

Students' Perceptions and Social Skills in Online and Face-to-Face Learning Among Higher Education Students

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ABSTRACT

The different learning environments experienced by students may influence the way they communicate and interact with lecturers and peers. This study examined students' perceptions of online and face-to-face learning and their social skills in both learning environments. It also examined the relationship between students' perceptions and social skills and compared the findings between the two learning modes. A quantitative approach involved 174 students from the Faculty of Education at one university in Selangor, Malaysia. Data were obtained through a questionnaire using 5-point Likert scale and were analysed using descriptive statistics, Pearson correlation and paired-samples t-test. The results showed a higher mean score for students' perceptions of face-to-face learning ($M = 4.13$) than online learning ($M = 3.49$). A similar result was observed for social skills, with face-to-face learning recorded a mean score of 4.01 compared to 3.73 for online learning. Students' perceptions were significantly and positively related to their social skills in online learning ($r = .338, p < .001$) and face-to-face learning ($r = .808, p < .001$). Significant differences were also identified between the two learning modes for both students' perceptions and social skills. Overall, the results indicate that students responded more positively to face-to-face learning, particularly related to social interaction.

Keywords: online learning, face-to-face learning, social skills, students' perceptions, higher education

INTRODUCTION

The use of online learning has changed the way students experience teaching and learning in higher education. Although online learning was widely adopted during the COVID-19 pandemic, it has continued to be used as part of current teaching and learning practices. Online learning provides flexibility and allows students to access learning activities from different locations. However, the experience is different from face-to-face learning, particularly in the way students communicate and interact with lecturers and peers. In order to gain academic knowledge, students are expected to communicate with others, participate in discussions and work collaboratively throughout their studies. These activities may contribute to the development of social skills. In face-to-face classes, interaction occurs directly within the classroom, whereas online learning relies mainly on communication through digital platforms. The differences between these learning environments may therefore influence students' perceptions as well as their social experiences.

Students may also respond differently to online and face-to-face learning. While some students appreciate the flexibility provided by online learning, others may prefer direct communication and interaction in a physical classroom. Understanding these differences is important because students' perceptions of their learning environment may be related to how they interact and develop social skills within that environment. Previous studies have compared students' experiences of online and face-to-face learning, but less attention has been given to identifying the relationship between students' perceptions and their social skills across the

two learning environments. In particular, there is limited understanding whether the strength of this relationship differs when the same students experience online and face-to-face learning. By examining perceptions and social skills aspects together, this study provides a direct comparison of students' social learning experiences within the two environments. Therefore, this study aimed to examine students' perceptions and social skills in online and face-to-face learning. It also investigated the relationship between students' perceptions and social skills in both learning environments and determined whether significant differences existed between the two learning modes.

LITERATURE REVIEW

Online learning generally refers to learning that takes place through the internet, where students can participate in learning activities and interact with instructors and other students without being dependent on their physical location. It may take place synchronously or asynchronously (Singh & Thurman, 2019). Online learning provides students with greater flexibility in terms of time and location and allows students to access learning materials and participate in learning activities through various digital platforms. However, students' experiences of online learning may differ depending on their readiness, technological skills, motivation and ability to manage their own learning (Hung et al., 2010; Tuntirojanawong, 2013). Interaction is another aspect that needs to be considered, particularly when students have limited opportunities to communicate directly with their lecturers and peers.

Face-to-face learning provides a different experience because students and lecturers are physically present in the same learning environment. Communication, discussions and feedback can take place directly during a class. Previous studies have reported differences in students' preferences for online and face-to-face learning. Kemp and Grieve (2014) found that students preferred face-to-face interaction for discussion, although comparable academic outcomes could be achieved through both learning modes. Tratnik et al. (2017) also found that students attending face-to-face classes were generally more satisfied with the course across several dimensions than their online counterparts. More recent findings among Malaysian undergraduates showed a similar pattern. Abdul Latef et al. (2025) found that face-to-face learning was viewed more positively in terms of comprehension, motivation and interaction while online learning valued for its cost savings, flexibility and time efficiency.

Apart from students' perceptions, the learning environment may also influence their opportunities for social interaction. Social skills are required to communicate with lecturers and peers, participate in discussions and work collaboratively with others. These activities help to develop students' communication and interpersonal skills. In a face-to-face environment, students can communicate directly and respond immediately during classroom activities. Online learning also allows interaction, but much of the communication occurs through digital platforms. Yousaf and Masood (2024) found that although online learning presents unique challenges to students' socialisation, active participation in online discussions, group projects, and virtual extracurricular activities may enhance students' adaptability and digital communication proficiency. Therefore, the way students communicate and interact with others may differ between the two learning environments.

The concept of social presence is particularly relevant when considering these differences. Social presence reflects the extent to which individuals experience the presence of others during communication. Earlier studies have associated social presence with learners' satisfaction in a computer-mediated conferencing environment (Gunawardena & Zittle, 2009), as well as with perceived learning and satisfaction (Richardson & Swan, 2003). The importance of social presence continues to be reported in more recent research. Pujasari et al. (2025) highlighted the role of personalised communication, lecturer involvement and group-based activities in supporting social presence in online learning. Similarly, Panjehfouladgaran et al. (2024) found that online social interaction and collaboration were significant predictors of students' online social presence. Castellanos-Reyes et al. (2024) found that online students with greater peer interaction showed higher levels of social presence. These findings suggest that meaningful interaction can still be developed in an online environment when students are given appropriate opportunities to communicate and work with others.

Taken together, these findings suggest a conceptual link between students' perceptions, social skills and social presence. When students perceive a learning environment as supportive, interactive and comfortable, they may be more willing to communicate, participate in discussions and collaborate with others. These forms of interaction are closely related to the use and development of social skills. Social presence may further support this relationship by influencing the extent to which students feel connected to lecturers and peers within the learning environment. In face-to-face learning, direct communication, immediate responses and physical presence may make social interaction more natural, whereas online learning depends more heavily on the design of digital interaction and students' willingness to participate. Therefore, the relationship between students' perceptions and social skills may vary according to the learning environment.

METHODOLOGY

A quantitative approach was adopted in this study, with 174 students from the Faculty of Education at a university in Malaysia participating in the survey. All participants had experience with both online and face-to-face classes. This criterion was important as the questionnaire required them to respond to questions related to their experiences in the two learning settings. Therefore, only students who had experienced both modes of learning were included in the study. The questionnaire contained five sections. The first section covered the participants' background information.

The remaining four sections focused on perceptions of online learning, perceptions of face-to-face learning, social skills during online learning, and social skills during face-to-face learning. Each of these four sections contained eight items, giving a total of 32 items measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). For the 32 items, the reliability test yielded a Cronbach's alpha of .912. The responses were then analysed using SPSS. Descriptive statistics were used to describe students' perceptions and social skills in both learning environments. The relationships between perception and social skills were examined using Pearson correlation, whereas paired-samples t-tests were applied to compare students' responses for online and face-to-face learning.

RESULTS

Students' Perceptions of Online and Face-to-Face Learning

Table 1 presents the overall mean scores for students' perceptions of the two learning modes. Online learning obtained a mean score of 3.49, whereas the mean for face-to-face learning was 4.13. The higher score for face-to-face learning shows that students viewed this mode of learning more positively.

Table 1. Students' Perceptions of Online and Face-to-face Learning

Learning mode	N	Mean	Standard deviation
Online learning	174	3.49	.890
Face-to-face learning	174	4.13	.723

Students' Social Skills in Online and Face-to-Face Learning

Students also reported higher social skills scores in face-to-face learning. As shown in Table 2, the mean increased from 3.73 for online learning to 4.01 for face-to-face learning. The higher mean score for face-to-face learning indicates that students perceived their social skills experiences more positively in this learning environment. In comparison, the lower mean score for online learning suggests that students perceived fewer opportunities to use or demonstrate their social skills when learning online. Overall, the descriptive findings indicate that students reported more positive social skills experiences in face-to-face learning than in online learning.

Table 2. Students' Social skills in Online and Face-to-face Learning

Learning mode	N	Mean	Standard deviation
Online learning	174	3.73	.852
Face-to-face learning	174	4.01	.70

Relationship Between Students' Perceptions and Social Skills

Table 3 and Table 4 show the relationship between students' perceptions and social skills on online and face-to-face learning respectively. For online learning, a positive and significant correlation was obtained ($r = .338$, $p < .001$) while a stronger positive relationship was observed for face-to-face learning ($r = .808$, $p < .001$). Therefore, students with more positive perceptions tended to report higher social skill scores, particularly in the face-to-face environments.

Table 3. Relationship between Students' Perceptions and Social Skills on Online Learning

		Perception	Social skills
Perception	Pearson Correlation	1	.338**
	Sig. (2-tailed)		< .001
	N	174	174
Social skills	Pearson Correlation	.338**	1
	Sig. (2-tailed)	< .001	
	N	174	174

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Table 4. Relationship between Students' Perceptions and Social Skills on Face-to-Face Learning

		Perception	Social skills
Perception	Pearson Correlation	1	.808**
	Sig. (2-tailed)		< .001
	N	174	174
Social skills	Pearson Correlation	.808**	1
	Sig. (2-tailed)	< .001	
	N	174	174

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Differences Between Online and Face-to-Face Learning

A paired-samples t-test was conducted to compare students' perceptions of online and face-to-face learning.

The results showed a statistically significant difference between the two learning modes, $t(173) = -11.056$, $p < .001$, with a mean difference of -0.644 and a Cohen's d_z of 0.84 . The negative mean difference indicates that students rated face-to-face learning more positively than online learning, which is consistent with the descriptive findings presented earlier.

Table 5. Paired-Samples t-Test of Students' Perceptions between Online and Face-to-Face Learning

Comparison	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Perception Online - Face-to-Face	-.64440	.76884	.05829	-.75944	-.52935	-11.056	173	< .001

A paired-samples t-test was also conducted to compare students' social skills in online and face-to-face learning. The results showed a statistically significant difference between the two learning modes, $t(173) = -8.360$, $p < .001$, with a mean difference of -0.284 and a Cohen's d_z of 0.63 . The negative mean difference indicates that students reported better social skills experiences in face-to-face learning than in online learning. This finding is also consistent with the descriptive results, which showed a higher mean social skills score for face-to-face learning.

Table 6. Paired-Samples t-Test of Students' Social Skills between Online and Face-to-Face Learning

Comparison	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Social skills Online - Face-to-Face	-.28448	.44886	.03403	-.35165	-.21732	-8.360	173	< .001

DISCUSSION

The findings showed that students had more positive perceptions of face-to-face learning than online learning. This suggests that students were more comfortable with a learning environment that allowed direct communication and interaction with lecturers and peers. This finding is consistent with Kemp and Grieve (2014), who reported that students preferred face-to-face interaction, particularly for class discussion. More recently, Abdul Latef et al. (2025) found that Malaysian undergraduates valued online learning for its flexibility and time efficiency but viewed face-to-face learning more positively in terms of comprehension, motivation and interaction. Therefore, despite the advantages offered by online learning, direct interaction remains an important part of students' learning experiences.

Students also reported better social skills experiences in face-to-face learning. The higher mean score may be related to the greater opportunities for students to communicate directly, participate in discussions and interact with others in the classroom. This finding is supported by Mokhtar et al. (2025), who found that face-to-face learning in a Malaysian public university provided immediate feedback and rich interaction between students and instructors. Teoh et al. (2025) also reported relatively higher overall engagement among Malaysian university students participating face-to-face than those participating virtually in a hybrid

learning environment, although the difference was not statistically significant. However, Yousaf and Masood (2024) showed that online activities such as discussions and group projects can still provide opportunities for students to develop social and digital communication skills. Zainal and Salim (2024) similarly found a strong relationship between social skills and online collaborative learning among UTHM students, with interaction showing the strongest association. Therefore, the lower social skills score for online learning in the present study may reflect differences in the nature of interaction rather than the absence of social interaction itself.

Another important finding was the positive relationship between students' perceptions and social skills in both learning environments. However, the relationship was considerably stronger in face-to-face learning. This may be because direct interaction in a physical classroom provides more immediate opportunities for communication, discussion, feedback and collaboration, allowing students' perceptions of the learning environment to be more closely associated with their reported social skills. In online learning, this relationship may be influenced by additional factors such as students' digital competence, previous experience with online learning, teaching methods, course design and the quality of online interaction. The findings can also be viewed in relation to social presence. Mykota (2025), in a meta-analysis of online higher education studies, found that social presence had a moderate effect on students' satisfaction and learning outcomes. Although social presence may be more naturally experienced through direct interaction, it can also be developed in online learning. Alshammari and Alrehaili (2025) found that social and cognitive presence had significant effects on student engagement in online courses. Therefore, the weaker relationship observed in online learning does not necessarily indicate that online learning is unable to support social interaction, but may reflect differences in how interaction and social presence are experienced across the two learning environments.

CONCLUSION

This study examined students' perceptions and social skills in online and face-to-face learning among higher education students. The findings showed that students had more positive perceptions of face-to-face learning and reported better social skills experiences in this learning environment. Students' perceptions were also positively related to their social skills in both learning modes, with a stronger relationship found in face-to-face learning. Overall, the findings indicate that direct interaction remains important in shaping students' learning and social experiences. Although face-to-face learning showed more favourable results, the benefits of online learning should not be overlooked particularly in terms of flexibility and accessibility. Therefore, both learning modes can contribute to students' learning experiences in different ways. More opportunities for communication, group activities and collaboration could be incorporated into online learning to strengthen students' interaction and social skills. This study involved students from only one faculty at one university, which may limit the generalisation of the findings. In addition, the study used a cross-sectional design and relied on self-reported responses, which may not fully reflect students' actual social skills or experiences over time. As both perceptions and social skills were measured using the same questionnaire, the findings may also be subject to possible common-method bias. Future studies could include students from different faculties and higher education institutions, involve larger samples, and employ longitudinal or qualitative approaches to provide a more comprehensive understanding of students' experiences. Further research could also examine other factors that may influence students' social experiences and explore specific online teaching strategies that promote interaction and social skills.

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