



Mediating role of academic help-seeking among students' social networking self-efficacy and social presence in online environments

Fahimeh Keshavarzi¹ · Timothy Teo² · Elham Heidari¹  · Mahboobe Mehrvarz³

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Abstract

In the digital era, there has been a growing focus on seeking online academic help-seeking as an effective factor for success in the virtual learning environment. However, the Social Networking Self-efficacy (SNS) and social presence of students in online learning environments remain underexplored. This study employed a structural model to investigate the relationship between students' SNS, academic help-seeking, and social presence, as well as the mediating role of academic help-seeking between these two factors. The research design was quantitative, using a descriptive and correlational approach. Data were collected from 339 students at an Iranian university in Hamedan and analyzed using structural equation modeling. The findings indicated that SNS had both direct and indirect influences on social presence, through academic help-seeking. Additionally, academic help-seeking was found to impact social presence, thus mediating the relationship between SNS and social presence. Therefore, educators and policy-makers should consider the role of academic help-seeking and SNS to enhance social presence.

Keywords Media in education · Social networking · Post-secondary education · Distance education · Online learning

1 Introduction

Research studies have consistently emphasized the importance of social interactions and the establishment of social presence in fostering engagement, motivation, and knowledge construction among online learners (Miao & Ma, 2022; Zuo et al., 2022). Social presence, referring to the experience and performance of the learning community, plays a crucial role in learning environments (Yoon & Leem, 2021; Swan

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& Shih, 2005; Weidlich & Bastiaens, 2017) as well as in the success and overall learning of students (Van Wart et al., 2020). Online social presence refers to how participants interact socially in online learning environments (Caskurlu, 2018; Olpak & çakmak, 2018). It helps students plan their activities and interact effectively with peers in online environments (Pursel et al., 2016). When students perceive and experience others in the online environment as real and connected individuals, they develop a sense of belongingness and connection (Richardson, 2001). Students who report higher levels of social presence tend to experience greater satisfaction with their online learning experience and perceive higher levels of learning achievement and engagement (Richardson, 2001; Rovai, 2002). As social presence can positively influence group cohesion and efficiency (Yoon & Leem, 2021), it is considered a significant parameter for creating and participating in participatory virtual learning environments. Therefore, understanding the factors that can contribute to increasing social presence among students in online environments can be beneficial and effective in enhancing their motivation and online learning outcomes.

Engaging in academic help-seeking (AHS) in online environments appears to have a positive impact on students' social presence and their level of participation. AHS, is a relevant learning strategy that students employ to seek assistance when facing academic challenges (Karabenick, 1998). It involves seeking support from individuals and various sources to improve academic achievement within a relatively short time span (Martín-Arbós et al., 2021). Online help-seeking, in particular, has emerged as a quick and accessible way for students to resolve their academic difficulties by utilizing the Internet and the online environment as valuable resources (Crowe, 2021; Liu, 2017). Online communities serve as primary channels for requesting help and exchanging opinions (Er et al., 2015; Liu et al., 2021; Shen, 2018). Compared to face-to-face interactions, online communities offer fewer threatening interactions, providing students with more privacy and opportunities to reflect and refine their opinions, ask questions, and seek online help to solve their problems (Kitsantas & Chow, 2007; Liu, 2017; Liu et al., 2021). Students have the option to seek help from peers, teachers, and more recently, the internet, which offers access to professionals and specific knowledge through auxiliary systems (Puustinen & Rouet, 2009; Shen, 2018; Cheng & Tsai, 2011) that contribute to their social presence and overall growth.

Alongside online AHS, social networking self-efficacy (SNS) is considered as another factor that can contribute to students' social presence and participation (Lo & Hew, 2020; McNamara, 2011). Students with higher self-efficacy are inclined towards exploring multiple sources of information, engaging in research, and exploring the nature of knowledge in web-based learning environments (Cheng & Tsai, 2011), ultimately leading to increased participation in online social communities. In a study, Doo and Bonk (2020) stated that self-efficacy could indirectly affect students' learning participation through their social presence. Self-efficacy refers to an individual's belief in their ability to perform specific tasks or activities (Bandura, 1999). It provides a framework for understanding how our beliefs about our competence in specific behavioral domains influence our choices and performance (Lippke, 2020). Within the context of online learning, self-efficacy becomes crucial for students' competence in utilizing social networking sites and participating in online activities (Zhang, 2022; Ruggieri et al., 2021). Social networking self-efficacy (SNS) is defined

as a person's belief in their ability to perform tasks required for online learning and engagement in social networking sites (Hocevar et al., 2014; Davis, 2009; Ruggieri et al., 2023). It plays a vital role in successful online learning and should be developed through engagement with educational content and the use of social media as a collaborative tool (Hocevar et al., 2014; Ruggieri et al., 2023). Some professionals believe that students' self-efficacy in online environments reflects their self-assessed expectations and confidence in their skills to utilize the Internet and perform complex technological tasks (Calaguas & Consunji, 2022; Chu, 2010; Zhu, 2019).

AHS online behaviors as a learning strategy (Martín-Arbós et al., 2021) may be influenced by students' self-efficacy and beliefs regarding their own competencies for help-seeking (Liu, 2017; McCoy, 2010; Cheng & Tsai, 2011; Hanham et al., 2021). Consequently, the stronger students' beliefs about their academic abilities, the more they utilize online services to comprehend, organize, and complete their assignments (Hanham et al., 2021; Bradley et al., 2017). In fact, when students have higher SNS, they feel more confident in using social networking platforms and participating online. This confidence leads them to seek help online when facing academic challenges, which not only helps them find solutions but also enhances their social presence in online communities. Therefore, it seems that through online AHS, students with higher social networking self-efficacy (SNS) experience a greater sense of social presence, feeling connected and engaged in the online learning environment. This leads to the question: Can online AHS play a mediating role between social networking self-efficacy and social presence? Liu (2017) asserted that despite the increasing online engagement, further research was needed to investigate the impact of self-efficacy on learners who depend on online help. Additionally, Calaguas and Consunji (2022) highlighted a significant gap in the literature concerning students' beliefs in their ability to engage in online activities. Therefore, it is necessary to study how to increase students' social presence in online environments and whether social presence could be influenced by SNS and AHS? This implies that the researchers are interested in investigating whether engagement with SNS and seeking help through AHS can contribute to the development of students' social presence in online learning contexts. And also, can online AHS play a mediating role between SNS and social presence?

In this study, we aim to address the existing gaps in research by simultaneously exploring the relationships between social networking sites (SNS), academic help-seeking (AHS), and social presence. While previous studies have individually examined these components, there is a need to understand their combined effects, particularly focusing on the mediating role of AHS in enhancing students' social presence. Although some studies have indirectly investigated the relationship between SNS and social presence, and a few have directly explored this relationship online, none have comprehensively examined both the direct and indirect effects of SNS on social presence, including the mediating role of AHS. Moreover, although some previous studies have employed qualitative methods to investigate the relation between AHS and social presence in diverse fields of study, it is imperative to analyze these effects using quantitative methods, particularly focusing on higher education students. Therefore, by conducting a thorough examination of the theoretical literature, underlying frameworks, methodology, and analytical techniques employed in

this study, we aim to shed light on the relationships between AHS, SNS, and social presence. Our findings will provide valuable insights for future research in understanding how AHS and SNS contribute to students' social presence in online learning environments, as well as the potential mediating role of AHS between SNS and social presence.

2 Literature review

2.1 Theoretical framework

Technology in various hardware and software fields affects the design and development of educational mechanisms (Chugh et al., 2023). In other words, the flexibility of virtual education allows students to access a diverse range of information and resources, which can help them achieve their learning objectives and improve their self-efficacy (Calaguas & Consunji, 2022). Self-efficacy is a key component of Bandura's (1999) social cognitive theory, which refers to individuals' beliefs in their capacity to organize resources and implement practical courses required to perform tasks successfully, as well as their beliefs in a particular task (Hanham et al., 2021; Başol, 2010).

There are four main sources that foster the development of self-efficacy: mastery experiences, vicarious learning, social persuasion, and physiological and affective states (Bandura, 1977). Although these four sources are not always distinct, they can interact with each other (Hoi et al., 2017; Usher & Pajares, 2008). Mastery experiences are the most significant and influential parameters in heightening the awareness of a person's self-efficacy beliefs. One must meet the challenges for mastery experiences to be persuasive and meaningful. Vicarious learning is experienced by observing the successes and failures of similar individuals. Interaction and observation, in addition to the benefits of learning, can enhance a person's self-efficacy by demonstrating an individual's success in a given activity, which can also succeed in the same task. Physiological and affective states refer to the effects of physical attributes and positive or negative emotions on self-efficacy. Finally, social persuasion is a role that can convince individuals that they are actually able to do something successfully (Anders, 2018; Bradley et al., 2017).

Self-efficacy provides a context for the social presence of learners in various dimensions. Social presence is a significant constituent of online group learning and contributes to the development of learners' social interaction (Kreijns & Weidlich, 2022; Yu et al., 2022). Researchers have proposed different frameworks for social presence, one of which is the "Community of Inquiry" (CoI) framework. This process model explains how deep and meaningful learning occurs in society through the interaction of three main elements: educational, cognitive, and social presence. Educational presence (teaching) focuses on design, facilitation, and the orientation of social and cognitive presence to achieve desired learning objectives. Cognitive presence refers to high-level critical thinking (Garrison et al., 1999; Caskurlu, 2018), and social presence focuses on how participants interact socially in online learning environments (Caskurlu, 2018; Olpak & çakmak, 2018).

This study focuses on the social presence dimension, which includes three sub-categories: affective expression, open communication, and group cohesion (Swan et al., 2009). The affective expression denotes sharing personal experiences, including emotions, feelings, beliefs, and values. Open communication means that learners create planning, performance, and reflection and maintain a sense of group commitment. Group cohesion implies that learners interact with each other around shared intellectual activities and tasks (Swan et al., 2009). The present study focuses on a single variable that mediates these relationships: academic help-seeking. Academic Help-Seeking (AHS) is one of the metacognitive strategies utilized in self-regulated learning (Zimmerman & Kulikowich, 2016) in which learners arrange opportunities to achieve better learning and improve their academic performance. Planning, performance, and reflection are crucial elements in supporting self-regulated learning (Heikkinen et al., 2023). AHS has different patterns, as any online behavior (Karabenick & Knapp, 1991; Puustinen & Rouet, 2009).

In this study, Cheng & Tsai's (2011) model was employed to investigate the AHS in online environments. AHS, in this study, is a behavior of asking for help from others through the Internet by means of information searching and formal vs. informal queries. Information searching indicates measuring students' perceptions of searching for relevant solutions when encountering academic difficulties through search engines (e.g., Google, Yahoo, etc.) or specialized websites (e.g., Wikipedia). Formal queries measure students' perceptions of seeking help from instructors or class assistants through online means. Moreover, informal queries are indicative of measuring students' perceptions of getting help from knowledgeable peers over the Internet or posting messages on relevant websites in order to ask for help from anonymous experts (Cheng & Tsai, 2011). More details are provided in the following Sect. 2.2. Social Networking Self-Efficacy.

Social media and social networking sites refer to websites and applications that allow users to connect with others who share similar interests, activities, backgrounds, or real-life connections. However, social networking self-efficacy (SNS) refers to students' beliefs regarding their ability to complete specific tasks required for online learning (Zimmerman & Kulikowich, 2016) or to participate in online activities and social networking sites (Anders, 2018). Therefore, SNS indicates what a person believes they can do (Bandura, 1999) in these social networks or social media. In the literature on educational processes, SNS has been shown to be a strong predictor of online learning success (Ruggieri et al., 2023; Liu et al., 2022).

There are some relationships between students' SNS and other similar indicators, such as social media. For example, Liu et al. (2022) showed that social media-based learning has a significant impact on learner performance, and social networking self-efficacy increases student confidence, leading to better performance in group tasks and achievements. Using social media, blogs, and learning communities presents unique opportunities to support the development of self-efficacy (Anders, 2018), as these environments provide a basis for interaction and cooperation among students, allowing them to gain experience in online participation and communication development (Ansari & Khan, 2020) and improve their attitude towards completing specific tasks. However, students who spend a lot of time on social media have lower

academic self-efficacy beliefs, GPAs, and life satisfaction (Hanham et al., 2021; Junco, 2012; Laranjo, 2016).

Consequently, to enhance students' social networking self-efficacy, they should develop technically efficient skills in implementing distance-learning mechanisms to interact with classmates and teachers. Moreover, the educational content of the course should maintain sufficient interest for students (Hanham et al., 2021). In conclusion, SNS plays a critical role in online learning success, and social media, blogs, and learning communities present unique opportunities to support the development of self-efficacy. Therefore, students should develop technically efficient skills and engage with educational content that maintains their interest to enhance their social networking self-efficacy.

2.2 Social presence

Social learning environments are the foundation of learners' social presence, which, in turn, enhances cognition in social learning environments (Zou et al., 2021). Research reveals that social presence influences group learning and group dynamics through social interaction (Tu, 2000). Thus, social interaction may strengthen social presence (Kreijns & Weidlich, 2022; Song & Yuan, 2015).

In general, social presence has varied and sometimes complex definitions in the literature (Weidlich & Bastiaens, 2017). In a virtual era, the shortest definition of social presence can be the ability to display personal identity in the online community (Kreijns et al., 2014). In a more comprehensive definition, social presence is the exhibition of an individual's sense of belonging to a group through participation in group activities, management skills, organization, communication, interaction, research, and rational thinking (Picciano, 2002; Caskurlu, 2018; Yoon & Leem, 2021; McKerlich et al., 2011; Olpak & çakmak, 2018; Natarajan & Joseph, 2022). Based on the research, social presence in distance learning can increase students' interactions, reduce their feelings of isolation, and promote meaningful learning (McKerlich et al., 2011; Natarajan & Joseph, 2022; Olpak & çakmak, 2018).

2.3 Social networking self-efficacy and social presence

Several studies have been conducted on the relationship between SNS and interactions, cooperation, and students' presence in cyberspace (Hanham et al., 2021; Anders, 2018; Yoon & Leem, 2021; Jaradat & Ajlouni, 2020; Shea & Bidjerano, 2010; Doo & Bonk, 2020). Zheng et al. (2018) emphasized the significance of self-efficacy in online learning, stating that learners' motivational beliefs are vital to increasing self-regulation and constructive interaction. In other words, SNS can create a dynamic and active presence of learners to establish constructive interactions. Additionally, Yu et al. (2022) found that students with emotional self-efficacy had higher levels of self-regulation, motivation, and academic performance in online learning. Jaradat and Ajlouni (2020) examined the potential effect of social presence and self-efficacy on 435 Jordanian undergraduate students' satisfaction with the online learning environment. Their results demonstrated a significant positive relationship between social presence, online learning self-efficacy, and students' satisfaction. Suryaratri et

al. (2022), investigated the effects of academic self-efficacy and social support on students and found a positive and significant effect of academic self-efficacy and social support on students' academic performance during online learning. Based on the research methodology, this study expected students with higher SNS to have a more active social presence than other students and to perform better academically through active learning in social networks. Although some studies have indirectly examined the relationship between self-efficacy and social presence, few studies directly investigated the relationship between these two variables online. Therefore, the present study aims to examine the relationship between the SNS and the social presence of students in online environments. Consequently, the research hypothesis is as follows:

H1 There is a positive and significant relationship between SNS and students' social presence.

2.4 Academic help-seeking

Academic help-seeking (AHS) is a learning strategy employed by students to enhance their learning, including further study and better organization of content (Qayyum, 2018; Liu et al., 2021). Many researchers believe that AHS is a valuable skill that enables students to become self-regulated learners (Howley et al., 2017; Newman, 2002; Chou et al., 2018; Ding & Er, 2018). In other words, AHS involves recognizing the need for help, deciding on the need for help, identifying helpers, seeking help, and evaluating help in scientific settings (Cheng & Tsai, 2011; Qayyum, 2018).

The online environment provides considerable support whenever there is a need for information, help, or guidance (Qayyum, 2018; Puustinen et al., 2015). Students formally or informally seek online academic help in various forms, such as sending e-mails, writing posts in cyberspace, and asking friends, peers, educators, or specialists (Cheng & Tsai, 2011; Qayyum, 2018), to exchange information with their peers and help each other (Er et al., 2015; Liu et al., 2021). Accordingly, the present study aims to investigate academic help in online environments.

2.5 The relationship between SNS and AHS

AHS, can be influenced by various factors such as objectives, level of trust in the source, and self-efficacy (Smalley & Hopkins, 2020; Liu, 2017; Cheng & Tsai, 2011; Crowe, 2021). Shen (2018) examined the relationship between school-related Internet information retrieval, academic self-efficacy, and the moderating role of Internet information retrieval styles among 517 Chinese elementary school students. The results indicated that searching for school-related Internet information positively predicts academic self-efficacy. In this regard, Chu (2010) also found that students with higher learning self-efficacy tended to adopt more sophisticated and self-regulatory learning strategies such as planning, supervising, and seeking help. As mentioned previously, individuals with higher self-efficacy usually set more difficult objectives, work harder, persevere in the face of challenges for longer periods, and show resilience in the face of adversity (Klassen & Usher, 2010). Therefore, it is expected

that students who are more self-efficient seek academic help directly or indirectly. However, no research has been conducted on the student community in this field, especially in online environments. Therefore, the second hypothesis of this study is as follows:

H2 There is a positive and significant relationship between SNS and AHS students.

2.6 The relationship between AHS and social presence

Various studies have examined AHS and social presence in different forms (Williams-Dobosz et al., 2021; Puustinen et al., 2015; Howley et al., 2014; Whipp & Lorentz, 2009; Lee et al., 2021; Williams-Dobosz et al., 2021). For instance, Linney's (2013) study surveyed 259 students to indicate the type of information and communication technology (ICT) they utilized to seek help in a particular situation. The findings revealed students tended to choose ICT with high social presence instead of a low social presence because ICT with a high social presence ensures that the helper is less likely to ignore the seeker's request for help.

In another study, Lee et al. (2021) concluded that most students tended to participate in asynchronous online discussions by raising specialized and technical questions. Accordingly, educators should play a pivotal role in the classroom or online forums and support students' help-seeking behaviors in asynchronous online discussions (Er et al., 2015). Most of these studies have investigated the relationship between AHS and social presence indirectly employing a qualitative method in different fields of science, engineering, chemistry, and technology (Williams-Dobosz et al., 2021; Lee et al., 2021; Whipp & Lorentz, 2009). To date, no study has been conducted on the direct effects of AHS on the social presence of students in an online setting. Consequently, the following hypothesis was formulated for this study:

H3 There is a positive and significant relationship between AHS and the students' social presence in online environment.

2.7 The mediating role of online academic help-seeking

In this study, it is significant to examine whether AHS can mediate the possible relationship between SNS and the social presence of students. The first relationship is established by influencing students' social presence in cyberspace directly, and the second is by improving their SNS, which might further contribute to social presence and dynamic interactions.

From the literature, there is a paucity of experimental studies to examine the effects of students' SNS based on AHS, and in particular their SNS with a focus on social presence. For instance, most studies that examined the relationship between SNS and AHS only investigated the relationship between self-efficacy and AHS in different educational fields (not higher education students), including the deaf and hard of hearing (Crowe, 2021), teachers (Liu, 2017), Chinese children (Shen, 2018), and

high school students (Zhu et al., 2011). In addition, due to the relationship between the two variables of SNS and social presence, only a few studies have demonstrated an indirect positive effect of self-efficacy along with academic results in online environments. Some studies investigated students' social support and the educational flow (Suryaratri et al., 2022), the use of information and communication technology (Saleha, 2021; Demiralay & Karadeniz, 2010; Calaguas & Consunji, 2022), online learning (Zimmerman & Kulikowich, 2016), group cohesion (Yoon & Leem, 2021), social support (Suryaratri et al., 2022) examined.

In short, while previous research has explored the individual effects of variables such as SNS and AHS separately; however, little is known about their simultaneous relationships. The study seeks to fill this gap in the literature by examining the mediating role of AHS in the relationship between SNS and social presence. Also, previous studies have used qualitative methods to indirectly explore the link between AHS and social presence across various fields, but no research has yet examined the direct impact of AHS on students' social presence in an online context. Moreover, the study is motivated by the increasing importance of online communities and the Internet as primary channels for requesting help and exchanging opinions. As students seek help in online environments, their SNS and AHS behavior become crucial factors that may influence their social presence, which is a key parameter in the success of online education. Therefore, taking these research gaps and the previous literature into account, the following hypothesis was developed for in this research. Also, on the base of research hypotheses, the proposed model (Fig. 1) was proposed.

H4 AHS plays a mediating role in the relationship between SNS and the students' social presence.

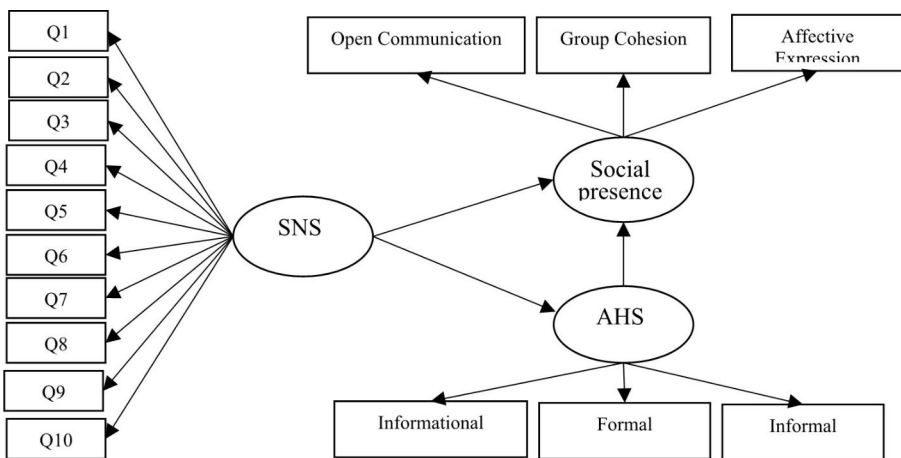


Fig. 1 Proposed Model of the Relationship between SNS, AHS, and Social Presence

3 Method

3.1 Study design and sample

This study employed a quantitative descriptive and correlational design, with a statistical population consisting of students from Hamadan University of Medical Sciences (UMSHA), with a sample size of 6800 participants selected using the Morgan Table (Krejcie & Morgan, 1970). A stratified random sampling method based on degree level was used to distribute 364 questionnaires, of which 339 were returned, resulting in a 93.13% response rate. The sample demographic included 93 (27.4%) male and 246 (72.6%) female students, of which 89 (26.3%) were undergraduate, 8 (2.4%) were master's students, 221 (65.2%) held medical degrees, and 21 (6.2%) were specialists in clinical and non-clinical fields.

3.2 Measures

3.2.1 Social networking self-efficacy

This questionnaire examines students' self-efficacy for social networking activities, consisting of ten questions with a 5-point Likert scale. Its reliability was reported in another study as 0.92 based on Cronbach's Alpha Coefficient (Anders, 2018). In this study, the questionnaire's reliability was 0.91 based on Cronbach's Alpha Coefficient.

3.2.2 Social presence

The social presence of students was measured using the questionnaire developed by Arbaugh et al. (2008), which measures social presence based on nine items and in three dimensions: affective expression (3 items), open communication (3 items), and group cohesion (3 items). Each item was rated on a 5-point Likert scale. Caskurlu (2018) reported the reliability of this tool based on Cronbach's Alpha Coefficient of 0.89. In this study, Cronbach's Alpha Coefficient for the whole questionnaire was 0.87, and the coefficients for affective expression (0.71), open communication (0.76), and group cohesion (0.79) were desirable.

3.2.3 Academic help-seeking

The assessment of students' AHS was conducted using Cheng & Tsai's (2011) questionnaire, which consists of three dimensions: information searching, formal query, and informal query. The questionnaire evaluates the students' experience of AHS using a 5-point Likert scale. The reliability of this questionnaire based on Cronbach's Alpha Coefficient for information searching, formal, and informal dimensions was reported as 0.55, 0.76, and 0.69, respectively (Cheng & Tsai, 2011). In this study, the reliability of this questionnaire was evaluated, resulting in a Cronbach's Alpha Coefficient of 0.78 for the whole questionnaire. The coefficients for information searching (0.53), formal query (0.85), and informal query (0.74) were desirable.

3.3 Procedures and data analysis

The questionnaire was distributed among a sample of students in the medical field and specialists in clinical and non-clinical fields at Hamadan University of Medical Sciences (UMSHA). Out of a total of 364 questionnaires distributed, 339 were returned, resulting in a response rate of 93.13%. To collect data, questionnaires were sent to the sample group through online social networks for voluntary completion within a one-week period. They were requested to respond to the questions within one week from the time they received the link. In addition, a reminder message was also sent to them. After collecting the questionnaires, structural equation modelling (SEM) was implemented to analyze the research data using SPSS (version 25) and AMOS (version 24.0) software. The goodness of fit of the measurement model and the structural model was evaluated using various indices, including chi-square (χ^2), the chi-square/degrees of freedom, the incremental fit index (IFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA), as suggested by Hooper et al. (2008). The acceptable level of fit for each of the above indices was χ^2 df ratio < 3, IFI and CFI > 0.90, and RMSEA < 0.07 (Hooper et al., 2008; Hair et al., 2010; Kline, 2015). Additionally, to investigate the mediation role, the bootstrap method with 2000 resamples was employed.

4 Results

4.1 Preliminary analysis

The results indicate that the highest mean score was related to the information searching dimension of the SNS variable, while the lowest mean score was related to the informal query and formal query dimensions of the SNS variable. The mean of social presence and SNS was at an average level (of 3) or less. Two criteria, skewness, and kurtosis, were used to evaluate the normality of the constructs. The results showed that the skewness and kurtosis of all variables were within acceptable thresholds, i.e., -2 to +2 (Hair et al., 2010), indicating normal distribution of the variables. Furthermore, a positive and significant relationship was found between AHS dimensions, social presence variables and SNS variables, except for information searching for the informal and formal queries, group cohesion, and affective expression (Table 1).

Table 1 Descriptive Statistics, Skewness, Kurtosis, and Correlations among the Study Variables

Variables	M	SD	Skew	Kurt	1	2	3	4	5	6
1. Self-Efficacy	3.06	0.87	-0.07	-0.18						
2. Information Searching	3.74	0.78	-0.2	-0.53	0.18**					
3. Formal Query	1.99	0.9	0.96	0.51	0.27**	-0.03				
4. Informal Query	1.98	0.81	0.88	0.47	0.31**	-0.03	0.51**			
5. Open Communication	3	0.93	-0.14	-0.36	0.43**	0.11**	0.22**	0.19**		
6. Group Cohesion	2.86	0.99	0.15	-0.36	0.47**	0.04	0.28**	0.19**	0.59**	
7. Affective Expression	2.91	0.96	0.02	-0.38	0.52**	0.01	0.35**	0.26**	0.46**	0.72**

4.2 Measurement model

The study evaluated the construct reliability for the composite reliability (CR) measurement model. The results showed that CR values for SNS, AHS dimensions and social presence were found higher than the acceptable level of 0.6 (Fornell & Larcker, 1981). The convergent validity of the measurement model was evaluated by Average Variance Extracted (AVE) and Confirmatory Factor Analysis (CFA). The results indicated that AVE dimensions of open communication, group cohesion, and formal query are higher than the acceptable level of 0.5, while, while the AVE dimensions of other constructs were lower than the acceptable level. According to Fornell and Larcker (1981), when the CR is higher than 0.6 and AVE is below 0.5, the construct validity is still acceptable. Furthermore, the results displayed the parameter load of items in the SNS were between 0.58 and 0.77, information searching between 0.44 and 0.84, the informal query between 0.53 and 0.83, the formal query between 0.96 and 0.84, open communication between 0.42 and 0.88 the group cohesion between 0.74 and 0.78, and the affective expression between 0.44 and 0.75, which were at acceptable levels of more than 0.30 (Buyukozturk, 2007) (see Table 2).

The Fit Index of this model was found to be acceptable ($\chi^2=777.36$, $df=347$, $\chi^2/df=2.24$; IFI=0.91; CFI=0.91; RMSEA=0.06). Additionally, the results for the square roots of the AVE indicated good discriminant validity (Table 3).

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4.3 Structural model

The results of the structural model examination are presented in Fig. 2. Based on the hypothesis test result shown in Table 4, the first research hypothesis was accepted as there was a positive and significant relationship between the students' SNS and their social presence ($\beta=0.52$, $p=0.0001$). The second hypothesis was also confirmed, indicating a positive and significant relationship between SNS and the students' AHS ($\beta=0.41$, $p=0.0001$). The results further revealed that the third research hypothesis was accepted, indicating a positive and significant relationship between the students' AHS and their social presence ($\beta=0.23$, $p=0.001$). The structural model fit indices were acceptable ($\chi^2=257.19$, $df=96$, $\chi^2/df=2.67$; IFI=0.93; CFI=0.93; RMSEA=0.07).

4.4 Mediation analysis

The Bootstrap method was employed to investigate the mediating role of AHS in the relationship between students' SNS and their social presence. The bootstrap method is more effective in testing mediation models because it uses random resampling with replacement to estimate indirect effects (Zhang & Wang, 2008). In this study, 2000 resampling were performed using Amos software. Based on the results, the indirect effect of SNS on the students' social presence with mediating role of AHS

Table 2 Item parameter, reliability, and validity estimates

Factors	Standardized Factor loading	CR	AVE
Social Presence		0.70	0.45
Affective expression			
B1	0.75		
B2	0.78		
B3	0.44		
Open communication	0.42	0.77	0.55
B4			
B5	0.83		
B6	0.88		
Group cohesion	0.78	0.79	0.57
B7			
B8	0.74		
B9	0.73		
Online Academic Help-Seeking		0.60	0.45
Informational			
A1	0.84		
A2	0.44		
Formal		0.85	0.59
A3	0.69		
A4	0.71		
A5	0.84		
A6	0.81		
Informal		0.70	0.38
A7	0.83		
A8	0.53		
A9	0.53		
Networking Self-efficacy		0.90	0.49
Q1	0.66		
Q2	0.74		
Q3	0.76		
Q4	0.77		
Q5	0.76		
Q6	0.70		
Q7	0.72		
Q8	0.67		
Q9	0.61		
Q10	0.58		

Table 3 Discriminant Validity

Variables	1	2	3
1. AHS	0.59		
2. SNS	0.41	0.70	
3. Social Presence	0.44	0.61	0.78

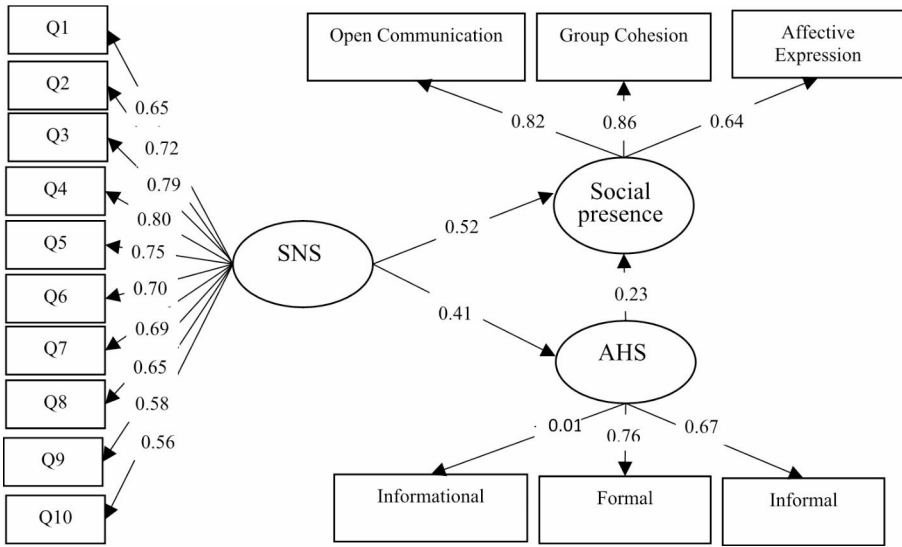


Fig. 2 Research Structural Model

Table 4 Research Hypotheses Testing

Hypotheses	Path	Estimate	Results
H1	SNS → Social presence	0.52	Supported
H2	SNS → AHS	0.41	Supported
H3	AHS → Social presence	0.23	Supported
H4	SNS → AHS → Social presence	0.09	Supported

was $\beta=0.09$, and its confidence interval ranged between 0.03 and 0.15. Therefore, the fourth hypothesis of the research was confirmed.

5 Discussion

This study aimed to determine the possible relationship between SNS and students’ social presence, considering the mediating role of AHS. The first hypothesis “there is a significant relationship between SNS and students’ social presence” was supported, indicating that students with SNS make use of virtual networks’ facilities and services and have an active presence in online environments to receive and provide services to others in the form of interactions and social exchanges. Previous research has also shown students with high self-efficacy are more likely to participate in learning environments with greater diligence and effort and have more flexibility in overcoming difficulties (Bandura & Schunk, 1981; Bandura, 1999; Schunk, 2003). Consequently, such students have an active and dynamic presence in cyberspace and achieve their educational and social objectives by establishing constructive social interactions.

The second research hypothesis “there is a significant relationship between SNS and AHS students” was also supported. This finding is consistent with the results

of previous studies (e.g., Hanham et al., 2021; Caprara et al., 2008; Calaguas & Consunji, 2022), some of which indirectly focus on the relationship between SNS and AHS students. Studies have emphasized the significance of using technology and computers to promote students' self-efficacy (Teo, 2009; Calaguas & Consunji, 2022). Also, Kim and Zane (2016) found that self-efficacy, or a person's perception of their ability to overcome difficulties, is associated with help-seeking. In fact, students' beliefs about their abilities in online environments and the desired learning outcomes have changed the conditions for helping learners from face-to-face to online help in the digital age. Learners with knowledge and belief in their capabilities make better use of cyberspace facilities and services in order to improve and develop their capabilities (Calaguas & Consunji, 2022). Thus, the stronger students' belief in their academic abilities, the more they use online services to help them understand, structure, and complete their assignments (Hanham et al., 2021).

The third hypothesis of this study was that “there is a positive and significant relationship between AHS and the students' social presence,” which was supported by the findings. Some previous studies have indirectly supported this hypothesis (e.g., Best et al., 2014; Linney, 2013; Whipp & Lorentz, 2009; Lee et al., 2021; Williams-Dobosz et al., 2021; Howley et al., 2014; and Gasiewski et al., 2012). For example, in a study by Best et al. (2014), the authors investigated the effect of online help-seeking behaviors on men's psychological well-being and the effectiveness of adopting “online” approaches in social work performance. The results of the study suggested that respondents were aware of the significance of accessing online information in a reliable and quality manner and using search engines or social networking websites and networks to find relevant information. Therefore, AHS fosters a sense of cooperation and participation among learners, and they receive the information they need through various media. Consistent with their study, Howley et al. (2014) concluded that learners exhibited less help-seeking behaviors when the teacher was present, as they preferred to informally search for information in cyberspace for fear of being judged. The result of the fourth hypothesis, “AHS plays a mediating role in the relationship between SNS and the students' social presence,” was also supported. The results of this study showed while SNS could directly and indirectly influence students' social presence, AHS would directly impact their social presence. According to the findings, students who are self-employed create online professional profiles such as personal websites, and LinkedIn, to request a meeting or interview with professionals in their specialized profession, search for useful and relevant information resources related to their profession, including blogs, and search for news and specialized websites. They also communicate with experts and groups on social networks and can apply for scientific help in various forms without fear of being judged. Believing in their abilities through social interactions can pave the way for their professional growth and development. Thus, the mediating role of AHS, highlighted by the results of this study, demonstrated that in order to increase students' social presence, students' SNS should be encouraged. Believing in one's abilities paves the way for the growth and development of learners' skills. This way, they can easily follow their requests in virtual environments and have a more active social presence.

5.1 Contributions to theory and practice

Examining the role of online help-seeking, which originates from Bandura's social cognitive theory, in the relationship with SNS, which originates from self-regulation theory, can provide more insights into the development of online learning and dynamic social presence in learners. The findings of this study can also serve as the basis for expanding and developing concepts such as social presence. In fact, the results showed the definition of social presence extend beyond the ability to perform interaction and communication to include logical and meaningful thinking. In other words, students with the ability to use technologies and SNS can fulfill their needs directly or through online help-seeking in various situations and consequently succeed in online activities and teamwork. Therefore, based on the findings of this study, efforts should be made to empower learners to use social networks' capabilities and improve their self-efficacy. In this way, learners can seek online help to fulfill their needs, solve their problems without fear of being judged, and make their social presence more prominent.

5.2 Conclusions and implications

This study addressed the mediating role of AHS in the relationship between SNS and social presence. The results indicate that when students have SNS in the online environment, their tendency to seek help increases and, subsequently, their social presence improves. Moreover, students who have a strong belief in their academic abilities tend to use online services more frequently to comprehend, organize, and finalize their assignments. Additionally, the study found that AHS fosters a sense of cooperation and participation among learners, and they receive the information they need through various media. Although SNS can affect students' social presence both directly and indirectly, AHS has a direct impact on their social presence. Believing in one's abilities facilitates the growth and development of learners' skills, enabling them to easily follow their requests in virtual environments and have a more active social presence.

In practical terms, the relationships among the three variables presented in this study help administrators and instructors pay more attention to students' SNS and AHS in online environments to improve their social presence. Instructors should help students believe in their abilities and enable them to participate freely in online environments and seek help from others. Furthermore, instructors should provide conditions in online classes that allow students to easily search for information on various networks and websites, both formally and informally, without fear of being judged. They can provide feedback and interventions to students (Heikkinen et al., 2023), group them into different self-efficacy profiles based on their levels of self-efficacy (Yu et al., 2022). Also, administrators can create adequate infrastructure, technical support, and training for faculty and students (Chugh et al., 2023). This can lead to a greater social presence in online environments.

6 Limitations of the study and further directions

Given that students' SNS and the ability to seek help in such environments to increase social presence are vital, it is imperative to list the limitations of this study. First, although the sample size of this study was relatively large, it was conducted in a single university in Iran. Therefore, the findings of this study may be limited when generalized to other higher educational institutions in other countries. Future studies should replicate different aspects of this study in universities and other cultural settings. Second, the present study examined students' short-term attitudes regarding SNS, AHS, and social presence parameters. In order to address the long-term attitudes of students concerning their beliefs, future research should adopt a longitudinal survey design. Third, the present study employed a self-report questionnaire to examine the relationships between research variables, like many other studies (Yoon & Leem, 2021; Suryaratri et al., 2022; Doo & Bonk, 2020). Hence, future studies should include an actual test, in addition to the self-report test.

Third, the present study employed a self-report questionnaire to examine the relationships between research variables, like many other studies (Yoon & Leem, 2021; Suryaratri et al., 2022; Doo & Bonk, 2020). Hence, future studies should include an actual test, in addition to the self-report test.

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Declarations

Competing interests There are no conflicts of interest.

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Authors and Affiliations

Fahimeh Keshavarzi¹ · Timothy Teo² · Elham Heidari¹ · Mahboobe Mehrvarz³

✉ Elham Heidari
eheidari@shirazu.ac.ir
Fahimeh Keshavarzi
fkeshavarzi@shirazu.ac.ir
Timothy Teo
timothy.teo@cuhk.edu.hk
Mahboobe Mehrvarz
m.mehrvarz@shirazu.ac.ir

¹ Department of Educational Administration and Planning, Shiraz University, Shiraz, Iran

² Department of Educational Psychology, The Chinese University of Hong Kong, Shatin, Hong Kong SAR

³ Human-Computer Interaction Institute, Carnegie Mellon university, Pittsburgh, Pennsylvania, USA