

Evaluating Instructional Quality in Synchronous Digital Environment: A Quantitative Analysis of Student Satisfaction Using the SEEQ Instrument Grounding in (CoI) Framework

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Abstract

The rapid development of online learning environments has highlighted the need to understand the factors that shape student satisfaction. Grounded in the Community of Inquiry (CoI) framework present study investigated the extent to which instruction based Teaching Presence (TP), cognitive presence (CP), and Social Presence (SP) predict student satisfaction in web video conferencing (WVC) environment. A cross-sectional survey design was employed. Data was collected from 311 university students using the (SEEQ) instrument. The SEEQ subscales were mapped onto the three CoI dimensions: TP (enthusiasm, organization, examinations, and assignments), CP (learning value and breadth), and SP (individual rapport and group interaction). Results of the multiple regression analysis supported all the hypothesis. Where i) Teaching presence emerged as the strongest predictor, explaining 92.5% of the variance in student satisfaction ($R^2=0.925$, $p<.001$), where organization ($\beta=0.326$) and enthusiasm ($\beta=0.294$). ii) Cognitive presence explained 85.5% of the variance ($R^2=0.855$, $p<.001$), where breadth ($\beta=0.685$) which shows highest specific effect across all factors. ii) Social presence explained 80.5% of the variance ($R^2=0.805$, $p<.001$), with individual rapport ($\beta=0.605$) significantly balancing group interaction ($\beta=0.379$). According to the findings of the present study instructor behaviors incorporating all three CoI dimensions are critical determinants of student satisfaction in WVC learning environment.

Keywords: Student Satisfaction, Web Video Conferencing (WVC) Community of Inquiry framework, Social Presence, Teaching Presence, Cognitive Presence, SEEQ instrument

Introduction

The remarkable technological development has transformed the landscape of higher education, by expediting the integration of web video conferencing into teaching and learning practices. Open and distance learning has changed from static text distribution to technology driven learn-

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ing environment, that supports real time interaction and collaboration. It encompasses both synchronous and asynchronous modes of learning that bridge geographical gaps, transforms how people interact, study, and collaborate.

With advancement in technology, WVC has become one of the best tool used for synchronous online learning. (Roth, Pierce, & Brewer, 2020) Synchronous learning environments employ platforms as Microsoft Teams, Zoom meetings, and Google Meet to replicate physical classrooms effectively. WVC learning environment allow geographically dispersed student cohorts to experience real-time lecture delivery, interactive slide presentations, and instantaneous feedback making the learning process more effective, engaging, and interactive. (Martin & Bolliger, 2023), As the adoption of these technologies has been progressively growing, there is a dire need to understand the factors that contribute to effective learning experiences within WVC environments. The most important factor among these factors is pedagogical priority. According to (Fatani, 2020) the excellence of the learning experience is significantly influenced by teaching and instructional design rather than the technology itself. Technical platforms like (WVC) serve only as a medium, the true drivers of learning success are the active instructional strategies employed by instructors (Garrison., 2009).

Literature Review

The technological development has transformed the landscape of higher education, by expediting the integration of web video conferencing into teaching and learning practices (Stockwell, 2011). Online learning has the capacity to foster community, strengthen bonds between distant learners, and enable interactive, cooperative activities that support cooperative knowledge development. (Siemens, 2005) Even though WVC usage accelerated as an emergency measure during COVID-19 pandemic (Fatani, 2020) it has now become a prominent, and enduring feature in higher education. Utilization of web conferencing is common in many higher education environments. (Loch & Reushle, 2008). Similarly according to (Fatani, 2020) synchronous WVC enables real-time, two-way communication and content sharing between instructors and students in form of interactive voice, video, and data transfer.

(Gilpin, 2020) Stated that, asynchronous learning environment, offer flexibility but can tip to feelings of isolation, whereas the purpose of synchronous technologies is to closely resemble the actual classroom environment in a more advance approach. Existing literature as (Bates, 2005); (Fatani, 2020); (Beqiri, chase, & Bishka, 2009); (Fredericksen, Pickett, Shea, & Pelz, 2000), specifies that WVC increases the sense of classroom vigor and engagement, as compare to asynchronous learning environment.

Theoretical Framework: Current study employed the Community of Inquiry (CoI) model developed by (Garrison, Anderson, & Archer, 2000) as its core theoretical framework to investigate how instructor influence student satisfaction in on line learning environment. This frame work suggests that effective and meaningful learning in virtual environments is facilitated through the connection of teaching presence, social presence, and cognitive Presence. It was originally developed for asynchronous online learning, now has been broadly validated in synchronous contexts to evaluate how live teacher, social and cognitive interactions shape overall student satisfaction (Swan, Garrison, & Richardson, 2009). In online setting, these existences of

CoI framework do not emerge automatically; they must be enthusiastically constructed by the instructor (Lowenthal, Greear, Humphrey, & Lowenthal, 2020).

(Aslan, 2021) Worked on controlled experiment study comparing students in standard setups to an experimental group in a collaborative synchronous learning environment. The results of the study confirmed that structuring live, real-time sessions around CoI principles promotes greater social, cognitive, and teaching presence related to standard online instructional approaches. Similarly (Çakıroğlu & Kılıç, 2018) conducted a comparative analysis by examining whether student perceptions of the Community of Inquiry (CoI) framework align with their actual online behaviors. Utilizing a synchronous undergraduate online program, the researchers' joint CoI self-report surveys with real-time text-chat logs & behavioral observations. Results show strong positive relationship among perceived and demonstrated interaction, confirming that student's subjective experiences of social, cognitive, and teaching presences accurately mirror their active learning behaviors during live synchronous sessions. The research work of (Javier & Aliazas, 2026) grounded on the established Community of Inquiry (CoI) Framework to measure the behavior of students during the synchronous classes which shapes a supportive community and enhances student's learning skills. The researchers suggested that the core constructs of the CoI framework are positively associated with student competencies and process skills. Results highlighting the model's ability to drive active intellectual development during live video instructions.

Student satisfaction: Student satisfaction is one of the most commonly used metric for assessing the effectiveness of online learning environments. It reflects learner's perceptions and experiences regarding different aspects of the learning environment. According to (Mike, Bourhis,, Burrell , & Mab, 2002) since certain advantages that an effective virtual or a distance classroom provides students prefer the distance learning. This sudden shift to WVC and satisfaction behind this selection depend on many factors as teacher's digital pedagogy skills, technological awareness and overall user experiences. According to (Zhu, 2012) student satisfaction is not only a measure of learner's experiences but also an important factor in guaranteeing the success and sustainability of online learning. As student satisfaction reflect the overall effectiveness of online learning program subsequently its essential to identify and address the factors that influence it (Fredericksen, Pickett, Shea, & Pelz, 2000). A great level of student satisfaction is often associated with greater motivation, engagement, participation, and academic achievement. (Palloff & Pratt , 1999); (Swan , 2001); (Clark & Mayer, 2016). In order to improve the quality and effectiveness of online learning experiences it is essential to understanding the factors that influence student satisfaction. The effectiveness of synchronous learning programs relies far more on pedagogy than on technology (DeBourgh, 1999). Specifically in web video conferencing, the instructor remains strongest factor of student satisfaction and the primary driver of the educational experiences. (Martin, Wang,, & Sadaf, 2018) states that there is a central role of teachers in student satisfaction as they are responsible for delivering subject content along with facilitating interaction, sustaining engagement, and providing timely feedback. According to (Fatani, 2020) in synchronous learning active teaching has generally a positive impact on student satisfaction. Therefore, teacher play a central role in shaping constructive learning experiences and enhancing student satisfaction in synchronous learning.

The SEEQ Questionnaire: In order to measure instructional Quality current study adopted the Students Evaluation of Educational Quality (SEEQ) questionnaire originally developed by (Marsh H. , 1982) a multidimensional tool designed to evaluate teaching effectiveness. Unlike

self-developed questionnaires, SEEQ is a standardized tool with strong psychometric properties, authenticated across diverse academic disciplines and areas. On this context research work of (Grammatikopoulos, Linardakis, Gregoriadis, & Oikonomidis, 2014) reassured the comprehensive psychometric properties of SEEQ representing the significance and efficacy of the instrument. According to their key findings, Confirmation of Factor Structure by using confirmatory factor analysis (CFA), firm proof for the applicability of the instrument. SEEQ has a long history of successful validation and global applicability a number of researchers (Spooren, 2010) ; (Zhao & Gallant, 2012); (Coffey & Gibbs, 2001) have consistently indicates that the SEEQ instrument constantly reveals high levels of validation and reliability scores. Another extensive study of (Marsh, & Lawrence , 2000) reported that relationships among high SEEQ scores and expected grades are typically indicators of actual learning quality rather than instructor leniency. Consistent with earlier findings (Balam & Shannon, 2010) validated the SEEQ by indicating a significant alignment between student ratings and faculty self-evaluations of teaching effectiveness.

Despite the growing use of WVC, several gaps remain in the literature: major gap in the existing literature is that the majority of research on synchronous hybrid learning and the, focusing on descriptions of student experiences, organizational implementation and technological design, there is a dire need to work on providing predictive or inferential statistical evidence. According to gap identification study of (Raes, Detienne, Windey, & Depaepe, 2020) on synchronous and hybrid learning, most of the existing literature is exploratory and qualitative in nature and has focused mostly on just student's personal views and on the organizational implementation and the technological design. Accordingly (Zydney, 2019) and; (Bower, Dalgarn, Kennedy, Lee, & Kenney, 2015) (Abdelmalak, 2016) recommended that more research is required into different pedagogical scenarios and their impact on student outcomes.

Alignment of CoI Presences with SEEQ Dimensions: In order to measure student's satisfaction across these three presences of Col frame work current study adopted the Students Evaluation of Educational Quality (SEEQ) questionnaire developed by (Marsh H. , 1982). The multi-dimensional nature of the SEEQ tool aligns directly with the conceptual components of the CoI model.

1. Teaching Presence (TP): it is a central element of the Community of Inquiry (CoI) framework, defined as the "design, facilitation, and direction of cognitive and social processes" to accomplish personally significant and educationally worthwhile learning outcomes. According to (Garrison, Anderson, & Archer, 2000) teaching presence initiates with structural design, which establishes the parameters, pacing, and macro-organization of the digital environment. TP is the most critical predictor of student satisfaction and perceived learning in asynchronous online courses. (Anderson, 2001). The research heavily highlights faculty development as a catalyst for improving student outcomes. (Shea, 2000). In the current study this can be measured by the SEEQ dimensions of Instructor Enthusiasm, Organization/Clarity, Assignments, and Examinations/Grading. These scales measure how effectively the instructor structure and manage the synchronous learning environment.

2. Social Presence (SP): Social presence in online learning has been defined as the capability of students to develop interpersonal relationships online. (Gunawardena & Zittle, 1997) according to (Garrison, Anderson, & Archer, 2000) the ability of participants to project themselves as "real" people is a dynamic driver of student satisfaction and highlighted that development of a

strong sense of social presence promotes social cohesion, and inspires collective learning. Research work of (Richardson & Swan, 2003) highlights the importance of SP by suggesting that students who perceive higher levels of social presence also report higher levels of learning and satisfaction.

In the current study SEEQ captures the core behavioral indicators of social presence through its interactive subscales. Two of its specific dimensions “individual rapport” and “group interaction” serve as practical metrics for measuring how well students and instructors project themselves as "real people" in synchronous learning environment.

3. Cognitive Presence (CP): Is the extent to which learners are able to construct and confirm meaning through continuous reflection and discourse (Garrison, Anderson, & Archer, 2000). It is often considered the most essential and challenging element to facilitate and measure in online environments. According to (Kanuka & Garrison, 2004) different communication technologies and instructional strategies impact the construction of knowledge in digital spaces. (Maranna, Claassen, Joksimovic, & Willison, 2025) Determined that high-level online critical thinking is strictly driven by three major elements 1. Teaching Presence, 2. Structure of Learning Activities and 3. Student Characteristics. In the current study SEEQ instrument, primarily measured cognitive presence through the Learning/Value (perceived knowledgeable challenge and proficiency) and Breadth of Coverage (coverage to alternative points of view and deeper subject insight) As it focuses on Intellectual challenge, stimulation, and the student's perception about what they have learned and understand the subject material.

Identified Research Gaps: There is a prominent gap in the use of standardized, universally accepted instruments for measuring instructional quality in synchronous learning environment. Number of researchers rely on self-developed surveys that lack theoretical foundation and are infrequently evaluated for demanding psychometric properties. Current study fills this gap by using a validated SEEQ which is recognized as a psychometrically sound, multidimensional tool, to provide a more reliable measure of the educational experience. The second thing is the application of SEEQ in measuring the specific elements of the COI framework within synchronous web video conferencing (WVC) is still emerging.

While asynchronous learning is well-documented, empirical exploration into synchronous web video conferencing is designated as being in its "infancy" (Raes, Detienne, Windey, & Depaepe, 2020). Many arguments favoring WVC remain theoretical, and there is a "clear gap" in studies that move beyond simple surveys to investigate how real-time interactions effect students. (Gilpin, 2020). Current study has fill this gap by consistently establish how real-time interactions affect the three presences of the COI model by using the SEEQ.

Despite the strong theoretical foundation of the Community of Inquiry (CoI) framework, there remains a need to empirically examine how specific instructional dimensions measured through validated instruments. Therefore, the primary objective of this study is to evaluate the predictive power of perceived teaching, cognitive, and social presence on student satisfaction in WVC environment. To achieve this objective, the study is guided by the following research hypotheses:

H₁: Substantial proportion of students demonstrate a high level of satisfaction with the teaching quality of synchronous WVC sessions.

RH₂: Higher levels of Supposed Teaching Presence (SEEQ Enthusiasm, Organization, Assignments, Examination) considerably increase student satisfaction during WVC lectures.

RH₃: Higher levels of Perceived Cognitive Presence (SEEQ Learning, Breadth) positively influences student satisfaction with WVC.

RH₄: Higher levels of Perceived Social Presence (SEEQ Group Interaction, Individual rapport) positively influences student satisfaction with WVC

Research Methodology

Research Design: The present study employed Quantitative Cross-Sectional Survey design to explore the research variables. According to (Creswell J. W., 1994) A quantitative method uses numerical data and statistical procedures to decide whether the predictive generalizations of the concept is true. Core objective of descriptive research design is to provide a precise, non-experimental snapshot that thoroughly describes a population or phenomenon without influencing variables. (McCombes, 2019). Accordingly, data was collected at a single point in time, focusing on student's experiences with video conferencing platforms during their online academic sessions. This aligns perfectly with a cross-sectional framework, "an observational approach where the researcher try to find out the experience and result at a single point of time, (Kesmodel, 2018)

Population: All active distance-learning students who are currently enrolled in higher education programs in Allama Iqbal Open University (AIOU) and Virtual University (VU) that utilize synchronized or web video conferencing tools residing in District Quetta. Allama Iqbal Open University of Pakistan is the largest pillar of distance education in Pakistan, which employed Zoom, MS Teams, or LMS platforms as one of their major method of education. (AIOU, 2026) ,

Sample Size: The sample size was set at a minimum of 311 participants which satisfies the standard statistical requirement for a large population at a 95% confidence level and a 5% margin of error.

Sampling technique: current study employed a non-probability convenience and snowball sampling techniques. Since a comprehensive list of student email addresses or registries for Allama Iqbal Open University and Virtual University Quetta campus were inaccessible due to strict privacy and data protection policies, Non-probability convenience sampling allowed the researcher to reach a large number of distance-learning students through accessible online student networks, social media groups, and collaborative educational forums. Additionally, snowball sampling was helpful by encouraging preliminary respondents to circulate the survey link across their private peer-to-peer study groups, maximizing the sample size within the target population.

Research instrument:

Informed consent form. The consent form included a brief introduction of the research and the rights of the participant to participate or withdraw from the research.

Demographic sheet. A demographic sheet was designed with variables such as gender, age, and institute, of respondent.

SEQ. To measure student satisfaction with web video conferencing, current study adopted a pre-defined standardized questionnaire namely SEQ (Student Evaluation of Educational Quality) Questionnaire from (Marsh H. W., 1982) In the perspective of virtual environments, student satisfaction works as a dire representation for evaluating this quality. By using the SEQ instrument, this study operationalizes ‘educational quality’ through students' synchronous learning experiences, measuring how methodological and instructional dimensions work together to shape overall satisfaction with web video conferencing. The eight dimensions of SEQ questionnaire were included in the study i.e. 1. Learning 2. Enthusiasm 3. Organization, 4. Group interaction 5. Individual rapport, 6. Breadth, 7. Examinations, and 8. Assignments. The questionnaire is 6-point Likert-scale from not applicable to Strongly Agree.

Data Collection procedure: As the target population consist of distance-learning students at the Allama Iqbal Open University (AIU) and Virtual University who studied in the synchronous learning environment. Overall population is disseminated across diverse geographical regions, the entire data collection framework was achieved digitally through Google Forms. To avoid duplicate submissions the google form setting was “limit to only one response”. With the permission from local (AIU) and (VU) coordinators, social media group administrators, and Campus Influencers, researcher share the Google form link. The target sample size was completed within three weeks. Before data analysis researcher filter out incomplete submissions.

Data Analysis: Statistical Package for Social Sciences (SPSS) was used for data analysis. Details could be found in the next section.

Results of the Study

Reliability of the instrument: In the present study to ensure the dependability of the results internal consistency of the SEQ instrument was assessed using Cronbach's Alpha coefficient. As the Cronbach's Alpha is the most widely used measure of internal consistency reliability for multi-item Likert-scale instruments (Mallery, 2019) (M Tavakol, 2011)

Table 1: Reliability analysis of the Student Evaluation of Educational Quality (SEQ) scale (N=311)

Scale	No of items	A
SEQ	29	.95

Note. SEQ = Student Evaluation of Educational Quality (SEQ) scale

The internal consistency of the overall scale was evaluated using Cronbach’s alpha. The reliability was found to be 0.95 which was excellent. These results align with previous studies, (Fatani, 2020); (Grammatikopoulos, Linardakis, Gregoriadis, & Oikonomidis, 2014) approving that the SEQ is a psychometrically sound tool for evaluating instructional quality in synchronous digital environments.

RH₁: Substantial proportion of students demonstrate a high level of satisfaction with the teaching quality of synchronous WVC sessions: To address hypothesis one, descriptive statistics were employed , as descriptive statistics are the most suitable when the research aim is to summarize, describe, and present the characteristics of a sample without making inferential comparisons (Creswell & Creswell, 2018), Similarly (Cohen, Manion, & Morrison, 2018) specify

that descriptive analysis is adequate when the research question is concerned with recognizing the level, degree, or extent of a phenomenon within a single group.

Table 2: Score distribution of Student Evaluation of Educational Quality (SEEQ) (N=311)

No.	Scale	No. of items	M	SD	Range		Skewness	
					Min	Max	Skew	SE
1	SEEQ	29	90.17	23.57	19	141	-.55	.13

Note. SEEQ=Student Evaluation of Educational Quality M=mean; SD=standard deviation; SE=Standard Error of Skewness.

RH₂: Higher levels of Supposed Teaching Presence (SEEQ Enthusiasm, Organization, Assignments, Examination) considerably increase student satisfaction during WVC lectures. To test the RH₂ a multiple linear regression analysis was conducted the results of the analysis are given bellow;

Table 4: Summary of Multiple Regression Analysis for Teaching Presence Dimensions Predicting Student Satisfaction (N = 311)

Variable	B	SE B	β	t	p
Constant	11.62	1.33		8.75	< 0.001
Instructor Enthusiasm	1.70	0.14	0.29	12.12	< 0.001
Organization	1.94	0.15	0.33	12.78	< 0.001
Examinations/Grading	2.11	0.16	0.28	12.86	< 0.001
Assignments/Readings	2.18	0.21	0.23	10.23	< 0.001

Note. $R^2=.925$; $F(4,306)=946.78, p<.001$.

According to the results $F(4,306)=946.78, p<.001$, and shows the 92.5% of the variance in satisfaction scores as $R^2=0.925$. All dimensions of SEEQ were found to be positive and substantial predictors. Whereas Organization ($\beta=0.326$), followed by Enthusiasm ($\beta=0.294$), Exams ($\beta=0.283$), and Assignments ($\beta=.226$).

RH₃: Higher levels of Perceived Cognitive Presence (SEEQ Learning, Breadth) positively influences student satisfaction with WVC. To test the RH₃ a multiple linear regression analysis was conducted the results of the analysis are given bellow;

Table 5: Summary of Multiple Regression Analysis for Cognitive Presence Dimensions Predicting Student Satisfaction (N = 311)

Variable	B	SE B	β	t	p
Constant	7.21	2.04	-----	3.53	< .001
Learning	2.36	0.16	0.36	14.38	< .001
Breadth of Coverage	4.34	0.16	0.69	27.16	< .001

Note. $R^2=0.855$; $F(2,308)=909.93, p<.001$.

According to the results $F(2,308)=909.93, p<.001$, the value of $R^2= 0.855$ specifies that Learning and Breadth scale collectively explain 85.5% of the total variance in student satisfaction. Whereas Breadth of Coverage ($\beta=0.685$) followed by Learning ($\beta=0.363$). These results revealed a highly substantial regression model as both predictors Breadth of Coverage & Learning were found to be positive and statistically significant

RH₄: Higher levels of Perceived Social Presence (SEEQ Group Interaction, Individual rapport) positively influences student satisfaction with WVC: To test the RH₄ a multiple linear regression analysis was conducted the results of the analysis are given below;

Table 6: Summary of Multiple Regression Analysis for Social Presence Dimensions Predicting Student Satisfaction (N = 311)

Variable	B	SE B	β	t	p
Constant	18.57	2.12	----	8.78	< 0.001
Individual Rapport	3.56	0.19	0.61	18.36	<0 .001
Group Interaction	2.19	0.19	0.38	11.52	< 0.001

Note. $R^2=0.805$; $F(2,308)=633.73, p<.001$

According to the results $F(2,308)=633.73, p<.001$, the value of $R^2= 0.805$ specifies that Individual Rapport and Group Interaction collectively explain 80.5% of the total variance in student satisfaction. Which specify that the "social interaction" and the quality of interpersonal associates are also important determinants of the educational experience for students. Whereas Individual Rapport ($\beta=0.605$) followed by Group Interaction ($\beta=0.379$). Both factors were found to be positive and statistically significant ($p<.001$). These findings provide strong empirical support for RH₄ and suggest that a sense of connectedness and personal responsiveness is central to a positive on line learning environment.

Discussion

The SEEQ instrument established strong psychometric properties in the present sample. The overall Cronbach's Alpha of 0.95 confirms that the 29 items reliably measure the broader construct of online instruction quality. The findings of reliability are consistent with previous studies that have validated the SEEQ across various educational contexts, (Fatani, 2020) (Marsh H. , 1982) (Grammatikopoulos, Linardakis, Gregoriadis, & Oikonomidis, 2014). The primary objective of present study was to measure the extent of student satisfaction regarding the teaching quality of synchronous (WVC) sessions Grounded on the three presences of Col framework. Based on the descriptive results of RH₁ of the 29-item SEEQ instrument, the findings indicate that students were significantly satisfied. The overall mean satisfaction score was 90.17 ($SD = 23.57$), and the negative skewness of the score distribution (-0.55) highlights that the immense majority of students assembled around the higher end of the scoring spectrum.

Importance of Teaching Presence RH₂: Results provides a strong evidence for the "instructional priority" in digital learning environments. The results of this study are consistent with the results of (Garrison, Anderson, & Archer, 2000) and (Anderson, 2001) who discussed that the quality of the educational experience is greatly influenced by teaching and instructional strategy relatively than the technology itself. Results revealed that TP dimensions (Organization, Enthusiasm,

Assignments, and Exams) accounted for 92.5% of student satisfaction. Which means the combination of these four teaching factors is a highly consistent predictor of how satisfied students are with WVC sessions. Empirical evidence of (Holbeck, Holbeck, & Swan, 2018) (Ladyshevsky, 2013) (Li, 2024) validates that teaching presence positively influences student satisfaction and overall learning outcomes in online learning.

Promotion of Cognitive Presence (RH₃): results of the current study revealed that Cognitive Presence (CP) is also an essential driver of satisfaction in WVC learning environment. In current study these factors explained over 85% of satisfaction, validating the principle that student's value the ability of teaching over the technology used. Where Breadth of Coverage was the strongest predictor ($\beta=.69$) point out the importance of the exploration phase of inquiry. Similarly Learning also emerged as an important predictor showing that satisfaction is tangled to whether students find their sessions logically inspiring and stimulating. Previous studies of (Holbeck, Holbeck, & Swan, 2018) (Nasir, 2022) (Sadaf, 2021) aligns with these results, found that cognitive presence focuses on the process of learning and directly impacts online satisfaction.

The Value of Interconnectedness (Social presence (RH₄)): according to the results of present study, social dimensions accounted for over 80% of student satisfaction. Which specify that learners do not just value the *content* of session, but Social & Emotional Bonds with instructor and other peers are also very important for an active learning environment. These results are persistent with literature stating that teacher presence is a primary determinant of student satisfaction and can even support engagement when technical problems happen. While Group Interaction had relatively a smaller value ($\beta=0.379$) but its high significance point out that students value the opportunity to share ideas and participate in a "shared presence". Furthermore, recent empirical studies (Liang, 2025) (Holbeck, Holbeck, & Swan, 2018) (Suryanto, 2024) endorse the uninterrupted, significant impact of social presence on student's learning satisfaction in online environment.

Limitations and future recommendations: Regardless of the robust findings, present study has some limitations as the research employed a cross-sectional design, which measure student perceptions at a single point in time. Second, the data was collected from the one district which may limit the generalizability of the findings. Finally, the sample consisted of 311 students, which was satisfactory for regression analysis but a larger and more diverse sample would strengthen the external validity of the results.

Based on the findings and limitations of this study, some suggestions are proposed for future researchers. First, longitudinal studies should be conducted .Second, future research should combine mixed-methods designs, to gain deeper insights

Conclusion

The primary objective of present study was to examine how instructor- focused activities within the (CoI) framework influence student satisfaction in (WVC) learning environments. Grounded in the theoretical model proposed by (Garrison, Anderson, & Archer, 2000) the study operationalized the three dimensions of frame work TP, CP, and SP using (SEEQ) instrument. Data were collected from 311 university students, from two different universities. The findings confirmed that all three presences are substantial progressive predictors of student satisfaction. According to the key findings TP was the strongest factor of student satisfaction, explaining 92.5% of the

variance. CP shows 85.5% of the variance and SP explained 80.5% of the variance, These findings mutually validate that while all three presences matter, the instructor's capability to organize content, inspire cognitive interest, and build personal networks is paramount to a satisfying online learning experience.

Present study contributes to the growing body of literature on the Community of Inquiry framework in several ways. As it helps to extend the applicability of the CoI model to synchronous WVC learning environment. Secondly as the current study employed the SEEQ subscales onto the three CoI dimensions, which offers innovative methodological approach to measuring dimensions through a validated instrument.

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