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Exploring Online Group Work Using Tuckman's Model

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Abstract

COVID-19 pandemic's movement control order has forced leading public universities in Malaysia to switch their conventional face-to-face lectures to online distance learning. Having less contact with classmates and lecturer, group work to fulfil coursework assessment requires learners adapting themselves to this "new normal" in higher education studies. Maintaining good group work dynamics could be challenging due to distance and conflicts. Therefore, this study aimed to discover concerning issues in online group work using Tuckman's Model. Using a quantitative research approach, this study distributes questionnaires at the end of the semester using Google Forms to purposely select 116 respondents from a public university in Malaysia. These students have been involved in group work for their online distance learning since 2020. The data later were analysed using SPSS and results were presented as mean scores for every research question. The results show teaching presence (mean score = 4.2) is crucial to building students' understanding in the forming stage of group work. In the second stage of storming and norming group work, social presence (mean score = 3.8) is highly favourable by students rather than working alone to ensure interactivity, communication and collaboration within the group. The findings also indicated that in the later stage of performing, cognitive presence (mean score = 4.3) was found to have direct positive impacts on online group work. Students are braver to speak up and defend their ideas in online group work discussions. Despite challenges in group work distance learning, learners could adapt to the new normal in higher learning education studies. Changes and coping strategies are needed to address the findings of this research to improve teaching and learning pedagogy in this post-COVID-19 era. Future research may explore teachers' insights of online group work and cover respondents from cross faculty clusters. Learners' perceptions could also be explored qualitatively.

Keywords: Group Work, Online Learning, Forming Stage, Storming Stage, Norming Stage

Introduction

Background of Study

The fast spread of Coronavirus (or COVID-19) in early 2020 had witnessed several countries enforce strict lockdowns aimed to control their citizens' movement for the purpose of reducing the spread of the virus. In Malaysia too, the government announced on 18 March 2022, its Movement Control Order (MCO) that caused all non-essential sectors to close their operations. Major universities were forced to send home their students and implement online classes. As most universities around the globe switched their traditional face-to-face lecture to online learning (Mouratidis & Papagiannakis, 2021), Malaysian universities also utilized the same approach to ensure the academic semester could be completed according to the university's calendar. In order to fulfil the requirement of the course's assessment plan, most courses required their students to form groups with their classmates and to work together online for completing their group assignments. This group work experience is considered a part of the important skill sets that students should develop for their knowledge and professional development throughout their stay at university (Rieckmann, 2012).

Motivated by this “new normal” mode in Malaysian higher education studies during post-COVID, this study aimed to identify the interrelated potential issues regarding online group work of tertiary level students. Perhaps providing the data of the current study, this would offer some insights for universities to better understand their students and identify the influencing factors that could be improved (Gottipati et al., 2020) to enhance students' online learning experience, especially in online group work.

Statement of Problem

The ideal group work is when tasks are distributed fairly among the members in order to ensure the implementation is going smoothly. Rezaei (2017) reported that online group work leads to more collaboration among students. Hence, the success of the group work lies in the interactions and collaborations among group mates that clearly gives a positive effect. In order to ensure that group work can be carried out well, it is very important to ensure the availability and reliability of the instructor throughout the online learning process. The study conducted by Aderibigbe (2021) stated that online discussions can foster deep learning if instructors provide students with clear guidelines and reasonable time to engage with their other groupmates. The constructivist learning theory provides students opportunities to seek and co-construct knowledge through collaborations with their groupmates and instructors playing the facilitators' roles (Camarero et al., 2012; Aderibigbe, 2021).

If there is an issue or problem while conducting online group work, instructors can teach problem-solving skills as part of the course, which is very helpful when students face any conflict in the future (Sim et al., 2020). This is one of the examples where the conflict that occurs can have a good effect on students. The researcher also suggested investigating in-depth what goes on in group work such as analysing the conversations during group work. The study by Rahmat et al (2021) revealed that not all group conflicts are negative. The conversations improve communication and negotiation skills of the team members. Interactions in group work help team members foster critical thinking skills. It is further suggested that more studies must be conducted on group formation and group conflicts.

Hence, this study is conducted to investigate the perceptions of learners regarding online group work. This study will find out appropriate answers to the following research questions: 1) how is forming displayed in online group work, 2) how are storming and norming displayed in online group work, and 3) how is performing displayed in online group work?

Literature Review

Online Group Work

Group work provides students the opportunities to collaborate with others and explore different viewpoints, strategies, and solutions. On the other hand, online group work might seem more daunting yet challenging, but to look at it positively, online group work fosters collaborations and idea sharing among the members remotely. With the outbreak of COVID-19 pandemic, online group work has become a common task in most academic institutions. With a shift to online learning, maintaining the benefits of traditional on-campus classrooms, group work is considered crucial for positive learning outcomes (Stafford, 2021).

Online group work involves participating in a discussion board to work in small groups as part of the learning process (Koh and Hill, 2009). During online group work, students are able to spend time discussing class projects according to their availability and pace to complete their part of tasks. Through online mediums such as bulletin boards, chat rooms, video conferencing, and online whiteboards, students can communicate with their group members and instructors at anytime from anywhere. This makes online group work more flexible and convenient in terms of availability and accessibility for all participants (Koh & Hill, 2009; Pei & Wu, 2019).

Challenges of Online Group Work

Group work for class projects may sometimes be challenging and conducting it online may further increase its complexity. The challenges may include lack of access to high-bandwidth connections or limited data plans, limited space to work in an uninterruptible way, different time zone which makes synchronous activities difficult, learning styles differences, and also online group work requires much more time from the students to complete the activities (Timmo, 2020; Castro & Tumibay, 2021). Koh and Hill (2009) identified the challenges of online group work as compared to face-to-face settings, which are difficult in communicating, misunderstanding of course goals, and a perceived lack of sense of community. This may result in unfamiliarity among group members and leads to poor group dynamics.

To overcome this problem, Timmo (2020) suggests that instructors must play their roles to accommodate students by providing models or pathways for how students can complete the assignment, reconsidering the evaluation or grading process by considering student challenges, communicating regularly with the students and being flexible as students overcome the challenges. Stafford (2021) also suggests that pedagogy training could improve the skills of instructors to ensure effective collaborative peer-to-peer learning to be maintained in an online environment.

The success of online group work partly depends on instructors in terms of providing adequate support and guidelines to ensure the group members actually work well together (Shackelford & Maxwell, 2012). Khalil (2018) in his research on using Google Docs for

collaborative group work and the results showed that students' attitudes towards the activity were poor when a student lacked technological skills, and when the instructions were uncertain from their instructors. Instructors who feel that online group work is not effective for students are recommended to develop the skills required to create well-designed and well-facilitated learning activities as students mostly depend on their instructors in the learning process (Salmon, 2021). Therefore, not only the ability and readiness of students and providing enough facilities are considered vital, but the commitment of instructors in terms of their support is also needed to make sure that the online group work is being carried out at the best level.

Previous Studies

Methods Used in Online Group Work

Numerous research studies investigated the methods used in online group work in terms of forming, storming, and norming stages. Forming is the initial stage, which refers to the process of assembling the team's structure. Jones (2019) found that the forming stage in an online classroom context was feasible. He investigated the execution and impact of this forming stage on a small group of graduate students enrolled in a negotiation course at the Emirates College of Business Administration. During the formation stage, students were split into five small groups and asked to take part in a role-play simulation based on the title *The Used Car*. Through this role-playing activity, students were encouraged to socialize with each other, get to know each other, and introduce themselves to new members. Meanwhile, Aquino et al (2022) developed a guideline for mentors to create and sustain successful online teams by promoting the forming stage to build relationships and create psychological safety. A well-prepared welcome call is considered an effective strategy for building relationships in an online group work environment. By preserving adequate timing, students can get to know the characteristics of their collaborators, as well as create personal connections. In terms of creating psychological safety, mentors must encourage team members to turn on their cameras during online meetings. In contrast to face-to-face meetings where body language and eye contact are challenging, the mentor should refer to each member by his/her name. To create a more harmonious environment, the mentor can lighten the mood of the group by smiling, encouraging laughter, and even altering the voice tone.

Storming is the stage that follows the forming stage. This is the stage at which the group attempts to define its roles, rules, and evidence of short and long-term productivity. In some cases, individual beliefs, opinions, and preferences are called into question (Kay, 2018). This could result in the team becoming stuck and failing to progress to the next stage. Kaur et al (2021) have developed a feasible multi-step strategy for structured online group work among postgraduate students of physiology at the All India Institute of Medical Sciences, New Delhi. They were divided into four or five diverse mini-groups that utilized web-based instant messaging and/or online meeting platforms as their primary means of communication. During the storming phase, students were urged to use the chat box function most effectively, i.e., through discussions and confrontations. If disagreements arose during a session of online group discussion, the presence of the moderator and senior demonstrator is of great assistance in resolving them through the use of suitable interventions that steer the group in a good direction. A study conducted by Zaharuddin et al (2022), on the other hand, discovered a substantial association between group dynamics and social interactions in an online group work setting. According to the results of the questionnaires distributed to 189 students who

utilized the Arabic language as a third language course, adopting highly online social interactions among team members not only created the online setting less stressful but also helped students understand the individual expression and gestures of other team members.

During the norming stage, team members develop new ways of doing and being together. As the group develops cohesiveness and commitment to its tasks, it discovers new methods to collaborate and sets new norms for appropriate behavior (Siregar et al., 2018). In addition, the leadership component is an observable characteristic. The leadership evolves from "one" teammate in control to shared leadership; hence, for shared leadership to be effective, team members must develop mutual trust. Aquino et al (2022) emphasized that building a psychologically safe environment will encourage team members to leave their comfort zone and embrace a leadership position. For instance, setting up an online meeting without the mentor's presence. In addition, the formation of peer-mentor relationships can foster the enhancement of individual contributions through parallel collaboration and support, as opposed to hierarchical interactions. Jones (2019), on the other hand, highlighted the time constraint as the most important factor in accomplishing highly cooperative online group work at this stage. With time constraints, team members are capable of resolving inter-team conflicts while remaining mindful that time is going by and a solution must be delivered. Thus, fewer disputes are generated as their minds become more streamlined in their pursuit of workable answers.

In conclusion, this section has presented a range of ways that previous research studies have examined regarding the forming, storming, and norming stages in an online learning environment. Typical techniques are included such as role-playing, ice-breaking sessions, and online social interaction. Due to the diversity of the participants, it is a matter of using the most appropriate approaches to be adopted in any given online group environment.

The Benefits and Challenges of Online Group Work

Previous research studies indicate that online group work is quite beneficial as well as challenging. Online group work benefits not only students but educators too. The online mode of learning allows learners for greater freedom in terms of not being required to be at a certain physical place to attend classes and discussions (Koh & Hill, 2009). It can also enhance students' communication skills in understanding how to connect with their colleagues during group projects to complete their assigned tasks (Flaherty, 2022). New skills during virtual communications with the use of technology will emerge from the online group work process. Bayne et al (2022) discovered that when conducting an assignment or a task, all group members may participate in the assignment task concurrently and in real-time utilizing online programs such as Google Docs, however, it requires students to have technology skills.

Koh and Hill (2009) analysed in their study the experiences of students engaging in online group work and explored its benefits and limitations. In their study, 37 individuals responded to online questionnaires, and 5 of them consented to be interviewed. In accordance with their findings, most learners found that being familiar with group members, obtaining fast feedback from their instructors, and managing time properly were the factors that contributed to effective online group work. Getting to know each other, group size, interests, varied abilities, and distributing of responsibilities are all important things to be considered while forming an ideal group. The study also discovered that finding a group in this online learning was complicated. It has resulted in communication challenges, misunderstanding of

course aims, and a perceived absence of community. As a result, their study implies that online group work necessitates extensive engagement among group members, and teachers must play their responsibilities to ensure efficient communications. To improve group collaboration in online courses, an efficient instructional design must be planned. Instructors must employ instructional methods that are acceptable for online group work. Zaharuddin et al (2022) studied the impact of group dynamics in Arabic language acquisition among university students. In line with the findings, group work improved students' comprehension and skills. It also had pedagogical implications for instructors to utilize collaborative learning in their teaching rather than the traditional method.

On the other hand, a conceptual study conducted by Skolnik and Skolnik (2022) explored the challenges and opportunities associated with incorporating online group work in classrooms. The development of a generalist curriculum, inadequate preparation of field educators, determining co-leadership assignments (to pair a student with an experienced student in the field of education), the proliferation of manual-based practice, and the expanding use of online groups were all highlighted as challenges. Additionally, Roberts and McInnerney (2007) outlined seven challenges of online group learning: student antipathy to group work, group member selection, lack of essential group-working skills, the free-rider, and possible inequalities in student abilities, group member withdrawal, and the assessment of individuals within the groups.

As shown by previous research studies, online group work is not only beneficial in the teaching and learning process but is also adopted in the workplace. However, establishing group work on an online platform is at the same time a difficult procedure with certain challenges. Individual accountability is essential for making online group work to be effective and efficient. To achieve this, each student must perform their own roles and contributions. A relatedly study conducted by Mawaddah et al (2022) emphasized the importance of self-regulation and emotion regulation in collaborative group work. It is associated with awareness, comprehension, and cognitive control, as well as an efficient time, resource management and the ability to regulate efforts.

Conceptual Framework

Group Conflicts and Tuckman's Model

When people come together in a group to perform an assigned task, conflicts may occur. According to Rahmat (2020), conflict is expected to occur during class discussions. However, what is more important is how the team members dealt with any conflicts that may have risen. The respondents may begin by competing with others to get their voices heard; but this effort to "win" is a lesson in itself for the members of the team. The class discussion helped learners discover knowledge in the group. This knowledge may not only relate to the content of the discussion but can also relate to the awareness of being more critical in their thinking and becoming more persuasive in their presentation of ideas. As such, Tuckman (1965) presented a model of team development (refer to figure 1) and there are four stages in team development. These stages are commonly known as: Forming, Storming, Norming, Performing, and Adjourning. Tuckman's model explains that as teams develop maturity and ability, establish relationships, and leadership style changes to more collaborative or shared leadership.

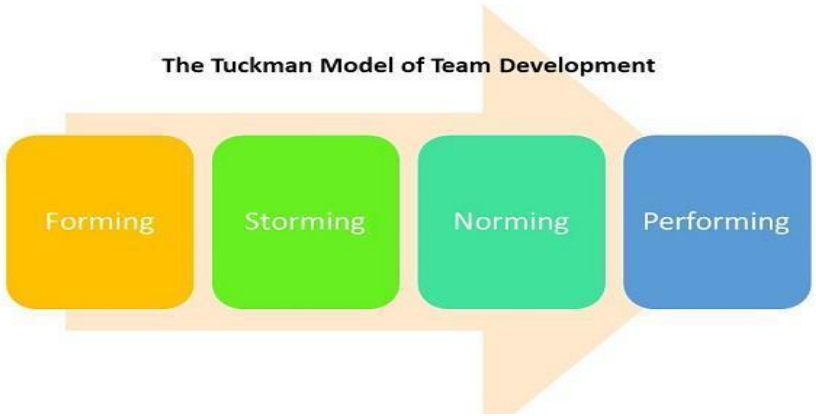

Figure 1 - The Tuckman Model of Team Development (Source: Tuckman, 1965)

Team Development in Online Group Work

Forming (through Teaching Presence)

As the prevalence of online group work increases, a strong teaching presence coupled with an effective and engaging online course design led directly to an increased student engagement and high-quality learning experiences (Stone & Springer, 2019). In a study conducted by Kyei-Blankson et al (2019), the teaching presence was rated as the most important aspect of online learning, in comparison to social and cognitive presence. Furthermore, design and organization, discourse facilitation, and direct instruction are all the components of teaching presence. Design and organization are related to the processes teachers use to plan and set up a course or learning environment, including curriculum development, instructional method design or selection, time management, effective use of media and so on. Meanwhile, facilitating discourse refers to teachers assisting students when they agree or disagree and attempting to find an agreement. Direct instruction, on the other hand, involves teachers delivering content or questions, validating comprehension by assessment and exploratory feedback, addressing misconceptions (Kilis & Yildirim, 2019). In short, it has been identified that encouraging students' contributions, promoting involvement and collaboration, offering immediate feedback, resolving their misconceptions, and creating a pleasant learning atmosphere serve as the reasons for establishing and maintaining a considerable degree of teaching presence.

Storming and Norming (through Social Presence)

The second stage as proposed by the theoretical framework of Tuckman (1965) is the storming and norming stage through social presence. During storming all the group members are expected to interact and brainstorm ideas in order to solve the task or problem they are assigned for. There are various methods of brainstorming such as mind mapping, brainwriting, rapid ideation, and starbursting that are able to be conducted online through an online whiteboard, video conferencing, and file sharing apps. A study conducted by Zaharuddin et al (2022) found that through social interaction during storming, students were able to understand each group member's expression and gesture, which eventually adapted them to understand non-verbal cues by the group members. Upon the completion of the storming stage, group members will reach an agreement on the final version of the completed task. This stage is known as the norming stage. In this stage, any interpersonal differences are resolved, and team performance is increased as team members are comfortable collaborating in order to achieve their team goals. According to Tuckman (1965), the major task of this stage

is the data flow among the group members where they share feelings and ideas, solicit critics constructively from one another, and explore actions related to the task. In the online group working process, social presence is important at the storming and norming stages as it can increase the participation during working online and help reduce the stress and loneliness among students.

Performing (through Cognitive Presence)

Based on the theoretical framework by Tuckman (1965); Aderibigbe (2021), it is noticed that the success of group work during the performing stage depends on the first stage which is forming, followed by the storming and norming stages. Each stage depends on the success of the previous stage. If there is any new problem that exists, then each step/stage will be repeated. Basically, group work is implemented to obtain effective results and meet the needs of a task. In order to produce the best output, each group member needs to find a solution to the problem/task by using appropriate methods. Therefore, each member needs to work together and give a full commitment collectively, and this will necessarily create a friendly work atmosphere and each member will indirectly care for each other to ensure that each task is carried out perfectly. This is proven by the results of a study by Zaharuddin et. al (2022) focused on learning language and revealed that in the performing stage, learners use several indirect strategies which are approaches that indirectly have an effect on learning and the most useful strategies are by cooperating with others and encouraging themselves to learn. The results obtained from this group work were evaluated directly in the performing stage. It is very clear that in the performing stage, the instructor actually evaluates students based on cognitive presence throughout the group work. Cognitive presence is a student's ability to understand an issue or conflict and then find a solution for that. A systematic review by Sadaf et al (2021) stated that cognitive presence can be assessed in terms of triggering, exploration, integration, and resolution and it is carried out for online learning. Usually, the evaluation of this cognitive presence is conducted through a presentation, project report, and so on.

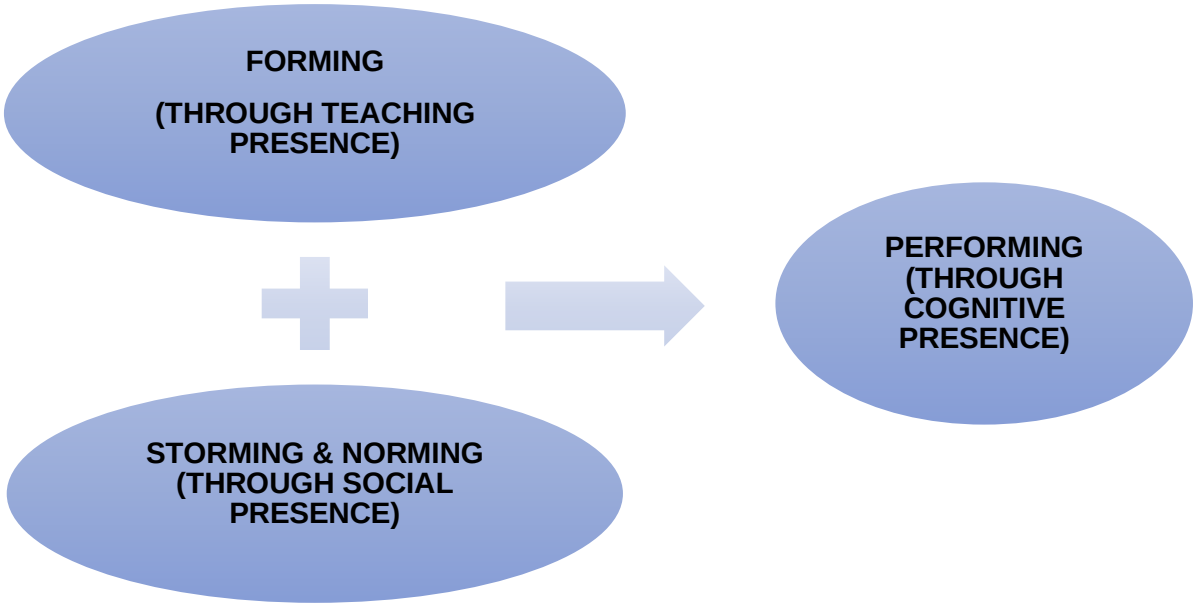

Figure 2 - Theoretical Framework of the Study- Team Development in Online Group Work (Source: Tuckman, 1965; Aderibigbe, 2021)

Methodology

This study employed a quantitative research approach. The current study was conducted to investigate online group work and its efficacy during the COVID-19 outbreak. A total number of 116 participants were purposely chosen from a public university in Southern Malaysia. The participants are undergraduate students from clusters of sciences and technology, social sciences and humanities, and business. These students have undergone online distance learning from their home since 2020 and are involved with group works for their courses. The instrument used in this study is a survey adapted from (Aderibigbe, 2021). Apart from the demographic profile in Section A, the instrument consists of three other main sections that are B) cognitive presence, C) social presence, and D) teaching presence. Each section contains 8 items as presented in Table 1 below:

Table 1
Distribution of Items in Survey

SECTION	ELEMENTS	NO. OF ITEMS
B	COGNITIVE PRESENCE	8
C	SOCIAL PRESENCE	8
D	TEACHING PRESENCE	8
		24

Table 2
Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.870	23

The data were collected via Google Form and analysed using SPSS 26. With reference to table 2, the SPSS analysis revealed a Cronbach Alpha of .870 thus showing high internal reliability for the instrument. Data has been presented in terms of percentage for the demographic profile and mean scores to answer the research questions.

Findings

Findings for Demographic Profile

This section provides information about respondents' backgrounds based on seven demographic questions. The survey results were analysed using descriptive analysis based on gender, age, cluster, level of study, learning experience, duration of online learning, and online activities. All of the findings are given in pie charts that indicate the frequency and percentage for each demographic profile.

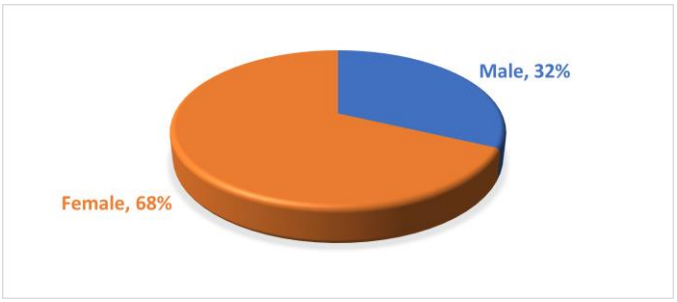

Figure 3- Percentage of Gender

Figure 3 demonstrates the gender distribution in this study, with the majority of respondents being female (n=79, 68%) and male (n=37, 32%). We do not make a comparison of genders during online group work in this study.

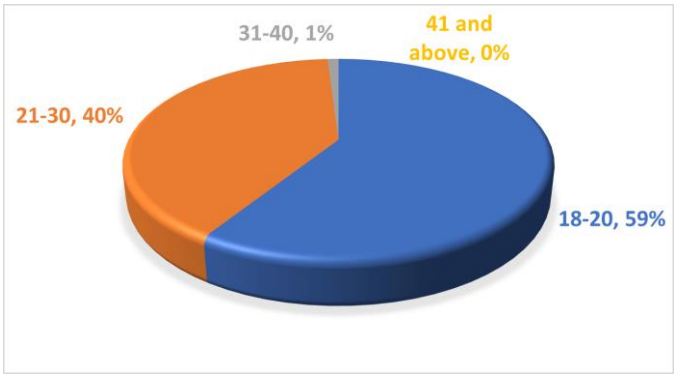

Figure 4- Percentage of Age Group

Figure 4 shows 68 respondents (59%) between the ages of 18 and 20, 47 respondents (40%) between the ages of 21 and 30, and just 1 respondent (1%) between the ages of 31 and 40. This is due to the fact that the majority of respondents are diploma and degree levels students.

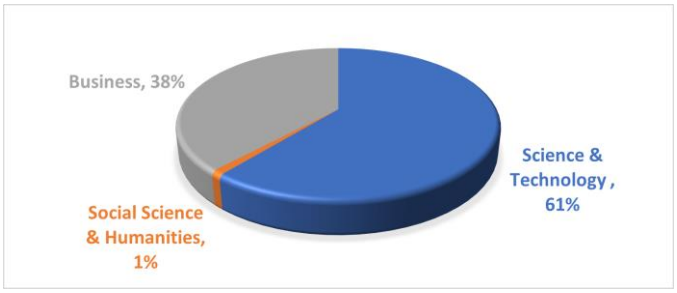

Figure 5- Percentage of Cluster

According to the faculty cluster (Figure 5), about 71 respondents (61%) are from science and technology, 44 respondents (38%) are from social sciences and humanities, and 1 respondent (1%) is from business.

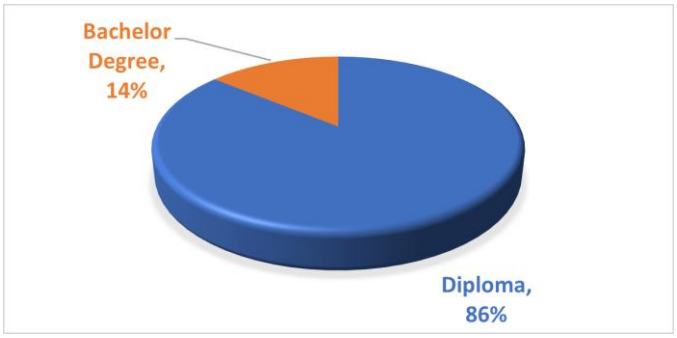

Figure 6 - Percentage for Level of Study

Figure 6 depicts the proportion of respondents for each level of study, which is separated between diploma level (86% or 100 respondents) and 13.8% or 16 respondents.

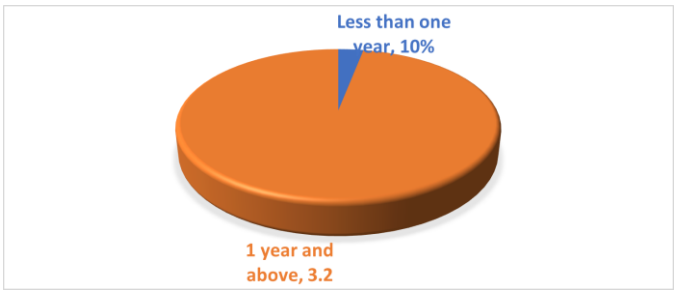

Figure 7- Percentage of Online Learning Experience

Figure 7 shows that the majority of respondents, around 104 (89.7%), have used online learning for one year and above and 12 respondents (10.3%) have used it less than one year. This is due to the impact of COVID-19, in which all students began their studies online.

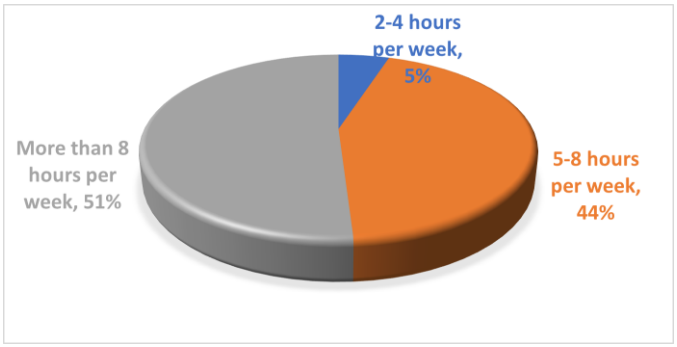

Figure 8 - Percentage of Online Learning per week

The majority of students (51% or 59 respondents) utilized online learning for more than 8 hours per week, while 44% or 51 respondents used 5 to 8 hours per week and 5% or 6 respondents used 2 to 4 hours per week. It might be because some classes employ a hybrid technique that combines both face-to-face and online learning.

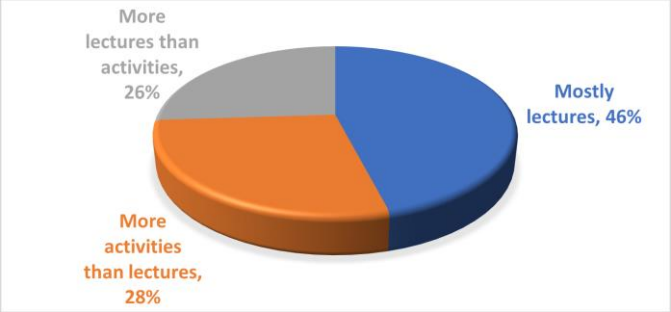

Figure 9- Percentage of Online Activities

Figure 9 depicts the percentage of students who engage in online activities. Approximately 46% (53 respondents) used online activities that mostly involved lectures, 28% (32 respondents) did more activities than lectures, and 26% (31 respondents) utilized online activities that primarily comprised lectures and activities. This research also supports the notion that certain classes employ online learning to deliver lectures.

Findings for Forming

This section presents the data to answer research question 1: how is forming displayed in online group work? In the context of this study, the teaching presence helps to facilitate the forming stage.

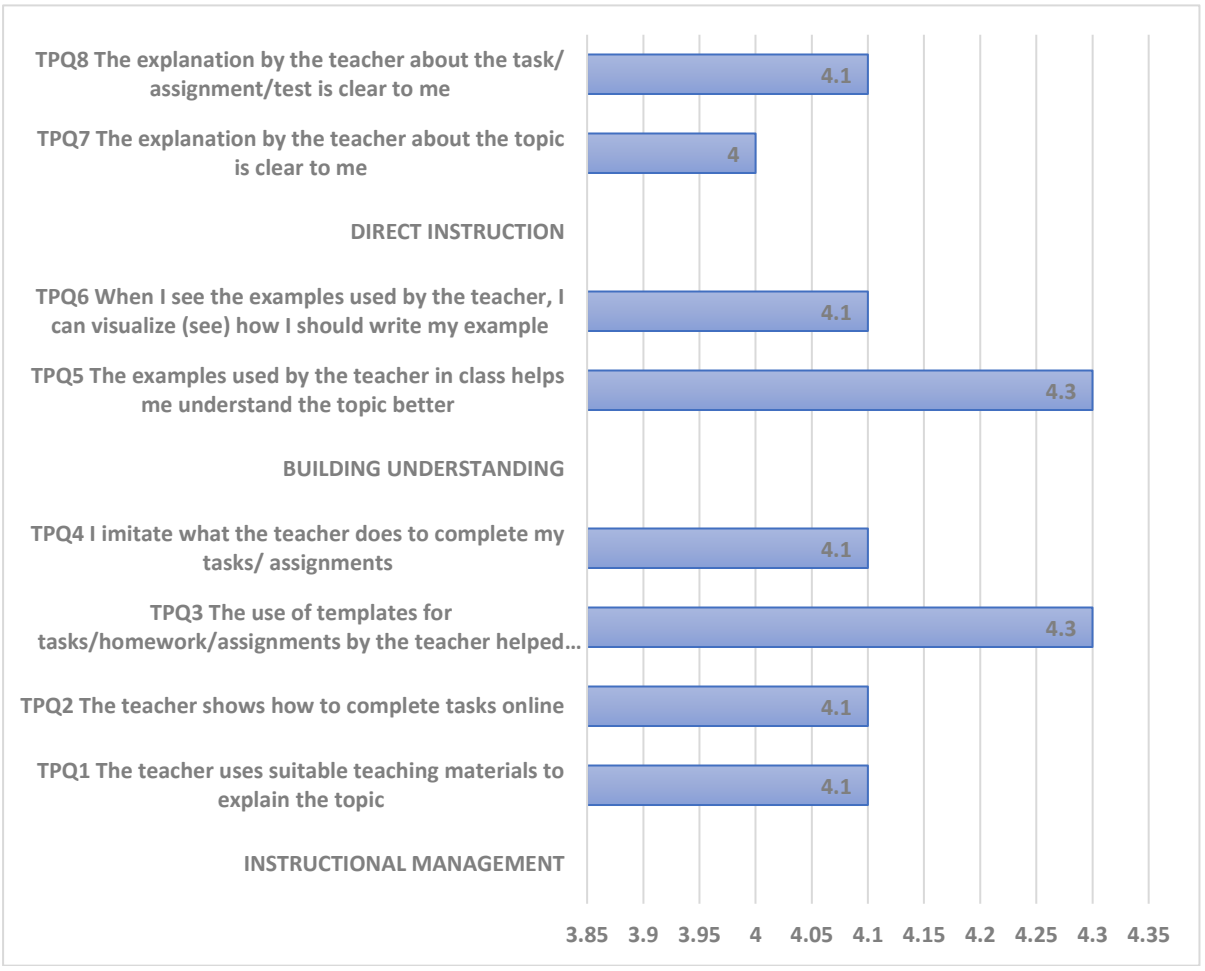

Figure 10 -Mean for Forming (Teaching Presence)

Figure 10 depicts forming in teaching presence. The questions in this section fall into three categories: instructional management, building understanding, and direct instruction, all of which are important aspects highlighted by Kyei-Blankson et al. (2019). According to their research, instructional management is similar to design and organization, building understanding is similar to discourse facilitation, and direct instruction is similar to direct instruction. According to their survey results, the direct instruction category has the lowest average mean score (average mean score = 4.05), while the building understanding category has the highest average mean score (average mean score = 4.2). Meanwhile, instructional management is in the middle with an average mean score of 4.15. The results suggest that teaching presence particularly in terms of building understanding is important in online group work during the forming stage, as the teachers' examples and demonstrations assisted students gain a better understanding and visualization of the topic discussed. Several online tools, such as Google Classroom, Canva, Zoom, and Microsoft Teams, can be used to help in this whole process.

Findings for Storming & Norming

This section provides answers to research question 2: how are storming and norming displayed in online group work? In the context of this study, the social presence during online group activities allows learners to undergo the storming and norming stages.

Storming & Norming - Social Presence

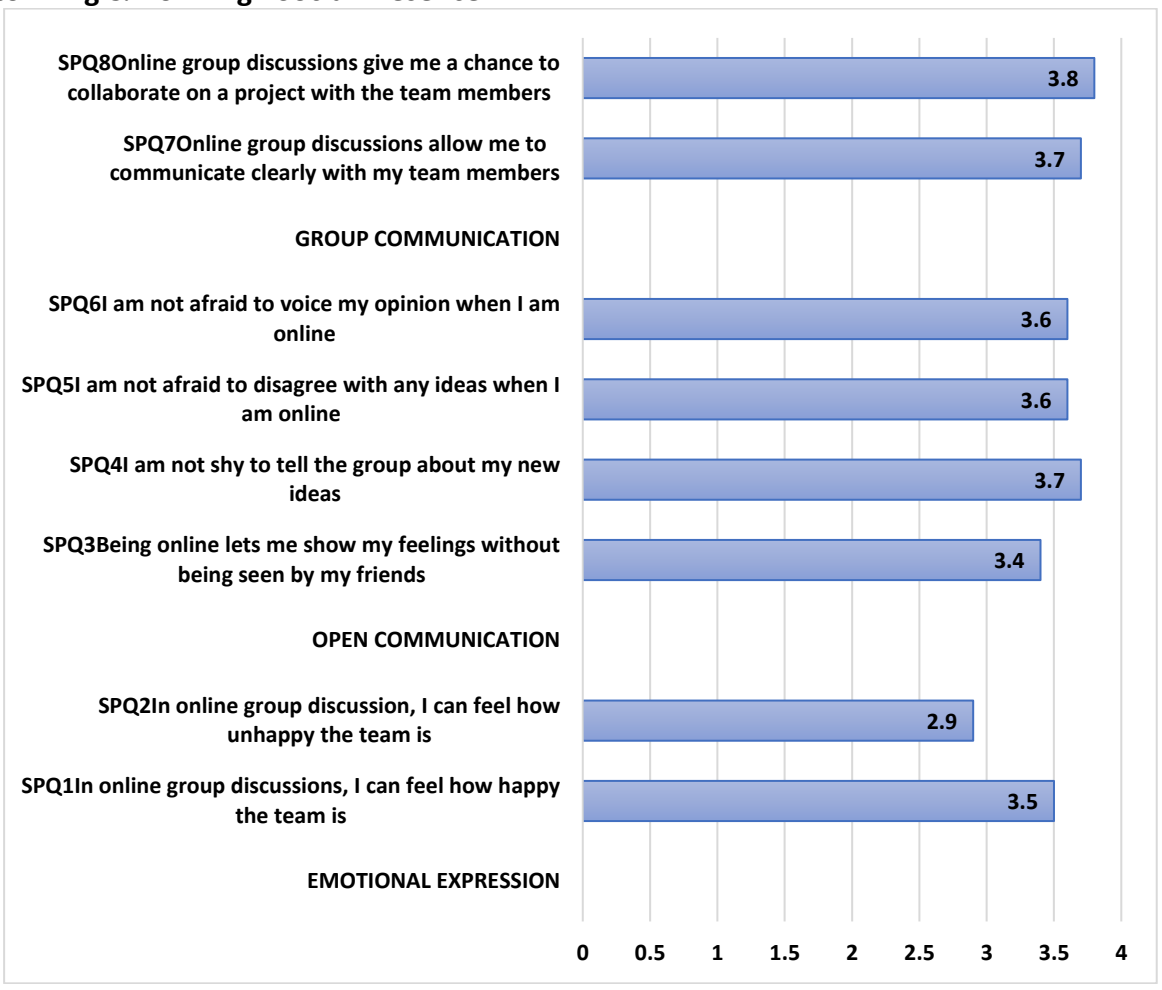

Figure 11 -Mean for Storming & Norming (Social Presence)

Figure 11 shows storming and norming in social presence. The items provided in this section represent three categories, namely emotional expression, open communication, and group communication. The highest mean with the value of 3.8 is for the question "SPQ8 Online group discussions give me a chance to collaborate on a project with the team members", followed by a mean value of 3.7 for the question "SPQ4 I am not shy to tell the group about my new ideas" and question "SPQ7 Online group discussions allow me to communicate clearly with my team members". The next highest mean with a value of 3.6 is the question "SPQ5 I am not afraid to disagree with any ideas when I am online" and "SPQ6 I am not afraid to voice my opinion when I am online". This shows online group work in terms of social presence is highly favourable, where the students prefer social presence with other students compared to working alone. Zaharuddin et al (2022) suggest that the important aspect of online group work is the social interaction where students are able to interact, communicate their ideas openly, collaborate to complete tasks, and improve their learning capability while doing online group work. The lowest mean score of 2.9 is for the question "SPQ2 In online group discussion, I can feel how unhappy the team is". This indicates the students are happy during online group work and are less stressed in their class.

Findings for Performing

This section presents the data to provide answers to research question 3: how is performance displayed in online group work? In the context of this study, cognitive presence is achieved during the performing stage.

Performing - Cognitive Presence

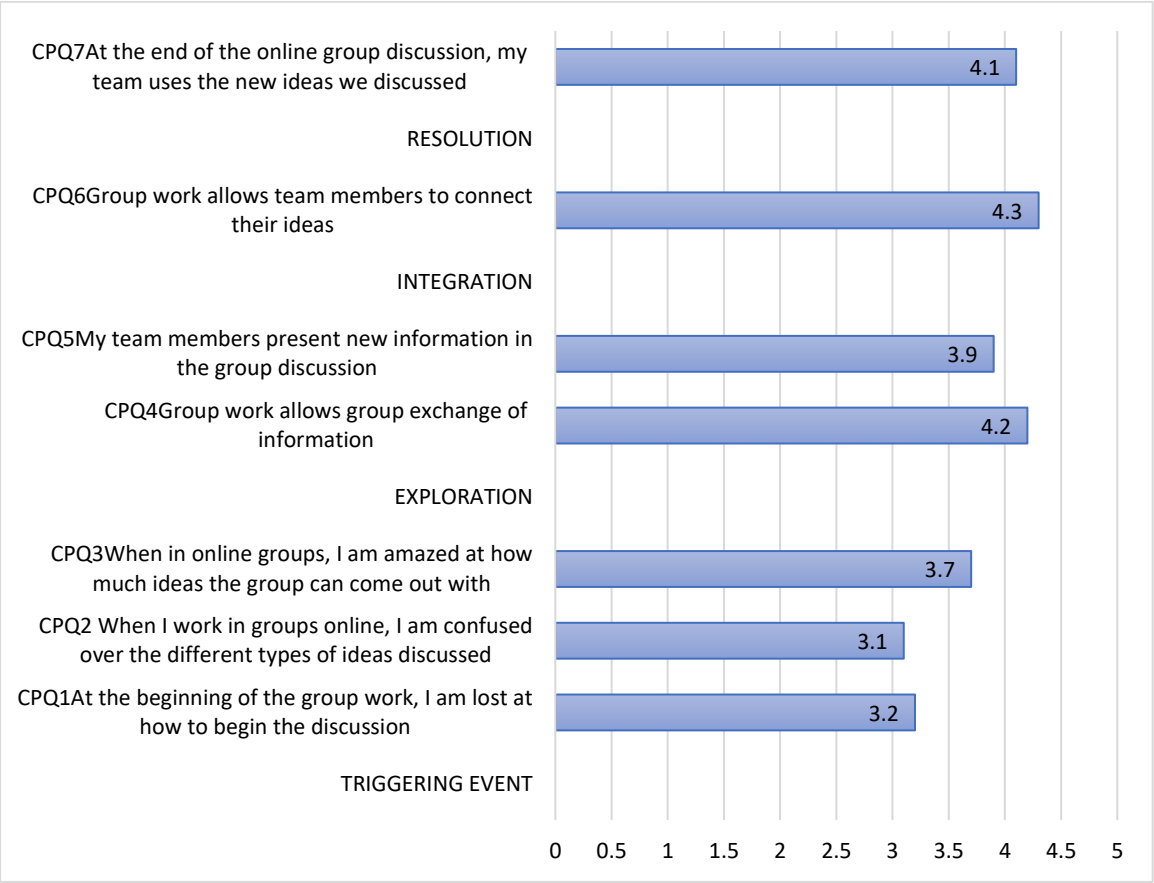

Figure 12 -Mean for Performing (Cognitive Presence)

Figure 12 indicates performing in cognitive presence. The items provided in this section represent four categories, namely triggering event, exploration, integration, and resolution. The highest mean with the value of 4.3 is for the question "CPQ6 Group work allows team members to connect their ideas", followed by a mean value of 4.2 for the question "CPQ4 Group work allows group exchange of information" and "CPQ7 At the end of the online group discussion, my team uses the new ideas we discussed" with mean value 4.1. The respondents agree that online group work positively influenced them in terms of integration, exploration, and resolution of the ideas that have been discussed among groupmates. This was proven by the lowest mean value for the triggering event category which explained that the respondents somewhat less agreed that they were confused over different types of ideas discussed or lost at how to begin the discussion during the online group work. Hence, cognitive presence was found to have direct positive impacts on the performing stage. This shows that the students are also braver to speak up and defend their ideas when discussions are conducted online than when they meet face-to-face (Rezaei, 2017).

Conclusion

Summary of Findings and Discussion

Higher education learning during post-COVID-19 pandemic has transformed online distance learning and faced new opportunities and challenges. Students' online group work is one area related to this transformation and should be carefully studied to ensure student's learning experience is not compromised. This study suggests that teaching presence is important in building students' understanding in the early forming stage of group work. Teachers' examples and demonstrations during this stage help increase students' comprehension and visualization of the topic. Results also show that in the stage of storming and norming, online group work in terms of social presence is highly favourable. Students prefer social presence in their group rather than working alone for their dedicated tasks. This would ensure that students are able to interact, communicate and collaborate with their group mates to complete group tasks. The surveyed results also indicate that cognitive presence is found to have direct positive impacts in the performing stage. Students are braver to speak up and defending their ideas in discussions conducted online than face-to-face.

COVID-19 has changed the way higher education learning is being implemented and conducted. Students' preferences and experiences in learning mode also changed over time. Universities need to continue conducting research in this area to address the needs and to improve teaching and learning in the future.

Pedagogical Implications and Suggestions for Future Research

This study has raised a question on the flexibility of asynchronous learning, as it should address students' preference for teaching presence and social presence in online group work. Curation of learning material in the future should consider those needs to ensure no students are left behind. This study has limitations, especially in terms of the respondents, which focus on students from a single university in Malaysia. Therefore, future research will likely focus on students from various universities that might experience different coursework assessment plans and different online group working tasks. Future research could also focus on teachers' insights of online group work and their roles in encouraging cognitive presence.

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