model accounted for about 50% of the variance in ratings from students. Students' satisfaction with online education seems to be correlated with their level of social engagement, which is an interesting finding (.382, $p = .001$). Students' social presence ($p = .001$), social support ($p = .001$), social space ($p = .001$), social influence ($p = .001$), and social identity ($p = .001$) are all significantly correlated with their satisfaction with online learning (all of which had p -values greater than .001). All of the investigated assumptions about students' satisfaction with online learning were confirmed. This led to their acceptance.

5. Discussion

The purpose of this study is to investigate and model the social factors that have an impact on online learners' satisfaction. Students' satisfaction in school may be summed up in one word: socialization. The impacts of social interaction studies are consistent with these findings. It was also shown via this study that students' levels of satisfaction with their online educational experiences are directly correlated with the number of friends they have. While contrary to expectations, social presence was not the most important factor, the study did confirm the positive relationship between students' interactions with their peers and their overall sense of well-being. According to other studies, students' levels of happiness are strongly impacted by their social networks. The results of the investigation were consistent with those of an earlier study. To a large extent, the subjective criteria that are influenced by students' peers have an impact on how happy they are in an online learning environment. In addition, the availability of communal areas affected students' sense of well-being. The findings of their most recent research are supported by the statement, "A healthy social space inside the group leads to a favorable social climate/online environment." Finally, this finding is consistent with what previous research has discovered, despite the fact that social identity had a smaller impact on students' satisfaction with online learning.

6. Study Implications

Using the study's theoretical implications, it was shown that the analyzed social variables accounted for about 56% of the variation in student happiness. As a result, additional social elements must be investigated in an online learning situation using various models and theories connected to social context. As a follow-up, further research might evaluate the role of the suggested research variables in indirect, mediating, and moderating effects.

For example, students' feelings of well-being were positively correlated with their levels of involvement in school activities and their sense of belonging in their communities. Those creating online learning possibilities for pupils must take this into consideration. To

prevent the negative impacts of social components in an online context, online course designers must provide interactive content that stimulates social interaction and participation. E-learning administrators should provide tools that promote instructor-student interaction. By adding social elements to online courses, students may have more fun and do better in school.

7. Conclusion and Limitations

The students' overall happiness with online education was shown to be influenced by the social factors outlined in the study. "It has been shown that factors such as social presence, social engagement, communal space and identity, social influence, and social support affect students' satisfaction with their online education." As a result, maintaining student happiness in an online learning environment is dependent on social elements. Sadly, the COVID-19 epidemic has limited the social aspects of learning for pupils who would have otherwise had the opportunity to interact with their peers. It is essential that instructors offer online courses with resources that encourage students to communicate with one another and participate in social activities. A number of the study's flaws must be ironed out before it can serve as a solid foundation for further investigation. Due to the small sample size and quantitative methods, the research is constrained by its findings. It is further constrained by the restricted number of social variables evaluated, which account for just 56% of the variation in student happiness. A variety of academic institutions may benefit from future studies using the criteria and instruments identified in this paper. "Qualitative or integrative techniques could make models more different and help us understand how satisfied students are with online learning." The study's implications will assist educational practitioners and curriculum implementers in successfully implementing online teaching.

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