Exploring the Relationship of All Types of Presence in Online Group Work: The Case for Pre-Degree Learners

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ABSTRACT

In recent years, the field of education and professional collaboration have experienced a profound shift, primarily driven by the rapid progress of digital technologies. While the benefits of online group work have been extensively studied, there remains a need for further exploration of its nuances, particularly concerning the concept of "presence." This study is done to explore perception of learners on cognitive, social and teaching presence. A quantitative study was used and a purposive sample of 196 participants responded to the survey. Findings revealed that there is a positive relationship between all types of presence in online group work among the pre-degree learners. Valuable insights on the design of online lessons which employed group work can be gained to enhance and improve online teaching and learning practices.

Keywords: Online group work; online learning; cognitive presence; social presence; teaching presence

INTRODUCTION

Background of Study

In recent years, the landscape of education and professional collaboration has undergone a remarkable transformation due to the rapid advancement of digital technologies. One notable outcome of this evolution is the widespread adoption of online group work, where individuals collaborate virtually to achieve shared objectives and address complex challenges. This paradigm shift has been made possible by the accessibility and omnipresence of internet-based tools, such as video conferencing, chat applications, and collaborative software, enabling students to collaborate in small groups irrespective of their geographical locations (Chinowsky & Rojas, 2003).

Online collaborative learning, also known as online group work, has emerged as a powerful pedagogical tool that empowers students to work collectively toward common learning tasks (Kelly, Clinton-Lisell & Klein, 2022). This approach to learning comprises three key elements, as defined by Donelan and Kear (2023). Firstly, students collaborate in small groups, utilizing digital platforms for seamless communication and interaction. Secondly, these groups unite with a shared purpose, whether it involves completing specific tasks, achieving targeted outcomes, or collaborating on projects, reports, presentations, or creative works. Lastly, each group has a predefined membership, ensuring active contribution from all participants to the project's success through cooperation and collaboration.

While the benefits of online group work have been extensively studied, there remains a need for further exploration of its nuances, particularly concerning the concept of "presence." In the context of online

education, presence encompasses various dimensions, including social presence (the ability to establish interpersonal connections), cognitive presence (the extent of meaningful engagement in the learning process), and teaching presence (the effectiveness of facilitators in guiding and structuring the learning experience).

This study was conducted at a Malaysian public university, where online learning has become the norm since the onset of the pandemic in 2020. Notably, a significant portion of assessments in various courses required learners to engage in collaborative efforts to achieve course objectives effectively. The primary objective of this research is to delve into the intricate connections and correlations among the three fundamental dimensions of presence: social, teaching, and cognitive presence, as observed in the context of online group work. By comprehending how these dimensions synergistically interact, valuable insights can be gleaned, shedding light on their combined impact on the overall learning experience within virtual collaborative settings.

Unearthing the nuances of the relationships between social, teaching, and cognitive presence holds immense potential for educators and instructional designers, enabling them to optimize the design and implementation of online collaborative learning environments. Through such optimization, the educational outcomes for pre-degree learners can be significantly improved. Ultimately, this study aspires to make meaningful contributions to the advancement of online education, equipping educators with essential guidance as they navigate the challenges and seize the opportunities presented by teaching in the digital realm, both during and beyond the constraints of the pandemic.

Statement of Problem

Group work has been implemented in conventional teaching approaches as most assessments require collaborative tasks. When online learning takes place, a collaborative approach is continually held in order to increase learners' interactions and to ensure the learners' virtual presence. Online learning promotes self-directed learning as students are required to manage and drive their own learning with the guide of the instructor virtually. Wong (2020) asserts that working in groups increases learners' knowledge acquisition and collaboration (as cited in Kan & Wong, 2023). When working in groups, cognitive, social and teaching presences are important in ensuring the success of the team-based tasks. Sim and Rahmat (2022) highlighted the importance of experience in online learning that would contribute greatly to the acquisition of the lesson. When the learners are working asynchronously, there are many contributing factors that will hinder the collaboration. Thus, having experience in an online setting will help to direct learners to be more self-regulated and positively engaged in the group work.

However, many studies have highlighted challenges on online group work (Wut et al., 2023; Donelan & Kear, 2023; Li, 2022; Sim & Rahmat, 2022; Lowes, 2024) faced by the learners. Uneven participation, lack of clarity and preparation of the students are some of the factors faced by the learners in completing their online group projects (Donelan & Kear, 2023). Apart from that, cognitive presence is crucial in making sure that the learners are able to cognitively process the knowledge received and present it effectively in their learning tasks i.e discussion. In a study conducted by Li (2022), the online interaction of the learners are more cognitively engaged as they are more focused on the knowledge processes rather than socially interacting. On the other hand, Wut et al. (2023) highlights the limitations of online environments which is uneven social engagement among the learners that hinder their involvement which resulted in lower social presence among the learners. Donalan and Kear (2023), underscored the importance of teaching presence as it will assist the learners to be more emotionally engaged and increase confidence in them to voice their opinions during the online group tasks.

Although a lot of research has been extensively done regarding group work and types of presence, most of the research focused on group work in a traditional setting and investigated one type of presence or relationship between two types of presence. Few studies investigate the relationship between all three in an online group work setting. Thus it is important to address the relationship between the cognitive presence, social presence and teaching presence in online group work as there are many challenges and factors contributing to the collaboration of these presences.

Objective of the Study and Research Questions

This study is done to explore perception of learners on cognitive, social and teaching presence. Specifically, this study is done to answer the following questions;

1. How do learners perceive cognitive presence in online group work ?
2. How do learners perceive social presence in online group work?
3. How do learners perceive teaching presence in online group work?
4. Is there a relationship between all types of presence in online group work?

LITERATURE REVIEW

Advantages and Disadvantages of Online Group Work

Online group work has gained popularity in educational settings due to its advantages and disadvantages. A significant advantage is the ability to collaborate remotely, allowing geographically dispersed individuals to work together effectively. This flexibility fosters diversity of perspectives and expertise within the group, resulting in more innovative and comprehensive outcomes (Järvelä et al., 2013). Bakken (2018) argues that online group work provides students with valuable opportunities to develop employability skills through collaborative learning and producing outcomes together in an online environment. Acquiring the ability to function effectively as members of virtual teams has become essential in various industries and professional paths (cited in Donelan & Kear, 2023). However, online group work also presents challenges such as inadequate student engagement, lack of clarity and preparedness, and ineffective student relationships during task completion (Donelan & Kear, 2023). The absence of face-to-face contact when working remotely creates a disconnection between team members, and communication relies solely on technology (Kimble, 2010). Virtual teamwork often lacks trust and respect among team members, as these aspects are difficult to develop without physical interactions. The strength of team relationships depends on the ability to create harmony despite individual differences. However, policies, systems, and structures may not easily align, leading to conflicts, particularly in multicultural settings, which hinders team cohesion (Pinjani & Palvia, 2013). On the other hand, Lowes (2024) found that online groups successfully managed to cooperate and distribute tasks among the group members during the initial discussion as compared to face-to-face groups that only discussed ideas rather than completing the task. It is then emphasised by Lowes that both types of group either face-to-face or online have to deal with fainéant team members. Ultimately, effective teamwork requires overcoming communication barriers and fostering trust and respect despite the limitations of virtual collaboration.

Past Studies on Online Group Work

Numerous studies highlighted the presence of cognitive, social and teaching in online group work. These studies concluded that each presence has its own contribution to the online group work and these aspects play vital roles in knowledge processing and engagement which will help the implementation of team-based tasks.

A study by Law et. al (2019) explored the effects of student enrolment and learning motivation on learning performance in blended learning environments. 317 undergraduate university students were given a survey. The study found that enrollment positively influenced social and cognitive presence, which, in turn, affected learning performance. Learning motivation positively affected social presence. However, it had no direct impact on learning performance in this setting. Teaching presence had direct positive effects on cognitive and social presence and indirectly affected learning performance. Sim and Rahmat (2022) have a similar finding which highlights the dependency of online learners on teacher presence. The study was done to explore the group interaction during online learning based on different experiences faced by the students. The main findings of this study exposed the importance of online experience as cognitive presence is more experience by the learners. Li (2022) emphasized on students engaged more cognitively rather than socially as they focus on their comprehension rather than being connected.

Haugland et al. (2022) performed a study which focuses on small-group collaborative learning in an online course and method of data collection and content analysis were employed to achieve their findings. This study concluded that in the students' pursuit of online course learning objectives, they opted for diverse collaboration strategies. Each group devised its own approach to working, but it was found that only strategy 1, which emphasized joint responsibility and flexible organization, effectively facilitated collaboration, discussion, and teamwork in successfully tackling the complex assignments within the online course. In Sim and Rahmat (2022), the experience of learners of being in an online setting is very essential in making sure that their social presence is positively affected. As highlighted in Han et al. (2021 as cited in Sim & Rahmat, 2022), learners will be more emotionally engaged when higher social presence is expressed by the learners. This depicts Haugland's et al. (2022) finding on joint responsibility and Sim and Rahmat's (2022) on positive social presence validated on the importance of social presence as a catalyst of a successful online group work.

Another study by Lee and Huang (2018) emphasizes the impact of social presence on group cohesion as students showed higher social presence when social engagement was highly integrated. Compared to a 5-week intensive course than a regular semester of 16-week, students showed positive development on social presence when they are given more time. However, Lee and Huang (2018) found that there is no correlation between social presence and learning outcomes although the students are socially engaged. Meanwhile, Park and Kim (2020) carried out a study on online learning in higher education, acknowledging its popularity due to flexibility and accessibility. The role of social presence in online learning was investigated and it focused on communication tool interactivity and its impact on student satisfaction. The data revealed that higher tool interactivity positively influenced social presence and also student satisfaction. It was also found that the differences in gender were found to moderate the relationship between tool interactivity and social presence. Therefore, social presence has a positive impact on online group work as the presence affects learners' engagement.

Similarly, Singh et al. (2022) explored how the COVID-19 pandemic impacted teaching and learning processes in higher education. The focus of the study was on the importance of faculty presence in online classes. It discusses how the pandemic impacted teaching and learning worldwide, particularly in academic institutions. The study reveals the significance of social, cognitive, and teaching presence in online learning and provides insights into how instructors can cultivate presence in their virtual classes. To add, Donalen and Kear (2023) found that unequal and low contribution, lack of clarity and participation given by the learner has made the online group projects challenging that contributed to the unsuccessful online collaboration. In addition, another study conducted by Abidin et al. (2023), employed a similar method of quantitative analysis to explore the association between cognitive, social and teaching presence. They found that there are

Thus, cognitive and teaching presence positively correlates with each other and has a significant impact on social presence. This shows that all types of presence are essential to the effectiveness of online group work.

Conceptual Framework

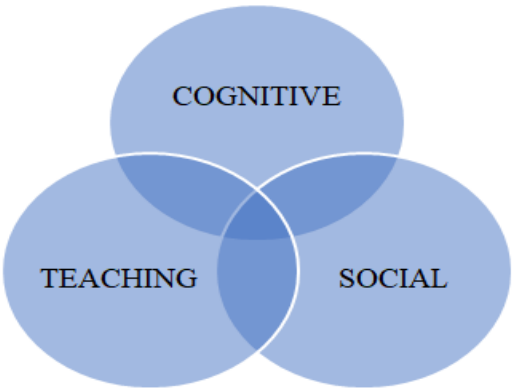

Figure 1- Conceptual Framework of the Study

(The Relationship of all Types of Presence in Online Group Work)

Figure 1 shows the conceptual framework of the study. This study explores the relationship of all types of presence in online group work. Chiriac (2014) states that group work benefits the learners not only in knowledge processing but also to enhance their soft skills. Online group work serves the same purpose as cognitive, social and teaching presences are needed as Donalen and Kear (2023) highlight that online group work is executed using digital technologies. This study adopts Aderibidge (2021) study in understanding the connection between all three presences but Aderibidge (2021) emphasizes that teacher presence is important to ensure that learners are able to cognitively and socially interact. For learners who shifted from school to tertiary setting, they are being exposed more to collaborative work such as group discussion and forum which presences of cognitive, social and teaching are essential for learners to achieve the learning objectives. Therefore, this study is intended to investigate the relationship of all types of presence in online group work among pre-degree learners.

METHODOLOGY

This quantitative study is done to explore the relationship of cognitive, social and teaching presence in online group work. A purposive sample of 196 participants responded to the survey which has attained ethics approval from the Ethics Committee of the university. The instrument used is a 5 Likert-scale survey and is rooted from Aderibigbe (2021) to reveal the variables in table 1 below. The survey has 4 sections. Section A has items on demographic profile. Section B has 8 items on Cognitive presence. Section C has 8 items on Social Presence. Section D has 8 items on Teaching Presence. The data from the survey is transferred from Excel to SPSS version 28. This study runs the data to Cronbachs's Alpha To ensure the reliability of the instrument used. The mean score of the data is then analyzed, and a correlation test is conducted to explore the relationship between the three types of presence on online group work.

Table 1- Distribution of Items in the Survey

SECTION	ELEMENTS Aderibigbe(2021)	NO. OF ITEMS
B	COGNITIVE PRESENCE	8
C	SOCIAL PRESENCE	8
D	TEACHING PRESENCE	8
		24

Table 2- Reliability of Survey

Reliability Statistics

Cronbach's Alpha	N of Items
.865	24

Table 2 shows the reliability of the survey. The analysis shows a Cronbach alpha of .865, thus, revealing a good reliability of the instrument chosen/used. Further analysis using SPSS is done to present findings to answer the research questions for this study.

FINDINGS

Findings for Demographic Profile

Q1 Gender

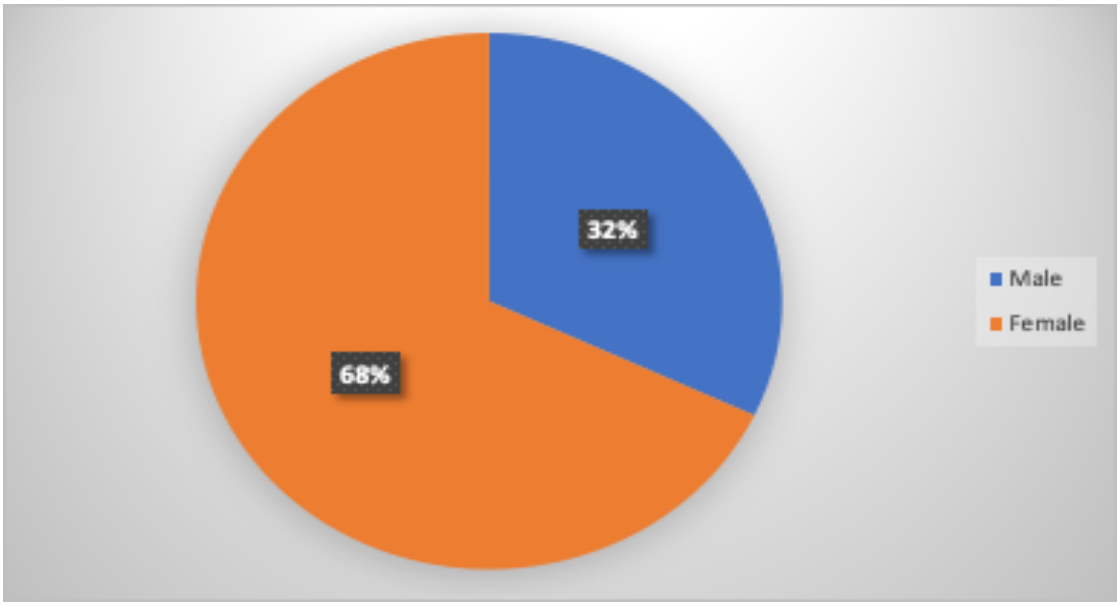

Figure 2- Percentage for Gender

Figure 2 presents the gender distribution of the study participants. The data indicates that 32% of the respondents were male, while the majority, comprising 68% of the participants, were female. This significant gender difference reveals that females were more prevalent in the surveyed sample compared to males.

Q2 Age Group

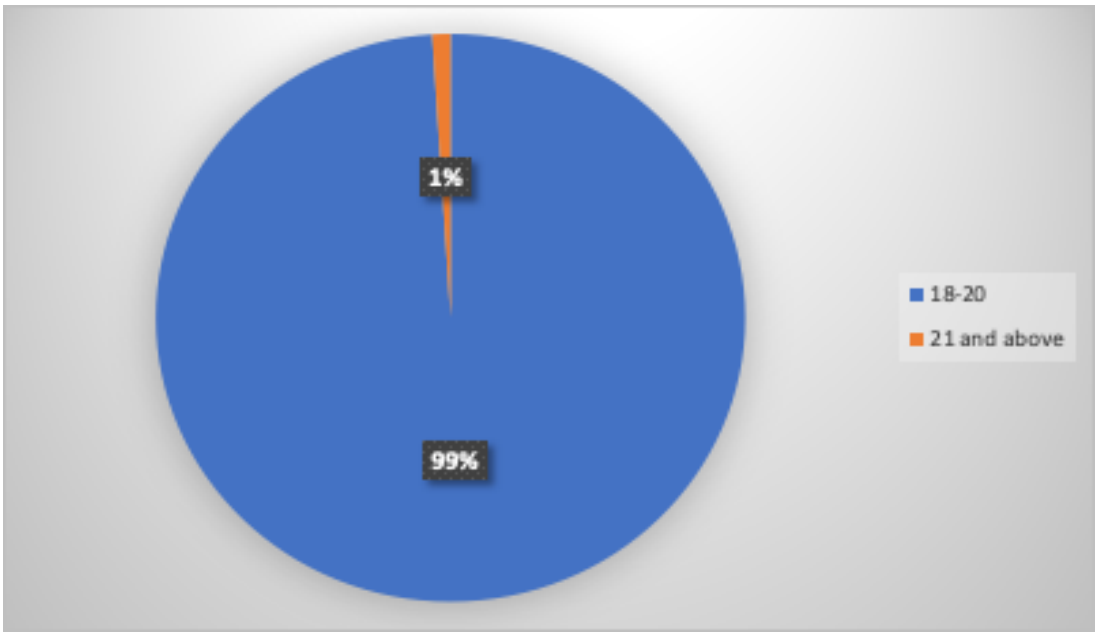

Figure 3- Percentage for Age Group

Figure 3 shows the age distribution of the participants in the study. A vast majority, accounting for 99% of the sample, fell within the age range of 18 to 20 years. Conversely, those aged 21 and above constituted only 1% of the total responses. This notable overrepresentation of younger participants indicates a clear skew towards a specific age group in the study's cohort.

Q3 Faculty

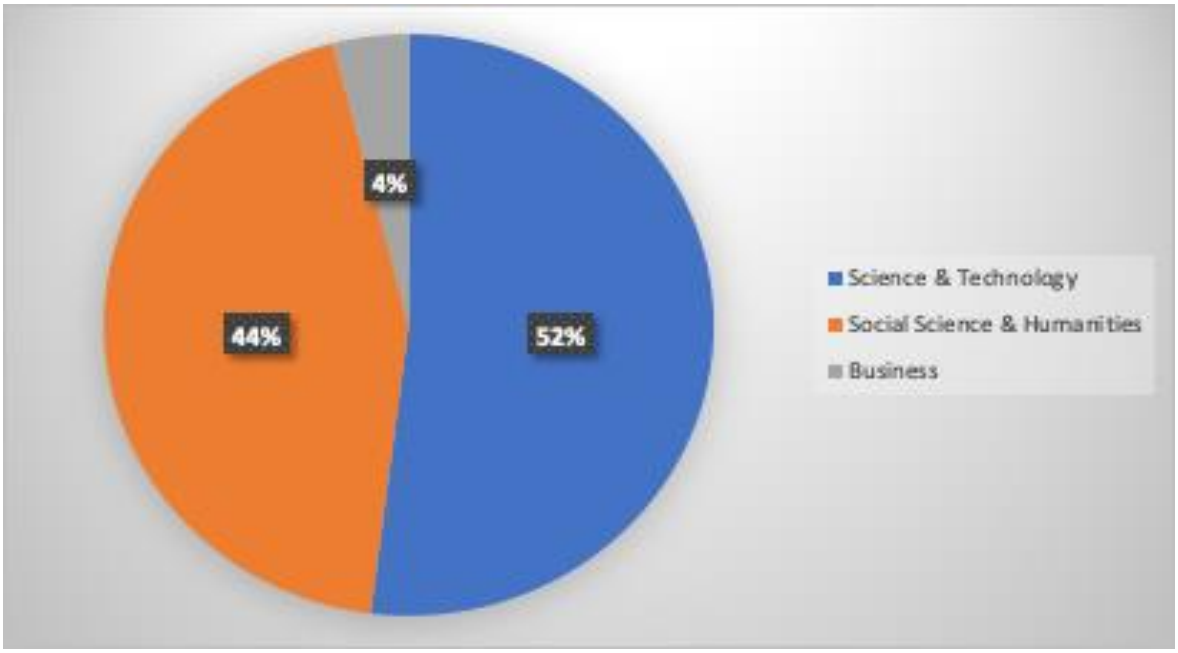

Figure 4 - Faculty

Figure 4 reveals the distribution of respondents across various academic disciplines. The majority, comprising 52% of the participants, were associated with the field of Science & Technology. A close second was the category of Social Science & Humanities, with 44% of the respondents identifying themselves in this domain. On the other hand, the Business field had the lowest representation, with only 4% of the participants belonging to this group. These findings highlight the participants' academic interests, showing a significant presence of Science & Technology and Social Science & Humanities, while indicating a comparatively smaller proportion with a focus on business-related disciplines.

Findings for Cognitive Presence

This section presents data to answer research question 1- How do learners perceive cognitive presence in online group work ?

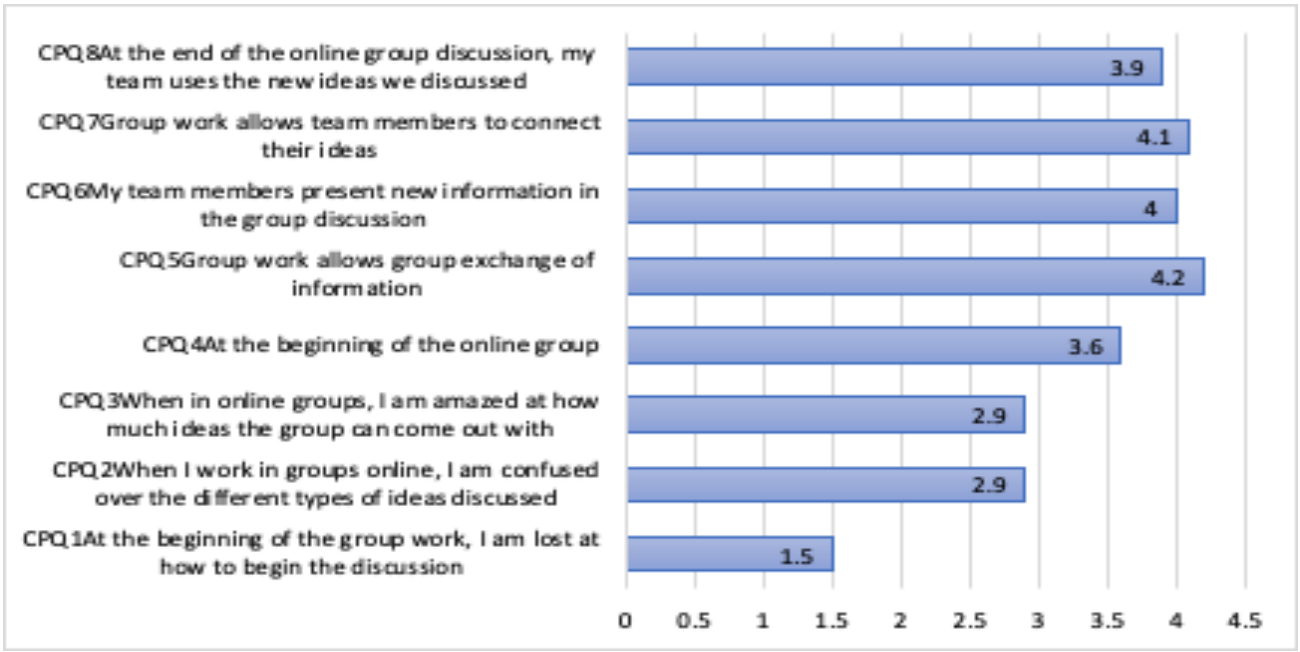

Figure 5- Mean for Cognitive Presence

In Figure 5, the social cognitive presence of respondents is depicted. Among the various items, CPQ5 obtained the highest mean score of 4.2. This result suggests that students prefer working in groups because it allows them to access diverse information from their peers and gain deeper insights into assignments. Additionally, CPQ7 received a slightly lower mean score of 4.1, indicating that group members are comfortable sharing information with one another, enabling them to elaborate on ideas and motivate each other to complete assignments. CPQ6 also showed a relatively high mean of 4, indicating that group discussions significantly contribute to students' understanding of assignments. Taken together, the means of CPQ5, CPQ6, and CPQ7 reveal that students are highly satisfied with group work as it significantly enhances their task discussions. However, in contrast, CPQ1 received the lowest mean of 1.5, suggesting that students already possess a general understanding of assignments that require group discussions.

Findings for Social Presence

This section presents data to answer research question 2- How do learners perceive social presence in online group work?

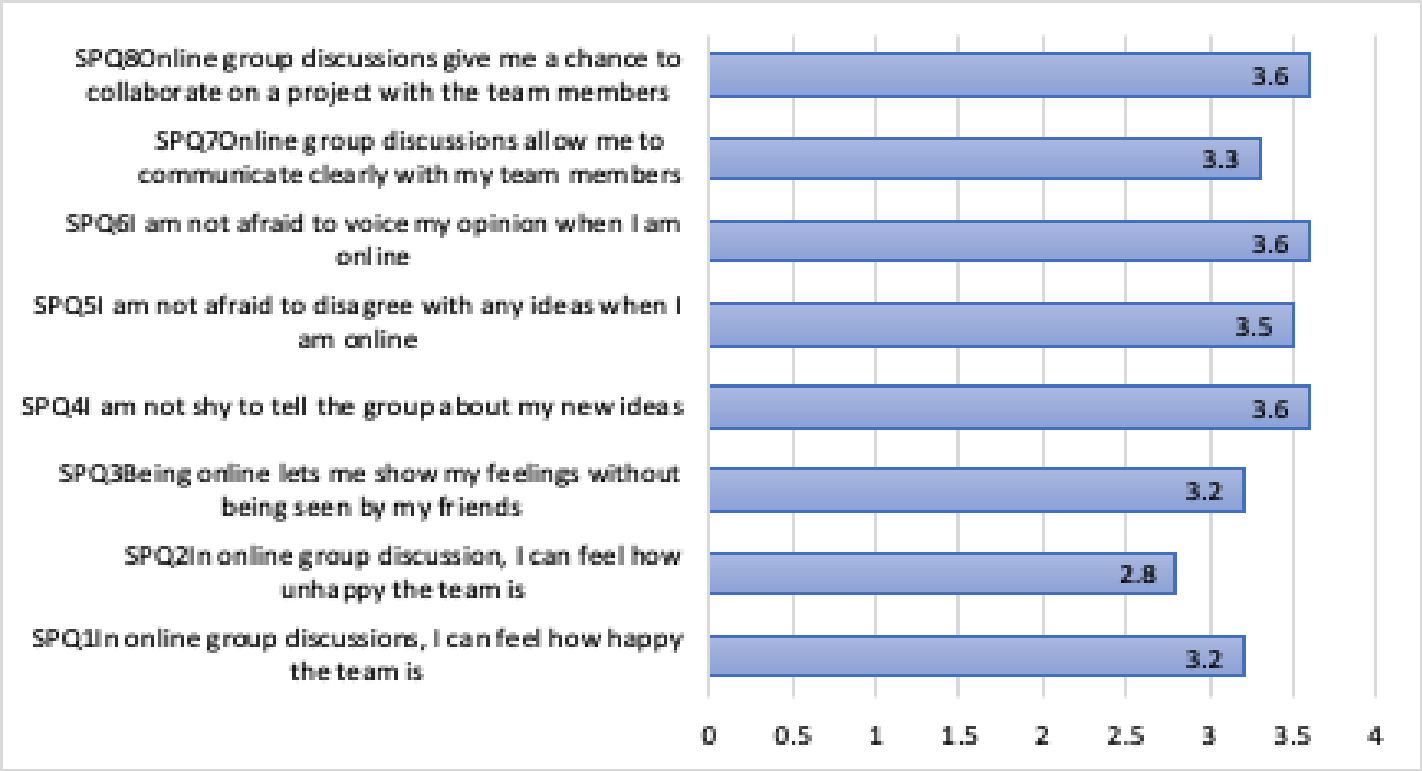

Figure 6 - Mean for Social presence

Figure 6 presents the respondents' feedback on Social Presence. The data indicates that SPQ4 obtained the highest mean score of 3.6, reflecting learners' confidence in sharing new ideas within the online group setting. This positive result suggests that learners felt comfortable expressing their thoughts openly in the virtual environment. Similarly, SPQ6 and SPQ8 recorded a mean score of 3.6, suggesting that learners were comfortable expressing their opinions and viewed online group discussions as beneficial for collaborative project work. These results highlight the importance of creating an inclusive and supportive online environment that promotes active participation and the exchange of ideas. Conversely, SPQ2 had the lowest mean score of 2.8, indicating a relatively lower perception of unhappiness within the team during online discussions. Overall, the mean scores provide valuable insights into learners' perceptions of social presence and offer a better understanding of the dynamics in online group discussions.

Findings for Teaching Presence

This section presents data to answer research question 3- How do learners perceive teaching presence in online group work?

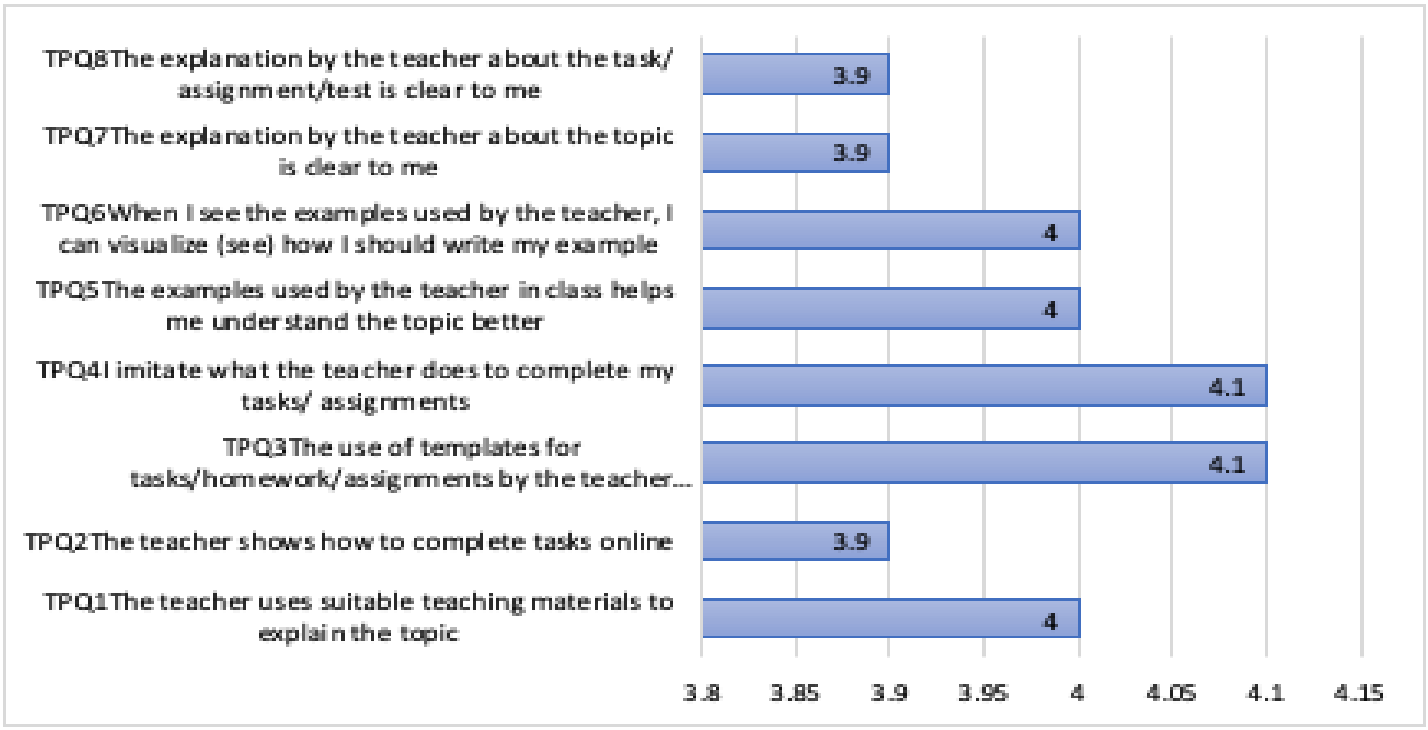

Figure 7 - Mean for Teaching Presence

Based on the data presented in Figure 7, TPQ3 and TPQ4 received the highest mean score of 4.1. This indicates that respondents widely agreed that using templates for tasks, homework, and assignments by the teacher was beneficial, and they followed the teacher's actions to complete their own tasks and assignments. These instructional strategies had a positive impact on the respondents' engagement and task completion. Meanwhile, TPQ1, TPQ5, and TPQ6 achieved a mean score of 4, reflecting strong consensus among respondents on the effectiveness of the teaching materials in explaining the topic. Learners acknowledged these materials as instrumental in enhancing their understanding and engagement. Furthermore, the examples shared by the teacher during lessons were particularly impactful, as learners found them helpful in deepening their comprehension of the subject.

Findings for Relationship between all Types of Presence in Online Group Work

This section presents data to answer research question 4- Is there a relationship between all types of presence in online group work? To determine if there is a significant association in the mean scores between cognitive, social and teacher presence, data is analysed using SPSS for correlations. Results are presented separately in table 3, 4, and 5 below.

Correlations

		COGNITIVE	SOCIAL
COGNITIVE	Pearson Correlation	1	.352**
	Sig. (2-tailed)		.000
	N	196	196
SOCIAL	Pearson Correlation	.352**	1
	Sig. (2-tailed)	.000	
	N	196	196

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

Figure 8- Relationship between Cognitive and Social presence

Figure 8 demonstrates that social presence and cognitive function are related. According to correlation analysis, social and cognitive presence are moderately associated (r=.352**) and p=.000. Jackson (2015) states that positive correlation is measured on a scale of 0.1 to 1.0 and that the coefficient is significant at the.05

level. Between 0.1 and 0.3 would be considered weak positive correlation, between 0.3 and 0.5 would be considered moderate positive correlation, and between 0.5 and 1.0 would be considered high positive correlation. This indicates that social presence and cognition have a somewhat beneficial association as well.

Correlations

		COGNITIVE	TEACHING
COGNITIVE	Pearson Correlation	1	.478**
	Sig. (2-tailed)		.000
	N	196	196
TEACHING	Pearson Correlation	.478**	1
	Sig. (2-tailed)	.000	
	N	196	196

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

Figure 9 - Relationship between Cognitive and Teaching presence

Figure 9 indicates a link between cognitive and teaching presence. Correlation analysis indicates a moderate significant relationship between cognitive and teaching presence (r = .478**, p = .000). A correlation coefficient is significant at the .05 level, with positive correlation values ranging from 0.1 to 1.0. A weak positive correlation falls between 0.1 and 0.3, a moderate positive correlation ranges from 0.3 to 0.5, and a strong positive correlation lies between 0.5 and 1.0. Therefore, this suggests a moderate positive association between cognitive and teaching presence (Jackson, 2015).

Correlations

		TEACHING	SOCIAL
TEACHING	Pearson Correlation	1	.359**
	Sig. (2-tailed)		.000
	N	196	196
SOCIAL	Pearson Correlation	.359**	1
	Sig. (2-tailed)	.000	
	N	196	196

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

Figure 10 - Relationship between Teaching and Social presence

Figure 10 highlights a connection between teaching and social presence. The correlation analysis reveals a moderate, significant relationship between these two variables (r = .359**, p = .000). As noted by Jackson (2015), a correlation coefficient is considered significant at the .05 level, with positive correlations falling within the range of 0.1 to 1.0. Specifically, a weak positive correlation is between 0.1 and 0.3, a moderate positive correlation ranges from 0.3 to 0.5, and a strong positive correlation is between 0.5 and 1.0. This indicates a moderate positive association between teaching and social presence.

CONCLUSION

Summary of Findings and Discussions

The current study explores the relationship between cognitive, social and teaching presence in online group work among pre-degree learners. Based on the analysis, several key findings have emerged.

First, in relation to cognitive presence in group work, the outcome indicates that students favour group work as it grants them access to a wide range of information from their peers, leading to a more profound

understanding of their assignments. This is related to the study by Donalen and Kear (2023) who found that lack of clarity and preparation given by the learner has made the online group work challenging. This shows that in order to achieve successful online group work, cognitive and social presence are required. In addition, this study also found that pre-degree learners are comfortable exchanging information with one another, allowing them to build on ideas and motivate one another to accomplish tasks, and they are very satisfied with group work because it improves their task discussions greatly. This is supported by the study by Park and Kim (2020) that points out higher tool interactivity positively influences social presence and also student satisfaction. Consequently, for collaborative based online work to thrive, cognitive presence is necessary.

Next, for social presence in online group work, learners have positive perception towards social presence when the environment is conducive and positive. In the virtual setting, they felt comfortable expressing their thoughts openly as they are not hesitant to voice their opinions. Moreover, during online group discussions, learners reported a reduced level of dissatisfaction within the team. These findings underscore the significance of fostering an inclusive and supportive online space that encourages active participation and idea exchange. This is supported by Sim and Rahmat (2022), as the experience of learners of being in an online setting is very essential in making sure that their social presence is positively affected. Similarly, Haugland's et al. (2022) finding on joint responsibility contributed to online task completion. Although Lee and Huang (2018) found that there is no correlation between social presence and learning outcomes, they emphasize the impact of social presence on group cohesion as students showed higher social presence when social engagement was highly integrated. Hence, social presence in online group work is a significant variable in online group work.

In terms of teaching presence in online group work, respondents largely felt that the teacher's use of templates for tasks, homework, and assignments was appropriate, and they emulated the teacher's activities while doing their own chores and assignments. The teachers' use of diverse instructional resources was beneficial since it improved student involvement and resulted in task completion. With comprehensive teaching planning, they found these materials valuable in facilitating their understanding and engagement. This is in accordance with Law et al. (2019), who claimed that teaching presence had direct positive effects on cognitive and social presence and indirectly affected learning performance. Sim and Rahmat (2022) also support this as they found similar findings on the dependency of online learners on teacher presence. Therefore, teaching presence plays a vital role in a successful online group work.

Finally, as there is a modest positive association between cognitive, social, and teaching presence, the findings on the relationship between all forms of presence complement the conceptual framework established in this study.. In their study, Singh et al. (2022) revealed the significance of social, cognitive, and teaching presence in online learning and they emphasize the role of instructors in cultivating the three types of presence in online group work. Same with Law et al. (2019) who found that teaching presence had direct positive effects on cognitive and social presence and indirectly affected learning performance. Abidin et al. (2023) conducted a similar study which found a positive relationship between the three presence of online group work. Thus association of these types of presence are closely linked together.

Notable, this study highlights a positive relationship between cognitive, social, and teaching presence in online group work.

(Pedagogical) Implications and Suggestions for Future Research

Based on the findings presented in this study, there are several pedagogical implications that can inform online group work practices. The findings related to cognitive presence emphasize the importance of providing clear guidelines and scaffolding at the beginning of group work to address students' initial confusion and ensure a smooth start. Educators should establish a supportive learning environment that encourages idea exchange, information sharing, and the connection of ideas throughout the group work process. By doing so, they can enhance students' cognitive engagement, critical thinking, and problem-solving abilities, facilitating deeper learning and knowledge construction. In terms of social presence, the positive perception observed highlights the significance of creating a supportive and inclusive online environment. Educators should foster active participation, idea sharing, and collaboration among students by providing opportunities for expressing emotions, voicing opinions, and facilitating clear communication. By nurturing a sense of belonging and

connectedness within the online group, educators can enhance social interactions and contribute to a positive and engaging group work experience. Lastly, the moderate positive relationships observed between cognitive and social presence, cognitive and teaching presence, and teaching and social presence indicate the interconnected nature of these elements in online group work. Educators should consider these relationships when designing instructional strategies, aiming to foster a balanced integration of cognitive engagement, social interactions, and effective teaching practices. By promoting the harmonious coexistence of these presences, educators can optimize students' learning experiences and outcomes in online group work settings. In conclusion, by taking these pedagogical implications into account, educators can design and facilitate online group work experiences that consider the diverse characteristics, needs, and interactions of their students. By implementing inclusive and engaging instructional strategies, educators can enhance cognitive presence, social presence, and teaching presence, leading to more effective and meaningful online group work experiences for students.

Based on the findings presented, there are several suggestions for future research. Firstly, it is recommended to conduct further investigation of gender disparity in online group work participation. Secondly, future research can conduct a comparative analysis of cognitive presence across different age groups. Exploring how cognitive presence varies among younger participants (18-20 years) and older participants (21 and above) can shed light on potential differences in their perception and engagement in online group work. This comparative analysis can inform the development of age-specific strategies and interventions to enhance cognitive engagement and optimize learning experiences. Thirdly, it is recommended to further explore the impact of academic discipline on cognitive presence in online group work. Investigating how students from different fields, such as Science & Technology, Social Science & Humanities, or Law Studies, perceive cognitive presence can uncover potential variations. Understanding discipline-specific preferences and challenges can inform the design of targeted strategies to enhance cognitive engagement and facilitate meaningful learning within specific academic contexts. Additionally, longitudinal studies are recommended to examine the development and evolution of cognitive, social, and teaching presence in online group work over an extended period. By observing these presences over time, researchers can explore how they evolve as students engage in multiple collaborative projects. Factors such as students' experience, task complexity, and the impact of facilitation techniques can be examined to understand the growth and sustainability of these presences. Longitudinal studies provide valuable insights into the dynamics of online group work and offer opportunities to identify effective practices and interventions that support long-term engagement and success. By addressing these research gaps, future studies can provide a deeper understanding of the dynamics of online group work and contribute to the development of effective pedagogical strategies, instructional design, and support mechanisms. These research efforts can enhance student learning outcomes, promote inclusivity and engagement, and optimize the overall effectiveness of collaborative online environments.

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