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# Online learning experiences from the perspective of Saudi university students: A mixed-methods study on critical success factors

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## Abstract

This study aimed to explore Saudi university students' experiences of online learning by understanding the significant factors that affect this learning. A mixed-methods research methodology was employed using an explanatory sequential design in two stages. Quantitative data were first collected via a questionnaire focused on critical success factors (CSFs), followed by the collection of qualitative data from four focus groups and ten interviews. The technical design aspects of the CSFs, namely 'basic online modality' and 'interactive online modality,' received the highest satisfaction scores in the questionnaire, while the online social comfort factor scored the lowest. The findings highlight a significant need to consider instructional design aspects when planning and implementing online courses, taking into account students' academic levels and the consistency of the online course content. Teachers need to be trained in teaching strategies that support authentic learning, facilitate students' online interactions, and maintain a positive atmosphere. This research is essential as it provides an understanding of the current status of online learning from the perspective of Saudi students. It can assist policymakers in the Saudi Ministry of Education to improve online learning by considering CSFs and other contextual factors that influence students' learning experiences. Additionally, this research has international significance, particularly for developing countries, as it discusses factors affecting students' online learning experiences. Considering these factors may help improve online learning outcomes in other countries.

**Keywords:** Critical success factors, Online learning, Students' perspectives, University students.

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## Contents

**Contribution of this paper to the literature**

The current research provides a comprehensive understanding of the critical success factors and other contextual factors that influence the online learning experience of Saudi university students, employing mixed-method research. The findings highlight the need to consider the instructional design aspects when planning and implementing online courses. Furthermore, they emphasize the importance of training instructors in strategies that support authentic learning and help to maintain a positive atmosphere.

## 1. Introduction

The recent increase in demand for remote learning, particularly following the global COVID-19 pandemic, has prompted universities to implement e-learning (Alyoussef, 2023; Gurban & Almogren, 2022). Indeed, e-learning has become essential to higher education systems worldwide, providing learners with flexible and effective access to education (Soffer, Kahan, & Nachmias, 2019). Scholars have found that e-learning provides a sense of equality for learners, as they can learn at times that suit their lifestyles, share their views, and easily contact their teachers, which results in a more comfortable learning environment (Abed, 2019). Indeed, some researchers have found that e-learning technologies could positively enhance academic performance, collaborative work, and student satisfaction (Singh, Singh, & Mishra, 2024).

Furthermore, it is found that courses conducted through online learning platforms significantly impact students' acquisition of computer and internet proficiency and effectively improve undergraduate students' self-learning skills (Cabı & Kalelıoglu, 2019). This can be achieved when the design of e-learning goes beyond simply transferring content to fostering critical thinking and continuous student interaction (Mandernach, 2006; Tathahira, 2020), which some researchers consider as a learning paradigm shift from traditional methods (Asalla, Putri, & Pradipto, 2017). In this regard, Theelen and van Breukelen (2022) reported that "most of the e-learning approaches demand an educational design that facilitates authentic learning and self-regulation " (p. 1286) and they identified four essential elements of e-learning design: guided content learning, formative strategies, collaborative learning, and process scaffolding. However, Gama, Chipeta, and Chawinga (2022) the process of designing e-learning courses involves many challenges: "technological, individual, financial, and managerial challenges impede the development of best practice standards for e-learning implementation" (p. 11202).

Thus, in order to improve the quality of e-learning, many studies emphasize the importance of incorporating stakeholders' priorities and expectations into its design and implementation (Njenga & Fourie, 2010; Sarker, Mahmud, Islam, & Islam, 2019). This helps the e-learning designers and implementation team to understand their experiences, overcome their obstacles, and ensure that sufficient training, infrastructure, and support are available (Njenga & Fourie, 2010). In this regard, a study conducted in Bangladesh highlighted the importance of collaboration and coordination among various stakeholders, in Wu et al. (2015) including students, faculty personnel, administrators, and policymakers, to maximize the benefits of e-learning (Sarker et al., 2019). This collaboration helps to ensure that e-learning systems meet students' needs and expectations, which contributes to creating better quality and more efficient digital learning environments (Sarker et al., 2019).

However, "previous studies on e-learning in developing nations have seldom taken a holistic approach" (p. 4), according to Gurban and Almogren (2022). In the Saudi context, several studies have been conducted on students' perspectives of e-learning with differing focus points. For example, Al-Harbi (2011) investigated the factors affecting learners' intentions to adopt online learning, while Alqahtani, Alamri, Sayaf, and Al-Rahmi (2022) explored learners' acceptance of and satisfaction with online learning within Saudi universities. Other studies have examined the challenges students encountered with online learning during the COVID-19 pandemic (Alghamdi & Alghamdi, 2021; Rahmatullah, 2021). Alhabeeb and Rowley (2018), on the other hand, several CSFs from the students' and instructors' points of view were revealed. However, as far as the researcher is aware, none of the relevant studies have adopted a comprehensive approach incorporating both quantitative and qualitative data collection and analysis to understand university students' entire online experience, particularly regarding CSFs and other contextual factors related to their e-learning experiences. Therefore, this research is essential as it will shed light on Saudi university students' perspectives of their online learning experiences. To do so, it aims to answer the following research questions:

1) What are the significant factors that affect the quality of Saudi students' online experience?
2) What are Saudi students' suggestions for improving their online learning experience?

This research explored university students' e-learning experiences by investigating the critical success factors (CSFs) for online learning. Quantitative data were collected through a questionnaire about these CSFs, complemented by qualitative data gathered from focus groups and individual interviews. Combined, these data sets provided a holistic understanding of the students' overall experiences during their online learning.

## 2. Literature Review

### *2.1. Quality of E-Courses and Learner Experiences*

A large number of studies have evaluated the quality of online courses using various competency frameworks, such as the Quality Matters (QM) standards (Quality Matters, 2018) (e.g., (Alkramiti & Alsharidah, 2022; Elaasri & Bouziane, 2019; Ralston-Berg & Nath, 2008). Notably, Ralston-Berg and Nath (2008) study results indicated that students valued all QM criteria; they deemed the criteria rated as "2" to be as essential as those rated "3", indicating the need to reconsider the prioritization of these criteria (Ralston-Berg & Nath, 2008). In the Saudi context, Alkramiti and Alsharidah (2022) conducted a study to evaluate the design quality of online mathematics courses at Prince Sattam University, utilizing the QM criteria. The findings revealed that faculty members rated the courses as high quality, whereas students rated them as average quality. However, Van Wart et al. (2020) argue that "while checklists are useful for practitioners and accreditation processes, they do not provide robust theoretical bases for scholarly development" (p. 4).

Other research has explored the factors that can affect students' learning experiences (e.g., (Castro & Tumibay, 2021; Smith, 2012; Uppal, 2017; Young & Norgard, 2006). For example, a study conducted by Young and Norgard in 2006 developed a survey that investigated students' views and performance in online courses. The researchers

identified several main factors that directly influenced students' satisfaction with the e-learning experience. These factors included interactions among learners, timely and quality interactions between learners and instructors, the consistency of the online course design, the provision of constant technical support, and flexible content that met learners' needs (Young & Norgard, 2006).

Another study conducted by Smith (2012) identified the essential elements that shaped the students' online learning experience; these were: "tutor-student interactions; knowledge of delivery technologies; student-student interaction; ICT access and skills; course design; and preparedness and readiness for online study" (p.4), Uppal (2017) explored the critical issues perceived by university students to hinder the implementation of an e-learning system. This study highlighted three essential aspects of pedagogy language, delivery model, and interactivity that are vital for enhancing students' perceptions of online learning experiences.

Castro and Tumibay (2021) conducted a meta-analysis to examine the efficacy of e-learning programmes in higher education. After reviewing approximately 30 academic resources, the researchers emphasised the importance of instructional design and the active role of universities in supporting both instructors and learners. From the learners' point of view, they found that the convenience of online learning was significant, especially for adult learners with multiple responsibilities. Furthermore, Castro and Tumibay (2021) the study identified many factors that could enhance the quality of online learning courses, such as providing students with "structured online discussions with clear guidelines and expectations, well-designed courses with interactive content and flexible deadlines, and continuous educator involvement that includes the provision of personalised, timely, and formative feedback " (p. 1381). All of these elements can contribute to a more effective learning experience in online environments.

### *2.2. Critical Success Factors of E-Learning Programmes*

Numerous studies in the literature have explored the CSFs that impact e-learning programmes. CSFs represent the key essential elements that contribute significantly to the success of a project or organization, and they play a crucial role in achieving the desired outcomes (McPherson & Nunes, 2008). Many researchers have identified the CSFs of e-learning programmes from the perspectives of e-learning experts and faculty members (Alhabeeb & Rowley, 2018; Alhomod & Shafi, 2013; Bhuasiri, Xaymoungkhoun, Zo, Rho, & Ciganek, 2012; McPherson & Nunes, 2008). Conversely, several studies have identified CSFs from the viewpoint of students, including works by Cheawjindakarn, Suwannatthachote, and Theeraroungchaisri (2012); Lu and Dzikria (2019); Selim (2007); Van Wart et al. (2020), and Wu, Low, Liu, Pienaar, and Xia (2015).

Regarding the CSFs of e-learning programmes identified by experts and faculty members, McPherson and Nunes (2008) examined the CSFs for the success of e-learning in higher education institutions were identified through focus groups that included experts from the educational, technology, administrative, and research domains. The findings highlighted several challenges that impact the success of e-learning, including the availability of appropriate academic staff, providing them with the required training, and establishing students' readiness for online learning. Furthermore, e-learning success requires the adoption of an appropriate educational model, which involves suitable pedagogical and assessment strategies. In addition, inspiring leadership is essential to achieve the agreed strategies, enhance motivation for participation, and ensure the provision of adequate resources, with particular attention to technical support.

Another research study highlighted the CSFs that affected e-learning success according to faculty members and ICT experts within developing countries (Bhuasiri et al., 2012). The researchers found that curriculum design was a significant factor in improving learning performance. Additionally, they emphasized the importance of technological awareness, motivation, and the need to change learners' behaviors. In the Saudi context, Alhomod and Shafi (2013) studied the CSFs for e-learning from engineers' and technicians' perspectives at King Saud University. Their study identified several CSFs, including organizational commitment, management support, technical assistance, sufficient human resources, appropriate user training, a positive user attitude, effective e-learning initiatives, providing regular information on the e-learning environment, user-friendly tools, and support from other departments. Another study was conducted by Alqahtani and Rajkhan (2020) during the COVID-19 pandemic to identify e-learning CSFs, 69 e-learning managers in various educational Saudi institutions were interviewed. The authors highlighted the importance of technology management, enhancing learners' awareness of e-learning systems, administrative support from leadership, and cultivating high standards for technical skills among learners and instructors. Alhabeeb and Rowley (2018) conducted a study in 2018 focusing on the perspectives of students and faculty members, and they found that their points of view varied, with faculty members identifying nine CSFs and students seven. Interestingly, faculty members ranked the student characteristics as the most important factor, while students considered teacher characteristics as the prime concern.

Regarding relevant literature that highlights the CSFs influencing e-learning success from learners' perspectives, Selim (2007) identified and measured four key CSFs: university support, technology infrastructure, instructor, and learner characteristics. The study found that professor characteristics were the most significant factor affecting the success of online learning, followed by technology infrastructure and university support. Another study undertaken by Cheawjindakarn et al. (2012) found that CSFs were grouped into five factors: institutional management, instructional design, course evaluation, learning environment, and services support. In 2019, researchers conducted a literature assessment covering the previous 19 years to identify online learning systems' CSFs from the learners' perspective. They concluded that these CSFs could be grouped into six categories: exploration into learners' abilities and needs, essential qualities of the instructor, characteristics of online learning content, requirements of the technical infrastructure and its capabilities, online system support, and administrative support (Lu & Dzikria, 2019). Notably, Wu et al. (2015) found in their study "that students with low socioeconomic background have more rigorous requirements on interface design, instructors' support, and the integration of practical components into courses" (p. 1). In Van Wart et al. (2020), the study explored the views of 987 students to identify the critical factors for e-learning success from their perspectives, then determined their hierarchical significance. Seven key factors were identified, which are the following: "Basic Online Modality, Instructional Support, Teaching Presence, Cognitive Presence, Online Social Comfort, Online Interactive Modality, and Social Presence" (p.1) (Van Wart et al., 2020).

# 3. Methodology

## 3.1. Study Context

This study aimed to explore the views of preparatory year students at the College of Education taking the Islamic Ethics and Values (IEV) course and the Arabic Language Skills (ALS) course, which were developed as part of the university's initiative to create online courses to be taught as distance courses for preparatory year students in the university's colleges. A specialised group at the university designed these courses. The initiative aimed to enhance and elevate the quality of online courses, enabling the application of distance learning for specific preparatory year courses. This is considered a relatively new experience in the universities of the Kingdom of Saudi Arabia, as providing distance learning for some courses is still uncommon in Saudi universities.

The IEV course and the ALS courses were taught by different lecturers (see Table 1). In the quantitative data collection phase, data were collected on the students' general experiences during their learning through online courses without mentioning the names of the lecturers to preserve the confidentiality of the information and the privacy of the course lecturers. However, when collecting and analysing the qualitative data on the students' perspectives on their learning experiences, the researcher noted differences between lecturers (regarding their teaching level or relevant online atmosphere) and considered these differences when reporting and discussing the research results (see the coding of lecturers in Table 1). Maintaining the confidentiality of the information and not disclosing the names of the lecturers was ensured during this process.

**Table 1**. Instructor abbreviations for each course.

| Instructor | Abbreviation |
|---|---|
| Arabic language skills lecturer 1 | ALSL1 |
| Arabic language skills lecturer 2 | ALSL2 |
| Islamic ethics and values lecturer 1 | IEVL1 |
| Islamic ethics and values lecturer 2 | IEVL2 |

## 3.2. Research Design

A mixed-methods design was implemented in this study, specifically using an explanatory sequential design. This approach began with a quantitative phase, followed by a qualitative phase to provide deeper insights into the findings (Creswell & Clark, 2017). In the first stage, quantitative data were collected from preparatory year students at the College of Education in a Saudi university (Imam Abdulrahman bin Faisal University) to understand their perspectives on online learning experiences and to identify the factors that influenced their experiences. The researcher then gathered qualitative data through multiple focus groups and interviews. These allowed participants to share their thoughts and insights about their experiences, enabling the researcher to collect comprehensive data from a broader range of participants to answer the research questions.

## 3.3. Participants

This research was conducted with all 153 Saudi preparatory year students at the College of Education at Imam Abdulrahman bin Faisal University. All preparatory year students were invited to answer the questionnaire, which was posted on Blackboard. Participation was voluntary. The sample comprised 112 female students enrolled in two online courses in their second semester: the ALS course and the IEV course. Table 2 presents key data about the participants, which helps provide context for the study, including their ages, technology expertise and whether they owned a personal computer. The participants' ages ranged from 17 to 38 years, with approximately 72% being 18–19 years old. Additionally, 61.6% reported having a medium level of technological proficiency, 30% indicated a high level of proficiency, and 5.4% rated their expertise as low. Most participants (83.9%) owned a personal computer.

**Table 2.** Study Sample Distribution According to Demographic Information.

| Age | Frequency | % |
|---|---|---|
| 17 | 1 | 0.9 |
| 18 | 40 | 35.7 |
| 19 | 41 | 36.6 |
| 20 | 15 | 13.4 |
| 21 | 5 | 4.5 |
| 22 | 5 | 4.5 |
| 34 | 3 | 2.7 |
| 38 | 2 | 1.8 |
| Technical expertise | | |
| Below Average | 6 | 5.4 |
| Medium | 69 | 61.6 |
| High | 37 | 33.0 |
| Own a personal computer | | |
| Yes | 94 | 83.9 |
| No | 18 | 16.1 |
| Total | 112 | 100.0 |

In the second stage of this research, four focus groups were conducted with 45 students. The students were then asked to volunteer for interviews. Ten students were interviewed at the end of this research to obtain in-depth data about their experiences when engaging with the online learning courses.

The total sample size for each research instrument was as follows:

1. Questionnaire = 112 students.
2. Focus groups = four groups (45 students in total).

3. Interviews = 10 students.

The research information was shared with the participants, and the students who wished to participate in the research interviews were asked to sign a research approval form. After the participants had read the informed consent form, they were informed of their rights to confidentiality, anonymity, and the freedom to leave the study at any time. All data remained confidential. The identities of the participants were not disclosed (pseudonyms were used in the current research to protect the identities of the participants), and all data were used for scientific research purposes only.

### *3.4. Instruments*

The current research utilized questionnaires, focus groups, and semi-structured interviews. In the first stage, the researcher employed an online questionnaire to explore students' perceptions of the CSFs affecting online learning courses, adapting it from Van Wart et al. (2020). The questionnaire was named the E-Learning Success Scale (ELSS), and it contained 38 items related to seven key factors derived from the relevant literature (explained in detail in Table 3). The ELSS implemented in this study was based on the COI (Community of Inquiry) framework.

Kim and Gurvitch (2020) reported that the COI suggests designing and facilitating meaningful learning experiences by developing three main elements, which are "cognitive presence," "social presence," and "teaching presence" (p. 396). This framework was reported to be the most commonly implemented framework for e-learning from 2009 to 2018 (Valverde-Berrocoso, Garrido-Arroyo, Burgos-Videla, & Morales-Cevallos, 2020). Garrison (2017) notes that the COI framework "establishes procedures for critical inquiry and the collaborative construction that help foster personal meaningful and shared understanding" (p. 24).

**Table 3.** Critical success factors (CSFs).

| No. | Factor | Meaning |
|---|---|---|
| 1 | Interactive online modality | This refers to the advanced use of online functions. This means that the lecturer effectively utilizes interactive online classroom tools: video lectures, video conferencing, and small group discussions. |
| 2 | Basic online modality | This refers to the effectiveness of using basic online classroom tools, including ease of navigation, the gradebook, announcements, and all aspects related to course design. |
| 3 | Teaching presence | This refers to students' views of the quality of communication in lectures and of individualized instruction and feedback, including encouragement. Teaching presence is what a teacher does during class in response to specific circumstances. |
| 4 | Instructional support | Instructional support includes what the lecturer does before the start of the course and during the implementation of the plans set. Instructional support is an element of teaching presence. |
| 5 | Social presence | This refers to students' perceptions of the quality of their interactions and reflects the level and quality of collaborative learning, especially in contexts that involve multiple responses and divergent discussions. |
| 6 | Cognitive presence | This is demonstrated by students' deep and critical interaction with the learning content and with the teacher, which contributes to motivating them to think. |
| 7 | Online social comfort | This refers to the lecturer's ability to create a learning environment where anxiety levels are low, enabling students to engage and interact comfortably, even when different perspectives are presented. |

**Source:** Van Wart et al. (2020).

To evaluate the questionnaire's internal consistency, the researcher computed the correlation coefficients between the scores of each statement and the total score for the corresponding dimension, as presented in Table 4. Table 4 shows that the correlation coefficient is significant at the 0.01 level, indicating that the scale has strong internal consistency.

**Table 4.** Reliability of the scale's internal consistency.

| Factor | No. | Correlation coefficient | No. | Correlation coefficient | No. | Correlation coefficient |
|---|---|---|---|---|---|---|
| Teaching presence | 1 | 0.7779** | 4 | 0.7511** | 7 | 0.8753** |
| | 2 | 0.8950** | 5 | 0.6474** | 8 | 0.8473** |
| | 3 | 0.6263** | 6 | 0.7078** | | |
| Cognitive presence | 9 | 0.7845** | 12 | 0.8614** | 15 | 0.6170** |
| | 10 | 0.6792** | 13 | 0.6960** | | |
| | 11 | 0.7187** | 14 | 0.6478** | | |
| Social presence | 16 | 0.9010** | 18 | 0.7095** | 20 | 0.8269** |
| | 17 | 0.8502** | 19 | 0.9165** | | |
| Instructional support | 21 | 0.8059** | 23 | 0.7862** | 25 | 0.8156** |
| | 22 | 0.8635** | 24 | 0.8650** | | |
| Basic online modality | 26 | 0.6340** | 29 | 0.8124** | 32 | 0.7822** |
| | 27 | 0.6825** | 30 | 0.8857** | | |
| | 28 | 0.8882** | 31 | 0.7176** | | |
| Online social comfort | 33 | 0.8508** | 34 | 0.9187** | 35 | 0.8572** |
| Interactive online modality | 36 | 0.6239** | 37 | 0.8440** | 38 | 0.9075** |

**Note:** The correlation coefficients between each item and the total score of the factor to which it belongs (Pilot sample n = 22). **Correlation is significant at the 0.01 level (2-tailed).

The Spearman correlation coefficients between the total scores of the factors and the total score of the questionnaire were calculated to verify the construct validity of the questionnaire, as shown in Table 5. Table 5 indicates a positive correlation between each factor's total scores and the questionnaire scores, confirming that the sub-factors significantly contribute to the overall concept and affirming the tool's high construct validity.

**Table 5.** Construct validity of the questionnaire.

| Factor | Correlation coefficient |
|---|---|
| Teaching presence | 0.9265** |
| Cognitive presence | 0.9437** |
| Social presence | 0.8126** |
| Instructional support | 0.9278** |
| Basic online modality | 0.8764** |
| Online social comfort | 0.8232** |
| Interactive online modality | 0.7272** |

**Note:** The correlation between the total score of the factors and the total score of the questionnaire (pilot sample n = 22). **Correlation is significant at the 0.01 level (two-tailed).

Cronbach's alpha was used to compute the questionnaire's reliability, which is presented in Table 6. The Cronbach's Alpha values ranged from 0.81 to 0.90 for most factors. However, the interactive online modality factor had a lower value of 0.64, which may be due to the small number of items in the interactive online modality axis. Despite this, the overall reliability of the questionnaire was very high, reaching 0.97. This suggests a strong level of reliability, as the relevant literature indicates that values between 0.70 and 0.90 are considered reliable, while values from 0.60 to 0.69 are considered marginally reliable (Cohen, Manion, & Morrison, 2015). Furthermore, Berthoud (2000) noted that a minimum level of 0.60 is acceptable.

**Table 6.** Reliability of the questionnaire (n = 22).

| Factor | No. | Alpha |
|---|---|---|
| Teaching presence | 8 | 0.90 |
| Cognitive presence | 7 | 0.81 |
| Social presence | 5 | 0.89 |
| Instructional support | 5 | 0.89 |
| Basic online modality | 7 | 0.86 |
| Online social comfort | 3 | 0.90 |
| Interactive online modality | 3 | 0.64 |
| Overall reliability of the questionnaire | 38 | 0.97 |

In the questionnaire, all items were based on a five-item Likert scale (i.e., strongly agree, agree, neutral, disagree, and strongly disagree); the highest grade was given 5 points and the lowest grade 1 point. The range calculated for the scale was 5–1 = 4, and dividing this by the number of categories (5) gave 4/5 = 0.80 points, which was the range of points for each category in the five-item scale. Finally, the length of the category was added to the lowest grade on the scale, which was 1. Thus, the range of points for the first category was calculated as 1 to 1.80, and 0.80 was added for each subsequent category (see Table 7). These criteria were employed to analyze the questionnaire results.

**Table 7.** Distribution according to the gradient of the categories used in the questionnaire.

| Description | Range of means |
|---|---|
| Strongly agree | 4.21–5.00 |
| Agree | 3.41–4.20 |
| Neutral | 2.61–3.40 |
| Disagree | 1.81–2.60 |
| Strongly disagree | 1.00–1.80 |

During the second stage, the researcher collected qualitative data through focus groups, involving four groups of 10 to 12 students each, totaling 45 students. In this regard, a focus group is a group interview involving multiple participants and a moderator, in which the discussion centers on specific topics, highlighting the importance of participant interaction and the co-construction of meaning (Bryman, 2016). One student in each group played the moderator role to help the students share and explain their views on their experience of the two online courses. Ten students in the College of Education were then interviewed according to a semi-structured format to collect detailed information about their online learning experiences in each course.

For both the focus groups and the semi-structured interviews, the students were asked several questions related to each CSF. For example, for the teaching presence factor, the following question was asked: "Were significant issues or topics discussed during the course that enhanced your understanding of the subject? If yes, how did these discussions benefit your learning?" For the cognitive presence factor, the question was as follows: "Did the course instructor create opportunities for you to reflect and think deeply about the course content? If yes, provide examples of how this was achieved." For social comfort, the question was, "How comfortable did you feel participating in course discussions? What factors contributed to or hindered your comfort level?" The students were also asked for their suggestions for improving their online experiences, including questions such as, "What suggestions can you provide to enhance the online learning experience and make it more effective and aligned with your needs as a student?"

### *3.5. Data Analysis*

The quantitative and qualitative data were analyzed and combined to understand the students' experiences during their online learning to arrive at a comprehensive understanding of the CSFs and issues that affected e-learning in the Saudi context. The quantitative data were analyzed using descriptive statistics to contribute to answering the first research question, which aimed to recognize the CSFs that affected the students' online experiences while enrolled in the two online courses. Qualitative data from individual interviews and focus groups were analyzed through thematic coding. Deductive and inductive coding were employed for the thematic analysis to address the first research question. In contrast, inductive coding was employed to address the second research question, which focused on students' suggestions for enhancing their online learning experience.

The researcher revised all the coding multiple times after leaving it for a specific period to ensure accuracy in interpreting the meaning. Additionally, member checking was employed to enhance the validity of the data (Birt, Scott, Cavers, Campbell, & Walter, 2016). Therefore, a summary of the research results was sent to three randomly selected participants, followed by a Zoom meeting to discuss the findings. All three participants confirmed their agreement with the reported findings.

## 4. Findings

The results for each research question are presented under distinct headings.

### *4.1. Students' Perspectives on Significant Factors that Affected the Quality of their Online Experience*

The first research question concerned determining the factors that affect the quality of the online learning experience from Saudi university students' perspectives. This question was answered by combining quantitative data from the questionnaire with qualitative data from the participants' focus groups and interviews.

The descriptive statistics for the questionnaire statements (see Table 8) indicate that the mean values ranged from 3.70 to 4.44, and the standard deviations varied from 0.62 to 1.22.

**Table 8.** Descriptive Statistics for the Questionnaire Statements.

| Ser. No. | Factors | Items | Mean | Std. deviation |
|---|---|---|---|---|
| 1 | Teaching presence | Online instructor provides clear instructions on how to participate in course learning activities. | 4.10 | 1.01 |
| 2 | | Online instructor helps keep the course participants on task in a way that helped me to learn. | 4.10 | 0.94 |
| 3 | | Online instructor clearly communicates important due dates/Time frames for learning activities. | 4.26 | 0.82 |
| 4 | | Online instructor provides feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives. | 3.86 | 1.09 |
| 5 | | Online instructor provides feedback in a timely fashion. | 4.01 | 0.99 |
| 6 | | Online instructor clearly communicates important course goals. | 3.98 | 0.98 |
| 7 | | Online instructor helps to focus discussion on relevant issues in a way that helped me to learn. | 3.94 | 0.93 |
| 8 | | Online instructor encourages course participants to explore new concepts in this course. | 3.94 | 0.97 |
| 9 | Cognitive presence | Online course provides opportunities for meaningful reflection on course content. | 3.98 | 0.88 |
| 10 | | Online learning activities help me construct explanations /Solutions in online courses. | 3.87 | 1.08 |
| 11 | | Course activities stimulate my curiosity in online courses. | 3.70 | 1.18 |
| 12 | | I can apply the knowledge gained from online courses to my work or other non-class-related activities. | 3.95 | 1.02 |
| 13 | | I can utilise a variety of information sources to explore problems posed in online courses. | 3.99 | 0.94 |
| 14 | | Online discussions are valuable in helping me appreciate different perspectives. | 3.71 | 1.05 |
| 15 | | Posing problems in online courses increases my interest in course issues. | 3.95 | 0.97 |
| 16 | Social presence | Getting to know other course participants gives me a sense of belonging in the course. | 3.78 | 1.06 |
| 17 | | I can form distinct impressions of other course participants. | 3.87 | 1.02 |
| 18 | | I can interact with other students. | 3.91 | 0.98 |
| 19 | | There is a sense of community in the class. | 3.88 | 0.98 |
| 20 | | Online or web-based communication is an excellent medium for social interaction. | 4.02 | 0.94 |
| 21 | Instructional support | The course includes student goals. | 4.04 | 0.89 |
| 22 | | The course includes sufficient rehearsal of material, skills to be learned, etc. | 3.81 | 0.98 |
| 23 | | The instructor provides feedback. | 3.96 | 0.97 |
| 24 | | The instructor has enthusiasm. | 3.91 | 1.04 |
| 25 | | The course uses a variety of techniques to communicate and learn. | 3.94 | 0.93 |
| 26 | Basic online modality | The course uses navigation effectively (e.g., being able to find what you want). | 3.85 | 1.04 |
| 27 | | The course includes a syllabus (More detailed than in a face-to-face class). | 3.71 | 1.19 |
| 28 | | The course allows the students to make online submissions. | 4.32 | 0.70 |
| 29 | | Availability of online gradebook. | 3.98 | 0.89 |
| 30 | | Availability of online grading of assignments by instructors. | 4.34 | 0.62 |
| 31 | | Availability of online quizzes. | 4.44 | 0.69 |
| 32 | | Online advertisements have been enabled during the online course study. | 4.15 | 0.95 |
| 33 | Online social comfort | I felt comfortable participating in the course discussions. | 3.80 | 1.22 |
| 34 | | I felt comfortable disagreeing with other classmates in online courses while still maintaining a sense of trust. | 3.74 | 1.15 |
| 35 | | Online discussions help me to develop a sense of collaboration. | 3.82 | 1.12 |
| 36 | Interactive online modality | Availability of Zoom or other videoconference methods. | 4.44 | 0.67 |
| 37 | | Availability of video lectures. | 4.00 | 1.14 |
| 38 | | Availability of small group discussions (chat rooms). | 4.03 | 1.11 |

**Source:** Van Wart et al. (2020).

The weighted averages and standard deviations for the total score are represented in Table 9. There was a good level of satisfaction among female students with all factors, with a satisfaction level ranging between 3.79 and 4.15. The standard deviations varied from 0.62 to 1.05.

**Table 9.** Weighted averages and standard deviations for the total score of the factors that affected the quality of the students' online experiences.

| Factor | *Mean | Std. deviation | Rank | Degree of approval |
|---|---|---|---|---|
| Interactive online modality | 4.15 | 0.74 | 1 | Agree |
| Basic online modality | 4.11 | 0.62 | 2 | Agree |
| Teaching presence | 4.02 | 0.79 | 3 | Agree |
| Instructional support | 3.93 | 0.80 | 4 | Agree |
| Social presence | 3.89 | 0.83 | 5 | Agree |
| Cognitive presence | 3.88 | 0.77 | 6 | Agree |
| Online social comfort | 3.79 | 1.05 | 7 | Agree |
| Total | 3.98 | 0.68 | | Agree |

**Note:** * The mean of 5 degrees.

According to Table 9, the average student evaluations were highest for "interactive online modality" and "basic online modality." Both factors are related to the technical aspects of e-learning, with interactive online modality obtaining the highest average score of 4.15. This factor reflects the use of interactive methods via the internet, such as Zoom programs, video lectures, and discussion groups. Students mentioned the presence of scheduled online lectures via Zoom for both e-courses. The data revealed that all lecturers in both e-courses regularly employed electronic lectures, except for the instructor of the IEV course, IEVL2. The students of this instructor noted that "the lecturer gave only four lectures and shortened the lecture, in most of them she discussed technical problems" (FG3).

The students also mentioned the existence of online discussions. However, despite their existence, they were mere formalities, had no significant benefit, and lacked depth. Nadia noted that "the online discussions were about cutting and pasting answers to direct questions about the course content, and no actual discussions were generated from the discussion questions, in addition to the fact that not all students participated in them because they knew that there were no grades for that and because the teachers did not pay any attention to them."

The second factor, related to basic online modality, scored an average of 4.11, indicating the optimal use of basic online classroom tools, including ease of navigation, a gradebook, announcements, and all aspects of course design. As mentioned in the study context section, the e-courses were designed by a specialized group from the university through an initiative to activate e-learning. They developed the courses using the Blackboard system. The e-courses were designed smoothly and technically clear, and many of the Blackboard system's capabilities were activated. Nada mentioned that "the design of both courses is clear and easy to use." However, the students mentioned that there were many technical problems, especially when taking the tests remotely, as they reported that "The exam may be closed and suspended for us, and technical support does not provide the required support. Whoever does not document the problem when it occurs will miss the exam" (FG3).

The students valued the "Teaching presence" as a third factor that affected the quality of their online experience, with an average score of 4.02. This factor pertains to the quality of communication, guidance, and feedback during lectures, specifically what the lecturer does during class by responding to specific circumstances. "Instructional support factors," which received an average score of 3.93, were the fourth most influential factor affecting the participants' online experiences in the current study. This factor relates to what the lecturer does before the start of the course and during its implementation. Instructional support is considered an important aspect of teaching presence. The qualitative data, on the other hand, revealed differences in the levels of the course teachers' teaching presence, including teaching strategies, communication with students, and provision of instructional support. This variation is because the students took two online courses, ALS and IEV, and were assigned different lecturers, as explained in Table 1.

For example, the students agreed that IEVL1's teaching and communication with the students on the IEV course were excellent. As Nada mentioned, "IEVL1 re-clarifies the assignment questions and opens up other opportunities for us in submitting the assignments." Sarea added that "IEVL1 responds to the students, uses various teaching strategies, and provides more than one option to complete the course projects in various ways." This was unlike IEVL2 in the IEV course, who did not have an effective presence in the course according to the students: Athary mentioned, "She explained quickly and only attended four lectures, and we could not communicate with her effectively." In the ALS course, the students praised ALSL1, saying, "The doctor follows a discussion-based approach and raises many questions during the lecture" (FG1). They added, "ALSL1 provides us with feedback and gives us evaluation details" (FG1).

The social presence factor was found to be the fifth factor that affected the participants' experience, with an average score of 3.89. In this regard, several students explained that the course itself did not provide a sense of social presence and did not represent a community, as it was usually the teacher who spoke. Fortunately, the students knew each other from other face-to-face courses, having studied together in person, which helped them interact effectively while taking online courses. Social interactions were more noticeable with ALSL1, as he provided many collaborative tasks that required social interaction and communication among the students. This was mentioned by the third focus group when they articulated that "with ALSL1, social interaction prevailed in the lectures by dividing the lesson objectives among the students during the lectures, and this required communication and interaction between the group members to explain what was required well" (FG3).

Regarding cognitive presence, which participants ranked as second to last with an average score of 3.88, students noted that the courses sometimes aided them in integrating deep and critical thinking, but not always. This appeared to happen less in the IEV course due to the nature of the religious course, which is mostly fixed in its content. For example, Mead, whom IEVL1 taught, mentioned, "We understood the concept of justice and equality through research and benefited from that in our personal lives." However, other students stated that the course was easy, and they already knew the information (FG1). In the ALS course, one lecturer (ALS1) encouraged the students to engage actively with the online courses. Gada articulated that ALS1 provided students with a QR code linked to educational videos. The students were required to watch these videos, summarise them, and explain their main ideas to assess their skills in comprehension, summarisation, and presentation. Gada mentioned, "I have to listen to the videos at

intervals, and this requires me to search for the meanings of words and historical and famous stories to understand them."

Furthermore, some activities led the students into deep thinking. Athary mentioned, "ALSL1 asked [us] to look for grammatical and spelling errors in some well-known accounts, and we also had to correct their writing." The students also noted that because the assignments of the ALS course were complex, this required them to do more research and take time to understand its content (FG4). Indeed, Athary explained, "A positive atmosphere prevails during ALSL1's online lectures, as he does not pressure the students to answer."

In contrast, a negative atmosphere prevailed due to communication problems with ALSL2, as a student mentioned: "There is no tolerance or acceptance of students' mistakes; for example, if a student mispronounces a word, she corrects her in public" (FG3). Nada added, "The teacher's standards are high." This affected the online social comfort factor, which had the lowest value among the questionnaire axes, with a value of 3.79. Indeed, the standard deviation appears higher in the online social comfort factor than in all other factors, with a value of 1.05. See Table 9, which indicates a significant variation in participants' opinions, due to the differences in their experiences depending on the lecturers they studied with. In this regard, the qualitative data revealed that students generally felt comfortable studying online courses and attending them across all groups in the two courses, except for the group studying the ALS course with ALSL2.

The students stated that ALSL2's style of interaction affected them negatively. They said, "One of the practices imposed by the lecturer is the necessity of turning on the microphone during the lecture, which is confusing and embarrassing, as we have younger siblings, and any disturbance can occur. This leads to our tension until the lecture ends" (FG1). ALSL2's negative comments on the students' answers also led to other students hesitating to participate in the online lectures. Shroog said, "I cannot participate because I am afraid of making a mistake." She added, "We are afraid of her reaction." Indeed, discomfort and anxiety dominated this ALS course because mistakes were unbearable during the lecture. One participant reported, "The teacher asks the students to read correctly with the vowels, and when they make mistakes, the teacher is not kind to them, and it seems her treatment frustrates them" (FG1). Other participants added, "The students hesitate to participate and no longer want to do so, even though they make a great effort to satisfy her in their attempt" (FG2). ALSL2's ceiling of expectations was high, and the students' level was low, which led to the tension and negative atmosphere that the students experienced. Rana said, "Although the course is remote, anxiety, tension, and a lack of comfort were my feelings throughout my study of this course."

Indeed, the qualitative data revealed a knowledge gap in the level of female students' literacy, which affected many of the participants' experiences when engaging with the ALS course. Nada pointed out that "The information is abundant, the questions are very advanced, and our level does not match them." Mona added, "The assignments are difficult and beyond our level, often requiring writing a story or an essay, which we found challenging." Nada clarified, "The test does not suit our level. They should not have assigned high-level exam questions after seeing the students' low scores in the short tests."

The low level of students' literacy was confirmed by the Programme for International Student Assessment (PISA) results (Organisation for Economic Co-operation and development, 2023), which showed a weakness in the literacy level of Saudi students influences their academic performance. This explains the dissatisfaction of the course educator with the students' academic level, which led to a negative atmosphere during the lectures. Therefore, the literacy level of current Saudi students must be considered, particularly when designing an e-course related to Arabic Language Skills. This may require many adjustments, including additional support for students to raise their literacy levels.

The qualitative data also showed that some students lacked self-learning skills, as they complained about the nature of distance courses, which require self-learning. This is something that students are not accustomed to, especially when they are new to university education. Nada mentioned that "the teacher did not explain every point," and Mona said that "the assignments were complex, and the teacher did not help them." While taking these courses, the students were unfamiliar with the nature of distance courses and their new roles. It may be appropriate to prepare students by clarifying their roles and what they must do at the beginning of the academic year, so that students understand their roles, especially in courses designed to be undertaken as distance learning.

### *4.2. Students' Suggestions to Enhance their Online Learning Experience*

Data collected during the focus groups and interviews were analyzed to answer the second research question. Among the suggestions for improving the online learning experience were redesigning the ALS course and considering the consistency of the course.

Students reported a lack of coherence in the ALS course between the material presented during live electronic meetings and the content uploaded to the Blackboard platform. Additionally, there was an inconsistency between the course tests and the primary reference material. Enas reported in this regard, "The issue of the Arabic Language Skills course is not due to the course being remote; the problem lies within the course itself. There is no coherence among the curriculum, the textbook, and the explanations provided. The content of the electronic course differs from the skills being tested, which, in turn, differs from the presentations delivered in the online lectures. The focus of the content has been on dictation and superficial information. In short, the content needs significant development."

Thus, the participants emphasized the need to improve the design of the ALS course and ensure its consistency. Enas commented, "The ALS course needs to be developed, as the presentations are brief and not very useful, and the explanations are good but lack relevance to the skills tested in the official exams." The participants also suggested replacing the textbook, as its content was superficial and inadequate for covering the course vocabulary. Enas reported, "There is a need to update the textbook used, as its content is very superficial." Noor added that considering blended courses would be beneficial, especially for distance learning: "Studying ALS as a blended course would be better because it is challenging. I believe we can understand it better if we attend in person."

A group of students studying with ALSL2 in the ALS course explained the need to consider individual differences among students and the importance of providing a positive atmosphere full of encouragement and free of fear so that they would feel comfortable and benefit from the online course. Shroog, for example, said, "We hope that there will be a positive atmosphere in the Arabic Language Skills course that is tolerant of students' mistakes so that we can feel comfortable during our learning, as I cannot participate because we are afraid of making mistakes".

The students also complained about technical problems in both the ALS and IEV courses and suggested the need for technical support at the university to resolve them. In this regard, they mentioned that despite contacting support, these problems remained unresolved (FG3). As Noor mentioned, "We hope to have better technical support instead of teachers being busy solving technical problems." Moreover, through the qualitative data, the researcher found that there were many technical issues, especially during remote online exams. The students suggested conducting the online exams in person at the university to ensure uninterrupted internet access and to allow them to address any issues with supervisors during the exam. In a focus group session, they mentioned, "The exam may be closed and suspended for us, and technical support does not provide the required support. Whoever does not document the problem when it occurs will miss the exam" (FG3). Some students also explained that the level of the exams varied, which was not fair when evaluating the students' learning outcomes. For example, Nada mentioned, "The level of the exams is different; some are difficult, and some are easy, especially in the Arabic course, where it seems that the selection is from a bank of questions, so it was not fair when evaluating the students." Noor added, "Taking the exam at the university will be a solution to standardize the questions and to ensure fairness in the level of questions presented to all students."

## 5. Discussion and Conclusion

This study revealed the significant factors that affected the quality of Saudi students' online experience through a questionnaire. Furthermore, qualitative data obtained from focus groups and interviews revealed other factors, providing a comprehensive understanding of the students' learning experiences.

The analysis of the questionnaire responses revealed that the technical design aspects related to both the "basic online modality" and the "interactive online modality" factors obtained the highest scores, indicating satisfaction with them. The high score for the basic online modality factor reflects the students' satisfaction with the efforts made in the technical design of electronic courses that made it easy for them to access and benefit from information within the learning management system (LMS). This finding is consistent with a systematic review of 54 studies, which showed that IT infrastructure, particularly the LMS, is a key factor in the success of e-learning in universities, followed by e-learning tools and models (Asalla et al., 2017). This emphasizes the importance of a well-designed LMS implementation in e-learning to ensure its effectiveness in higher education. The current study's results demonstrate the efforts of technical specialists in the university initiative to design e-courses according to high specifications. However, the current study found that there were some technical observations and problems, such as students' inability to complete an exam for technical reasons. This may have been due to weak internet connections or high demand on the server, which made it impossible to accommodate all the students entering the exam at the same time. Therefore, sustainable technical support, which responds quickly to user problems, is essential to the success of university e-learning (Nawaz & Khan, 2012). Regarding the interactive online modality factor, the current study's results revealed that despite the availability of various opportunities for interaction through Zoom, the participants noted the superficiality of discussions on the Blackboard discussion forum. This may be because the teachers neglected their role in stimulating discussion and setting a mechanism for discussion. Indeed, the relevant literature emphasizes the importance of providing students with guidelines and structured online discussions with clear instructions, support, and expectations (Gilbert & Dabbagh, 2005). Furthermore, it is essential to provide students with a discussion rubric that clarifies what is expected of them in order to facilitate their online discussions (Rovai, 2007). This means that faculty members should have sufficient experience and appropriate attributes to carry out their roles in e-learning, including facilitation skills and sufficient technical skills (McPherson & Nunes, 2008). Moreover, the cultural classification of high- and low-context cultures can explain the low level of online communication among Saudi students and their low level of engagement; it has been found that high-context cultures, such as Eastern cultures, communicate more implicitly and depend highly on context. This contrasts with low-context cultures, such as those in the Western world, where explicit verbal communication is crucial (Brazill, 2019). Therefore, students from high-context cultures need visual or audio content to engage in online discussions (Brazill, 2019). This could explain the participants' lack of social presence in the current study; the majority indicated that they felt a sense of community not because they were engaging in the two online courses (ALS and IEV), but because of their involvement in face-to-face classes at the university. Furthermore, the current study revealed that the teachers' levels of the factor "teaching presence" varied. Some were present and dedicated to teaching the course and used a variety of strategies, while others played a marginal role. Within several studies, instructor characteristics are found to be one of the main CSFs of e-learning (Alhabeeb & Rowley, 2018; Selim, 2007). Students perceived instructor characteristics, which include the teacher's enthusiasm, teaching style, ability to maintain a positive atmosphere with the students, and their computer proficiency, as the most significant factors in e-learning success and adoption (Selim, 2007). Indeed, many studies emphasize the importance of training teachers in strategies that support e-learning (Alhomod & Shafi, 2013; McPherson & Nunes, 2008). Adopting appropriate pedagogical and assessment strategies is essential for a successful e-learning system (McPherson & Nunes, 2008).

However, some students expressed concerns about one of the course instructors, citing a prevalent negative atmosphere during her lectures. This led to issues with the online social comfort factor, which scored the lowest in the questionnaire, reflecting an unpleasant online learning experience, particularly with ALSL2. The students reported that the treatment they received was inappropriate, as fear and anxiety prevailed during the lectures. It appears to the researcher that the instructor's expectations exceeded the students' level. The negative atmosphere can be attributed to the students' knowledge gap, particularly in their literacy levels. In the PISA results, the average score for Saudi students' reading was very low in 2022 (383) compared to the average international score of 476 (Organisation for Economic Co-operation and development, 2023). While this context provides insights into the situation, it does not justify the prevailing negative atmosphere during lectures. The research established the importance of a positive and comfortable environment in online learning. Antoniuk, Vertel, Kolodyazhna, Kyrychenko, and Mnozhynska (2023) emphasized that Students need educational environments where they feel "psychologically, informationally, and socially safe, comfortable, and well-being" (p. 154).

Furthermore, the qualitative data in the current research revealed a lack of self-learning skills among some students. Related studies emphasize the significance of preparing students for e-learning, which includes verifying their digital literacy and independent learning skills to be self-sufficient and motivated to engage productively in

their online learning activities (Bhuasiri et al., 2012; McPherson & Nunes, 2008). Academic support, which includes financial and technological assistance, is vital for individuals who do not demonstrate the required levels of self-sufficiency and digital literacy (Castro & Tumibay, 2021). In addition, according to the participants in the current study, the cognitive presence in online courses was not adequately supported. This may be due to the nature of the religious subjects and the students' low academic level in Arabic. However, scholars emphasize the need to integrate critical thinking support strategies into online learning design, employing methods such as problem-based and web-based learning (Haghparast, Nasaruddin, & Abdullah, 2014). Indeed, according to Howland, Jonassen, and Marra (2012) it is crucial to create meaningful online learning, which includes providing students with learning tasks that require "active, constructive, intentional, authentic, and cooperative learning" (p. 2). Effective instructional design, a well-organized online course, along with an instructor facilitating online interactions, influences the creation of a sense of community of inquiry among the students (Akyol, Vaughan, & Garrison, 2011).

However, the qualitative evidence revealed a lack of course design coherence between the material presented during live Zoom meetings and the content uploaded onto the Blackboard platform, as well as inconsistency between the course tests and the primary reference material in the ALS course. Despite the efforts made in the technical design of the e-courses, the weakness of the instructional design was evident, especially in the ALS course. The literature highlights the significance of instructional design for enhancing e-learning experiences (Brazill, 2019; Castro & Tumibay, 2021; Cheawjindakarn et al., 2012). Su and Guo (2021) articulated the significance of course design, which they found to be one of the main factors that positively influenced students' learning outcomes and satisfaction with their online learning experience. González and Quiroz (2019) noted that "online education is much more than uploading material to a repository and using it in a linear manner. Electronic online education platforms, seen as an integral system, offer a large number of technological resources that must be used according to the educational model that is being applied" (p. 43). Indeed, in the current research, the e-courses were designed in advance without taking the students' academic levels into account. Consequently, the same e-courses are implemented every year with the same design and content for all university students from various disciplines, without revisions, without considering individual differences among students, and without utilizing the students' opinions and perspectives to improve the design of the e-courses. Specialized educators should play a vital role in instructional design by making necessary adjustments based on students' academic levels and addressing any knowledge gaps. This approach requires a more comprehensive and in-depth strategy to help students fill these gaps effectively. In this regard, and Horton (2011) identifying prerequisites for each objective is crucial when designing online courses; this can be achieved by asking questions such as "Why do learners fail to accomplish the objective? Do they not recognize the need or misperceive the situation? Do they lack a crucial fact? Are they stumped on how to proceed, or are they afraid to take the next step?" (p. 29). Moreover, research has found that learning objectives must be clear for effective self-learning (Li, Wei, Xu, & Wang, 2025). In the Saudi context, research emphasises the need to evaluate the content of e-learning courses via a specific proposed expert framework in order to ensure their quality (Al-Alwani, 2014). Indeed, the ALS course needs to be redesigned, following an educational model implemented through instructional design that considers the consistency of learning objectives, learning strategies, content, resources, and technologies to help students reach authentic learning. In this regard, González and Quiroz (2019) stated, "The educational models created based on the prevailing pedagogical models behaviorist, constructivist, cognitive, and connectivist must be implemented through instructional design aligned with pedagogical objectives and learning strategies [and] based on the proper use of the technological resources of the electronic platform" (p. 43).

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