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# The Impact of Group Work on Students' Online Engagement

Madaha Hanafi[1], Aina Athirah Rozman Azram[2], Siti Khadijah Omar[3], Hana Nadia Nadri[4], Ahmad Aminuddin Soopar[5], Nur Hazirah Mohd Fuat[6]

[1]Akademi Pengajian Bahasa, Universiti Teknologi MARA, Cawangan Perak, Kampus Tapah, Tapah Road, 35400 Perak, Malaysia, [2,4,5]Akademi Pengajian Bahasa, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia, [3]Akademi Pengajian Bahasa, Universiti Teknologi MARA, Cawangan Kelantan, Kampus Machang, Bukit Ilmu, 18500 Machang, Kelantan, Malaysia, [6]Akademi Pengajian Bahasa, Universiti Teknologi MARA, Cawangan Perak, Kampus Seri Iskandar, Seri Iskandar, 32610 Perak, Malaysia
Email: madaha@uitm.edu.my, aathirah@uitm.edu.my, sitikhadijah7547@uitm.edu.my, hananadia@uitm.edu.my, aaminuddins@uitm.edu.my, hazirahfuat@uitm.edu.my

**Abstract**
Online learning has become more prominent since COVID-19 outbreak. As a result, working in a group has been used as an alternative to ensure engagement among students exist even interacting from afar. This study investigates how forming, storming, norming, and performing affect the students' online engagement in learning in a group work context. A set of questionnaires is used and distributed to students from various fields of study who have undergone online learning in a public university in Malaysia. It consists of seven sections: the demographic profile, social interaction, more knowledgeable others, zone of proximal development, learner-to-learner interaction, learner-to-instructor interaction, and learner-to-content interaction. A total of 354 responses are received and recorded. Findings reveal how group work has impacted online engagement by looking at forming, storming, norming, and performing attributes. The study contributes to the literature by focusing on the impacts of group work to achieve engaging online learning. In particular, the study highlights the significant contributions to educators to encourage and motivate learners to be engaged in online group work more comfortably and confidently.
**Keywords:** Group Work, Online Engagement, Forming, Storming, Norming, Performing

## Introduction
### Background of Study
According to Carliner (1999), online learning is educational material that is accessible on a computer. On the other hand, Conrad (2002) defines online learning as an approach to distance learning using technology. Generally, online learning involves the use of the Internet to acquire learning materials, interact with the instructor, other learners, as well as the content, and get support during the process of learning for the purpose of gaining knowledge

and growing from the learning experience (Ally, 2008). Online learning is growing and becoming essential in today's education with the development of the Internet and technology.

The Coronavirus (COVID-19) outbreak has caused online learning to be more significant and gives profound impact when the world normalises new practices in all aspects including teaching and learning. The way of living, working, and learning has changed worldwide. After the declaration of COVID-19 as a global health crisis in early 2020, many companies and institutions opted for online based work including online learning. The flexible and accommodating features offered in online learning has resulted this learning method as the most relevant one during the pandemic. Since then, various countries all over the world, including Malaysia have begun to impose this way of learning to accommodate the shifts effectively.

**Statement of Problem**
Ideally, group work is crucial in promoting stimulative academic performance in which this serves as an objective and the methods for learning. Educational settings advances with incentive for learning and emphasis on knowledge by engaging in group work, for instance, the practice of tutorial groups in problem-based learning. Adesina et al (2022) reported that involvement in group work facilitates students' experience specifically in academic knowledge prior to three different abstractions; learning, study-social function, and organisation. Consequently, group work in general resulted in enhanced positive learning experience and reduced negative learning experience.

In reality, some studies have properly investigated how group work and students' online engagement concepts relate to and affect one another. Earlier research by Oberg et al (2019) has shown that physical isolation as perceived in online engagement seems to reduce students' sense of community. Besides, in an online environment, instructor-learner interaction holds more importance because the learners feel isolated and far from the social existence of the classroom however the feature of break out room for group work, for instance, Zoom application, provided the platform to engage has led to higher efficiency of online learning (Baber, 2021). Group work in numerous earlier research has been seen to positively impact students' online engagement. Significant barriers to online engagement resulting from inexpressive feelings, opinions, and situations from the students should be overcome through further research to explore how students perceive online engagement. A study by Adesina et al (2022) suggested further research to delve into the impacts of group work, especially the factors and instances contributing to positive and negative online learning experiences. Therefore, this paper aims to study how forming, storming, norming, and performing impact the students' online engagement when working in a group. This study is conducted to answer the following questions;

- How does forming have an impact on students' online engagement?
- How does storming have an impact on students' online engagement?
- How does norming have an impact on students' online engagement?
- How does performing give an impact on students' online engagement?

**Literature Review**
Benefits of Online Class
Since some time within the past few years, traditional classes have been systematically maligned and are losing relevance. This has allowed online classes to evolve and become an

increasingly popular method that facilitates learning activities. Online class, which is also known as online learning, open learning, blended learning, e-learning, and distance learning, is a recognised mode of instruction in which learning activities occur in a setting in which students and instructors are geographically and even temporally separated (Bezhovski & Poorani, 2016; Cojocariu et al., 2014; Cunningham, 2014; Cabual & Cabual, 2022; Haiyan et al., 2018; Horton, 2006; Stone, & Perumean-Chaney, 2011). Additionally, it is acknowledged that online classes offer a flexible method of instruction that permits two-way communication between students and instructors, which has numerous advantages for both parties.

Myriad of research (Appana, 2008; Gopal et al., 2021; Lockman & Schirmer, 2020; Salloum & Shaalan, 2019; Welsh et al., 2003) have been carried out to prove that participating in an online class can be beneficial to the educational process. Students from numerous backgrounds have many advantages to gain from taking classes online because of the flexibility and the convenience it offers. Apart from that, most of the research done previously (Dhawan, 2020; Keylen et al., 2020; Adnan & Anwar, 2020; Perveen, 2016; Parsad & Lewis, 2008; Swan, 2001) highlighted that online class is becoming increasingly in favour among students because of its synchronous and asynchronous nature. Students can learn at their own pace and access information from any location they choose. In addition, students are not constrained by time and are free to respond whenever they have the opportunity (Cantoni et al., 2004; Hamad, 2011; Singh & Thurman, 2019). This is supported by Coman et al. (2020) who pointed out that, not only do students who take their lessons online reduce expenditure and save money but taking classes in this format is one of the learning methods that contributes to a better educational experience.

*Challenges in Group Work and Online Class*

With benefits, necessarily come challenges of having to incorporate group work for online class. Student engagement is defined as the level of commitment shown on the course materials, peers and teachers through thinking, discussion, and interaction in class. Many educators encounter challenges to maintain engagement especially in current online class norms. Online class witnesses limited student engagement to which students in Nepal struggled when learning was shifted to virtual platforms during the pandemic COVID-19 (Panday & Hansen, 2022). Besides, Lase and Zega (2021) emphasised that limited access to digital platforms hinders Indonesian students to level up their ownership and involvement in online class. Hence, educators should use a variety of methods to help students who remain disengaged during online class to stay focused.

Having group work for online engagement itself is the primary challenge as it can be done asynchronously and synchronously. As educators, it is needed to analyse the context and setting prior to online group work distribution for students, as well as to fix the parameter when implementing collaborative work (Hoon & Pathak, 2005). Ferdous and Karim (2019) outlined a mixed method of research to identify challenges in group work during online class which involves responses from both students and teachers. Firstly, it was reported that dealing with busy schedules hampers availability for discussion especially when it has to be done outside of class hours. Secondly, personality variation challenges students to work efficiently as a group and thirdly, inactive students further incapacitate the purpose of working in a group (Rybczynski & Schussler, 2011; Roychowdury et al., 2020). Consequently, these result in the difficulties of splitting equal workload as it is supposedly dynamic with the presence of excellent time of performance, individual and team quality as well as organisational resources (Bedwell et al., 2013). Ultimately, these literatures have paved the

way to understanding the importance of investigating the impacts of group work on students' online engagement to overcome the challenges in virtual education settings.

*Past Studies*
*Past Studies of Benefits of Group Work*

Many studies have been conducted to investigate the benefits of online group work. One of the benefits of online group work is ease of communication. Setting up effective communication is one of the earliest hurdles faced by various groups as they are adjusting to the new virtual medium. In a study focusing on a large group of students in the USA, Wildman et al (2021) deduced that the only benefit of moving to online settings during the height of the pandemic was communication. The study investigates how 65 students navigate the changes to online classes and identifies the challenges, changes and unintended benefits. It is found that communication is greatly improved when meetings and discussions amongst student groups are kept efficient to achieve mutual aims set by the students themselves. In another study done in a much smaller group in Indonesia, communication was made more efficient when the group utilised video conferencing platforms. Such platforms provide more confidence in communicating as well as being flexible to all members (Harianingsih et al., 2021). The studies were conducted when they had to adjust to the onset leading to the height of the pandemic in the second quarter of 2020. The 'forming' stage can be seen from both studies as they were coming into their respective groups. It can be deduced that online group work made communication better. Meeting and group discussions to complete given tasks are simpler and more efficient (Wildman et al., 2021; Harianingsih et al., 2021).

In another study comparing the effects of different modalities on two generations of engineering students enrolling in the same problem based learning (PBL) courses in Chile, it is observed that students from both modalities share similar prevalence in terms of coping strategies, overcoming challenges and personal goals. However, students who attended the online course were less conflictive in their communication as teams had few task conflicts and team distractions as flexibility among group members was highly prioritised. They see the lack of conflict as a positive aspect in managing challenges and changes in attending the online course. The results obtained were indicative of potential conflict avoidance that could hinder learning process as task conflict is a known creativity predictor and performance in many collaborative projects (Goni et al., 2020). Ultimately, the 'storming' stage in the digital modality group is somewhat contradictory to Tuckmans stages of group development where interpersonal conflict that takes place will shape structured leadership to overcome structural and power issues within the group.

Another study conducted in Korea has found that students who contribute less to group collaborative efforts benefited greatly from high contributors who took active roles in their respective groups. Based on the study done on 1399 learners taking courses at the Open Cyber University (OCU) in South Korea, it can be deduced that high contributors gained from teaching and providing the most input whilst low contributors gained greatly from the support and initial planning they received. The clear benefit of online group work here is it is of value regardless of the roles played; active contributors or passive team members. In other words, students who contribute less to their respective groups gain equally than those who took active roles in their teams (Costley, 2021). From a practical pedagogical point of view, the study sheds light on online group work that benefits all group members regardless of their contribution in achieving mutual aims.

The fourth stage in Tuckman's stages of group development refers to the 'performing stage'. It is where groups are showcasing flexibility as indicators of a productive environment professionally and personally. In two studies done in Indonesia and Norway, benefits of online group work identified were groups developed clear mutual aims and readiness to take responsibility equally. Both groups of participants developed a common understanding to complete tasks, nurture their ability to respect people and provide respective contributions (Situmorang, 2021; Haugland et al., 2022). 50 tenth and eleventh graders in Indonesia believed that online group work allows them to shorten the time to complete given tasks, solve problems and negotiate with their classmates while 30 Norwegian master students felt that online group work benefitted them in terms of understanding of the tasks, expectation of the group members, responsibility for the group work, preparedness for the group meetings, organisation of the group work, group loyalty, and responsibility for fellow students' learning. A large majority of the participants believes the best practice to navigate online modalities would be that it revolves around joint responsibility along with flexible organisation. Simply, both groups of participants exhibit traits that showcase self-organisation to achieve a set of goals that were put in place (Situmorang, 2021; Haugland et al., 2022).

Unmistakably, online group work offers benefits in many ways to learners. Although such opportunities present themselves to the learners, we have to be aware of the challenges and changes taking place that might hinder full comprehension in understanding the differences between online group work and the conventional classroom setting.

*Past Studies of Challenges of Group Work Online*

Few notable studies have been done to investigate the challenges of online learning associated with facilitating group work in a computer-mediated environment. The most common issue is communication barriers due to the lack of interaction between the group members.

Adnan and Anwar (2020) conducted a study to examine the attitudes of 126 Pakistani higher education students towards compulsory digital and distance learning for university courses due to COVID-19 pandemic. Data from their online survey has shown that most of the students find it difficult to complete group works online due to the lack of proper interaction and contact with members of the group. Next, a qualitative case study by Harianingsih et al (2021) investigating the advantages and difficulties of a new learning environment of 4 English as a Foreign Language (EFL) students from University of Muhammadiyah Malang participating in online group works indicated that communication problems caused by internet access issues followed by a lack of a sense of community was the biggest hurdle when working in groups. The participants were finding it hard to do group work with members they felt a sense of unfamiliarity with especially when they were grouped with members from different regions. This has led to the issue of lack of motivation as members of the group are not making an effort to get to know each other instead they keep ignoring each other online. Lack of communication due to internet connection is one of the main challenges for the students in this study to engage in an online group work. Lack of internet connection can cause misunderstanding between students and lecturers because they might miss what their friends and lecturer are explaining when they lose connection.

Similarly, communication difficulties are also one of the issues mentioned in a study by Rojabi (2020) exploring Open University (Universitas Terbuka-UPBJJ Jember) students' perceptions of online group learning via Microsoft Teams. A data from a questionnaire was collected from twenty-eight EFL students on their perceptions of online learning through Microsoft Teams indicated that miscommunication occurs frequently in online classrooms. For example, students indicate via a questionnaire that they have communication problems with their classmates and lecturers especially when internet connection interruption occurred. They feel that when this occurred, they would miss out important details and information presented by their friends and lecturer. In addition to that, communication issue was also one of the challenges noted in a qualitative case study by Allo (2020) on learner's perception of online learning during the pandemic of COVID-19. Findings from the interview that was carried out with the students indicated that they feel that online group tasks are not effective for learning due to not being able to communicate easily with their group members. This lowers their engagement in completing their online group tasks. They prefer to have individual tasks over group assignments because they will be more focus on their work.

Evidently there are some notable challenges we can infer when it comes to doing group works online especially in terms of communication and interaction among group members. Even though learning and doing group works online may have its many benefits, we have to note on the challenges as it is crucial to discover the level of engagement of students when it comes to online group work. It is vital to find out whether online group works is beneficial for online learning or it lowers the level of efficacy of group work compared to face-to-face settings.

**Conceptual Framework**



Figure 1: Conceptual Framework of the Study
(Source: Tuckman, 1965; Rahmat et al., 2021; Martin & Bolliger, 2018; Redmond et al., 2018)
Figure 1 presents the conceptual framework of the study. The framework is based on Tuckman's model of group development. The model is represented by five main stages. The five stages in Tuckman (1965) are then scaffolded onto the constructs of group work and online interaction and engagement by (Rahmat et al., 2021; Martin and Bolliger, 2018; Redmond et al., 2018).

Forming (Through Social Interaction & Learner-to-Learner Interaction)
The first stage of Tuckman's model of group development is forming. Forming is the initial and vital stage in this model. It greatly benefits online learning and enhances student engagement. In the context of this study, forming is influenced by social interaction and learner-to-learner interaction. It is the formation of dependency relationships with leaders, other group members, and prior standards (Tuckman, 1965). This stage focuses on the

interaction between the group members. During this stage participants will get to know their preference in choosing the team members, how they fit in, whether they feel fun or not as a team, whether the members can work and support one another, and whether the group leads to success or failure (Jones, 2019). This stage should be highlighted to reassure participants enjoy themselves while learning something new that will benefit their everyday lives. Building activities that increase engagement is crucial to avoiding potential boredom and isolation among online students in the learning environment (Martin & Bolliger, 2018). They added that these events promote community building and help learners feel more connected. To increase student involvement in online classes, (Martin & Bolliger, 2018) strongly advise using web-based tools like Twitter feeds, Google apps, or audio and video software. Furthermore, in this phase, participants will experience improvements in various skills, their behaviours, and leadership skills (Jones, 2019). In general, forming is a technique that fosters engaging interaction between students with other students using engaging activities for online learning purposes.

Storming (Through More Knowledgeable Others)

In training students to work in groups, storming is a platform to establish interaction with knowledgeable others. Rahmat et al (2021) indicates more knowledgeable others as the peers and instructors for students in which engagement with these groups would extend the horizon and encourage more discussions among them. This finding is partially contradictory to the findings by Martin & Bolliger (2018) discussing that group work is the least valuable approach in online engagement strategy because some students did not perceive peer collaboration as enjoyment. However, it was also highlighted that learners prioritise engaging experiences from their instructors as compared to learner-to-learner and learner-to-content engagement.  Albeit the less favourable engagement; learner-to-learner engagement preferred by students, storming as explained by Jones (2019) is characterised by a stage in which team members must embrace the differences by means of self-change and produce accommodating or resisting self-skills abilities. Generally, storming through more knowledgeable others in a group work requires intellectual engagement with the fellow students in their own group. Rezaei (2018) echoes this notion with the report from students that they enjoy group engagement to learn of others' perspectives. Nonetheless, the working together part is a huge obstacle.

Norming (Through Learner-to-Instructor Interaction)

Norming, which is the third stage of Tuckman's Model (1965), relates to interpersonal interactions and task performance in groups and teams (Bonebright, 2010). In this stage, it is claimed that group members discover ways to create harmony among themselves and try to take into consideration the thoughts and recommendations of one another (Jones, 2019). Whilst this model is highly related to group development, Tuckman's Model (1965) is deliberately scaffolded and is becoming a prevalent and relevant model in the learning environment. Martin and Bolliger (2018) pointed out that this stage helps to foster students' engagement in the learning process by allowing instructors and students in online courses to connect with one another. This stage is also highly related to well-thought-out teaching strategies, ongoing assessments, and interactions that occur continuously between students and instructors, which aims to enhance the online learning process and students' engagement (Wahid et al., 2020; Martin & Bolliger, 2018; Rahmat et al., 2021). In addition, it is asserted that learner-to-instructor interaction places special emphasis on the incorporation of new and

proven technology, such as WhatsApp, Facebook, Edmodo, YouTube, Google Classroom, Twitter, and Skype, as an alternative method of information transmission to increase students' engagement (Farid, 2014; Revere & Kovach, 2011; Robinson & Hullinger, 2008). To simply put, Norming is acknowledged as a method that encourages the active participation of students and makes use of a variety of teaching strategies (e.g., questioning technique, brainstorming and collaborative learning) to promote the online learning process.

Performing (Through Learner-to-Content Interaction & Zone of Proximal Development)

The fourth or final stage is performing. In the context of this study, performing is seen through zone of proximal development and learner-to-content interaction. According to Tuckman (1965) in this stage, interpersonal structure is developed into the instrument of task activities. Moore (1993) described learner-to-content engagement as a process of intellectually interacting with the content that can influence a learner's understanding and viewpoints. The synchronous and asynchronous approach is viewed as valid choices for supporting online learners in gaining access to content for important interaction (Banna et al., 2015). Utilizing the right technology, (Revere & Kovach, 2011) suggested bringing the material to life to increase student engagement. According to Martin and Bolliger (2018), instead of simply providing a list of online resources to students, educators should develop authentic learning activities that allow students to study the tasks from various perspectives and help them to use the information accordingly. A variety of activities, such as course management system features, effective communication, and course facilitation techniques, made students feel involved (Dixson, 2010). Therefore, Performing can be expressed as a method that involves the students and the use of interactive learning activities for an engaging learning process.

**Methodology**

This quantitative study is done to investigate the impact of group work on students' online engagement. 354 participants were purposely chosen from a public university in Malaysia. The instrument used is a survey adapted from (Rahmat et al., 2021; Martin and Bolliger, 2018; Redmond et al., 2018).

The factors are also organised based on Redmond et al (2018) online engagement framework. According to Redmond et al (2018), social engagement depends on factors like social interaction and zone of proximal development. Cognitive engagement can be done through learner-to-content interaction. Behavioural engagement is achieved through learner-to-learner interaction. Collaborative engagement improves the function of more knowledgeable others while emotional engagement is done through learner-to-instructor interaction.

Apart from the demographic profile in Section A, there are 5 other sections. Section B and C's social engagement is represented by social interaction (8 items) and zone of proximal development (7 items). Section D, the cognitive engagement is represented by learner-to-content interaction (7 items). Section E is behavioural engagement represented by learner-to-learner interaction (6 items). Section F is collaborative engagement and is represented by more knowledgeable others (7 items). Finally, section G is emotional engagement and is represented by 6 items in the learner-to-instructor interaction.

Table 1
*Reliability Statistics for the Study*

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .972 | 42 |

Data is collected via google form and analysed using SPSS version 26. With reference to Table12, the SPSS analysis revealed a Cronbach analysis of 0.972 thus showing high internal reliability for the instrument. Data is presented in terms of percentage for the demographic profile and mean scores to answer the research questions.

**Findings**
*Findings for Demographic Profile*
The participants of the study comprise of students from a few UiTM campuses in Malaysia. The participants of the study were chosen because the study aims to find out the impact of group work on students' online engagement.
From the data collected, the study consisted of 354 students altogether; 175 male students (49.4%) and 179 female students (50.6%).
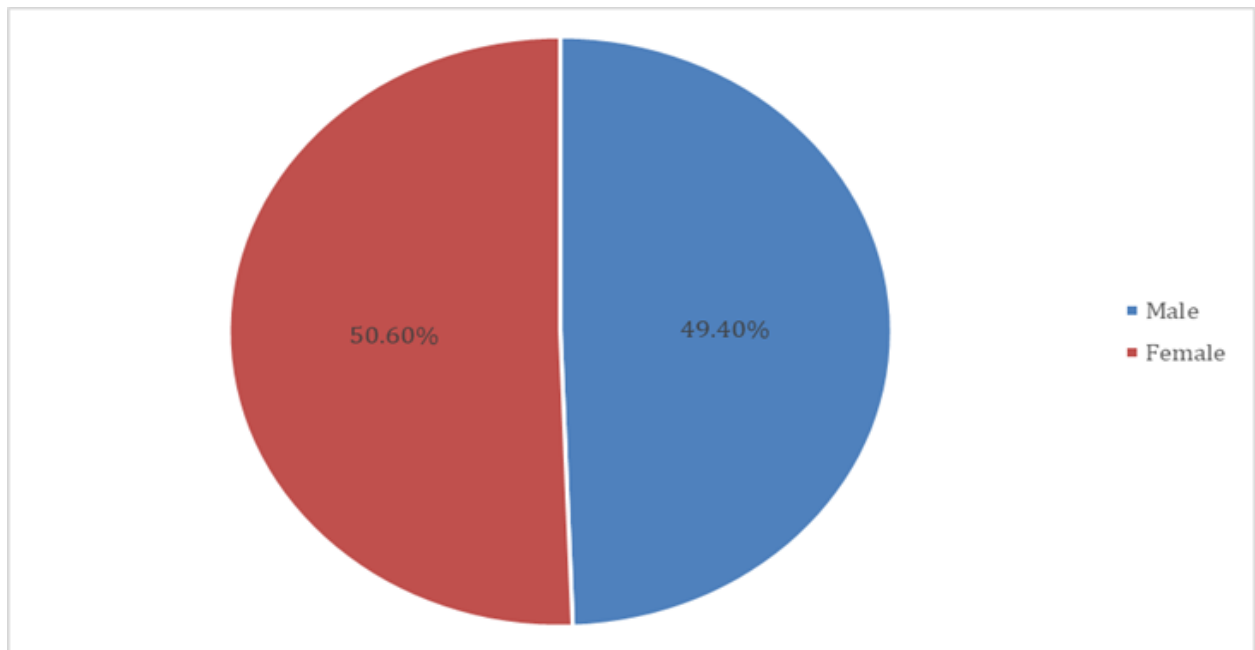


Figure 2: Percentage for Gender

The participants of the study are students from three different fields of study in a few UiTM campuses in Malaysia.
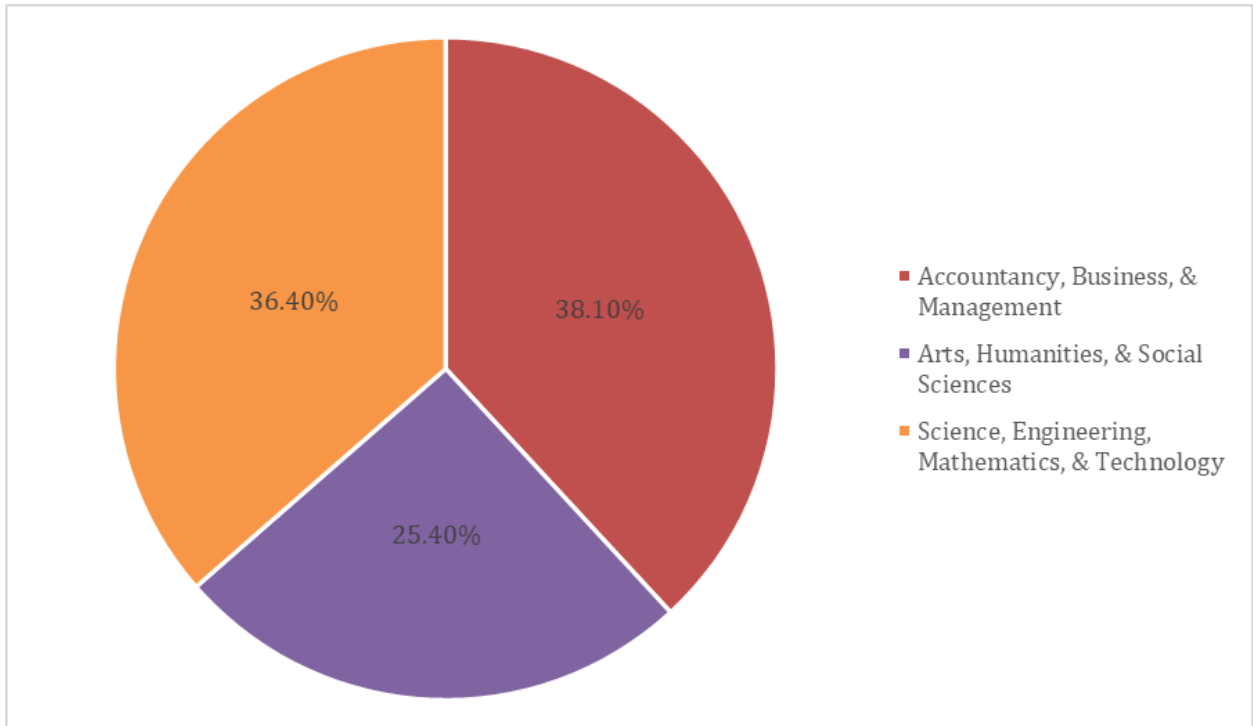
Figure 3: Percentage for Field of Study

According to Figure 3, the study consisted of 135 students (38.10%) from Accountacy, Business and Management; 90 students (25.40%) from Arts, Humanities and Social Sciences; and 129 students (36.40%) from Science, Engineering, Mathematics and Technology.
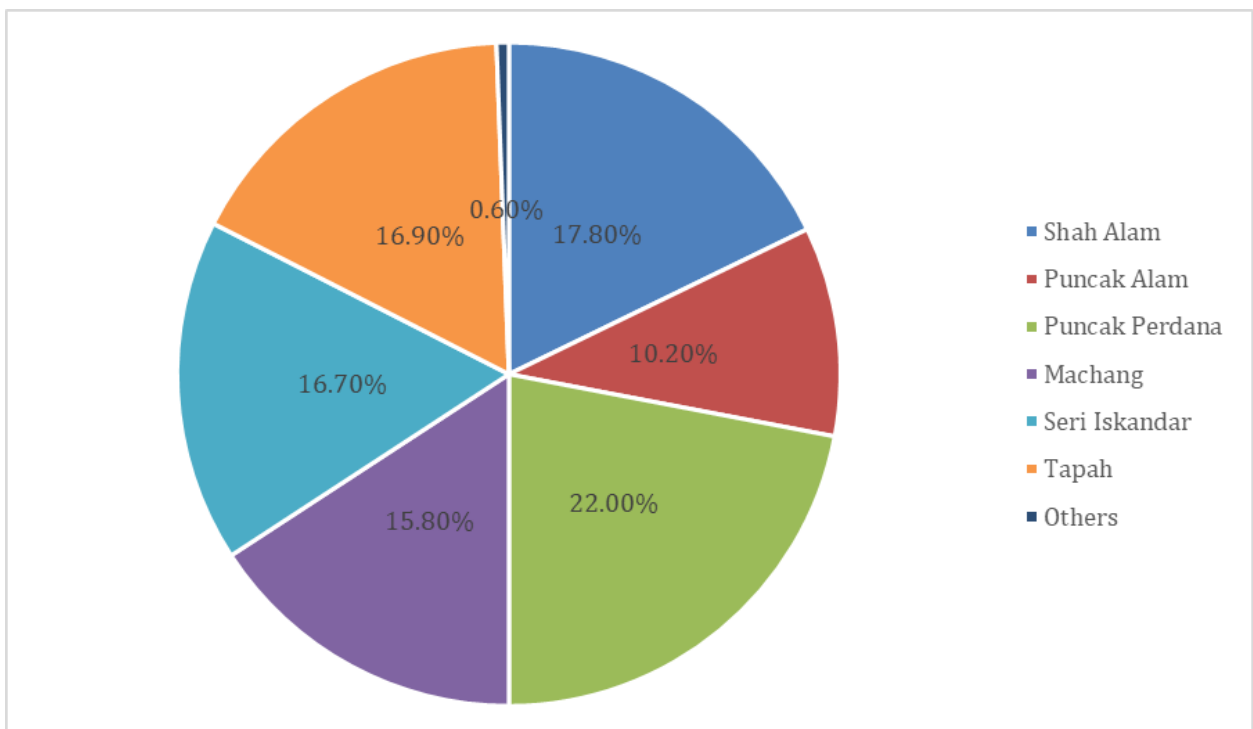


Figure 4: Percentage for Campus

Figure 4 illustrates the distribution of respondents by campus. It shows that students from Puncak Perdana campus contributed the highest percentage with 22%, followed by Shah Alam

campus at 17.8% as the second highest and accompanied by Tapah campus at 16.9% and the fourth highest percentage was Seri Iskandar campus with 16.7%. On the other hand, Machang campus recorded 15.8%. The findings also revealed that participants from Puncak Alam campus recorded 10.2%. Based on the above chart, it can be seen that the lowest percentage (0.6%) was contributed by other campuses.

*Findings for Forming*
This section presents data to answer research question 1: How does forming have an impact on students' online engagement? In the context of this study, Forming is influenced by (a) Social Interaction & (b) Learner-to-Learner Interaction. Both the findings are represented by the figures below
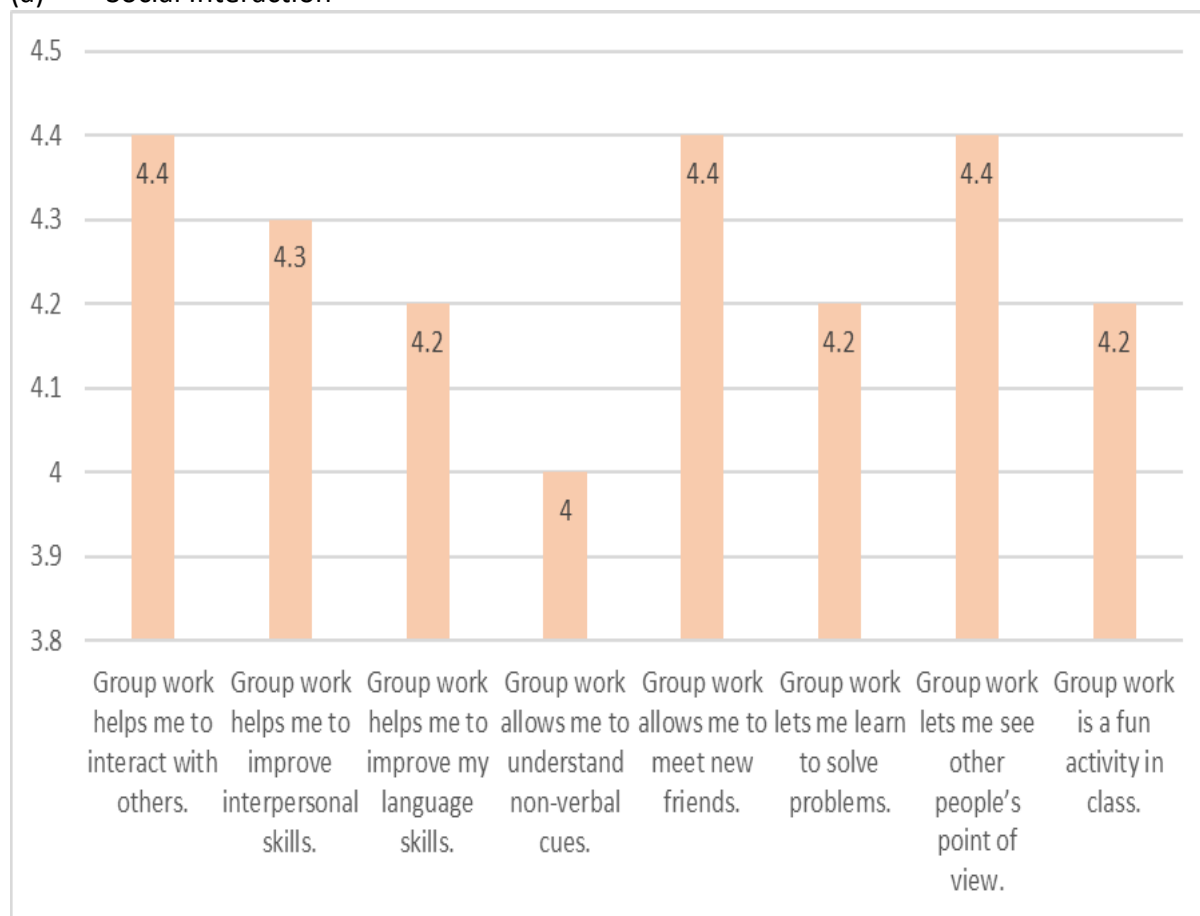
(a)      Social Interaction



Figure 5: Mean for Social Interaction

Social Interaction between online learners is important as it allows the learners to not only complete given tasks but also provides the opportunity for them to communicate with one another. Based on the findings in Figure 5, most of the participants agree that social interaction is important in online learning because it allows them to interact with others and meet new friends. Observing other people's point of view of their work is another factor why social interaction is important to the participants. All three items mentioned recorded the highest number of mean at 4.4. In addition, the participants do agree that social interaction helps them with their interpersonal skills (M=4.3) as well as helping them to solve problems, improve language skills and as a fun activity with their classmates (M=4.2).  However, a

majority of participants observed that social interaction in an online setting is somewhat an inefficient way to read and understand non-verbal cues from their peers (M=4.0).
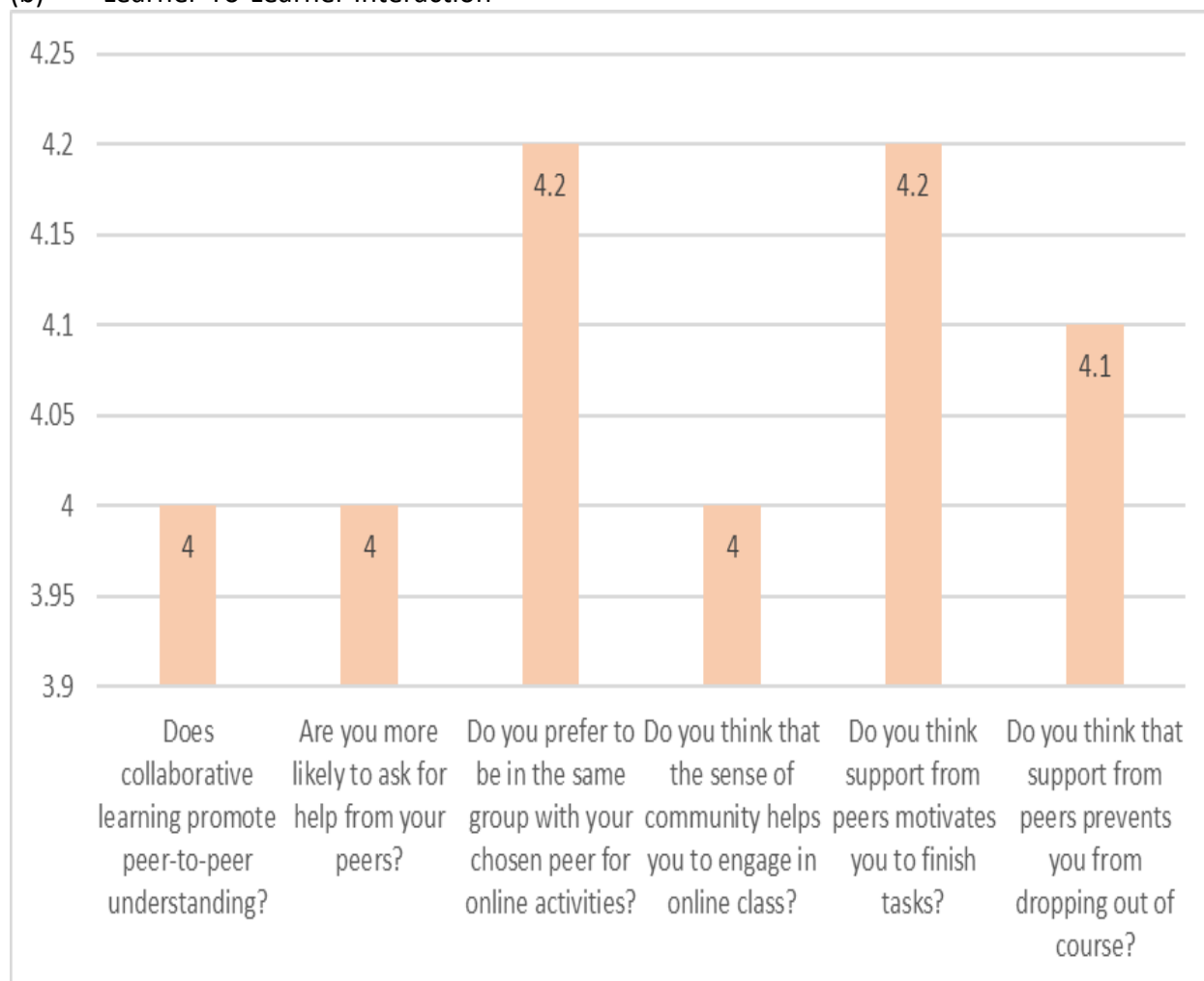
(b)     Learner-To-Learner Interaction



Figure 6: Mean for Learner-to-learner Interaction

Interaction between learners is crucial for online learning since it increases student engagement. Based on the findings in Figure 6, most of the participants prefer to be in the same group with their chosen peer for online activities and agree that support from peers motivates them to finish their tasks (M=4.2), whereas few of them think that support from peers prevents them from dropping out of the course (M=4.1). Lesser number of participants thinks that collaborative learning promote peer-to-peer understanding and they are more likely to ask for help from their peers (M=4.0). In addition to that, lesser number of participants also thinks that sense of community helps them to engage in online classes (M=4.0).

4.3    Findings for Storming

This section presents data to answer research question 2: How does storming have an impact on students' online engagement? In the context of this study, Storming involves interaction with More Knowledgeable Others.
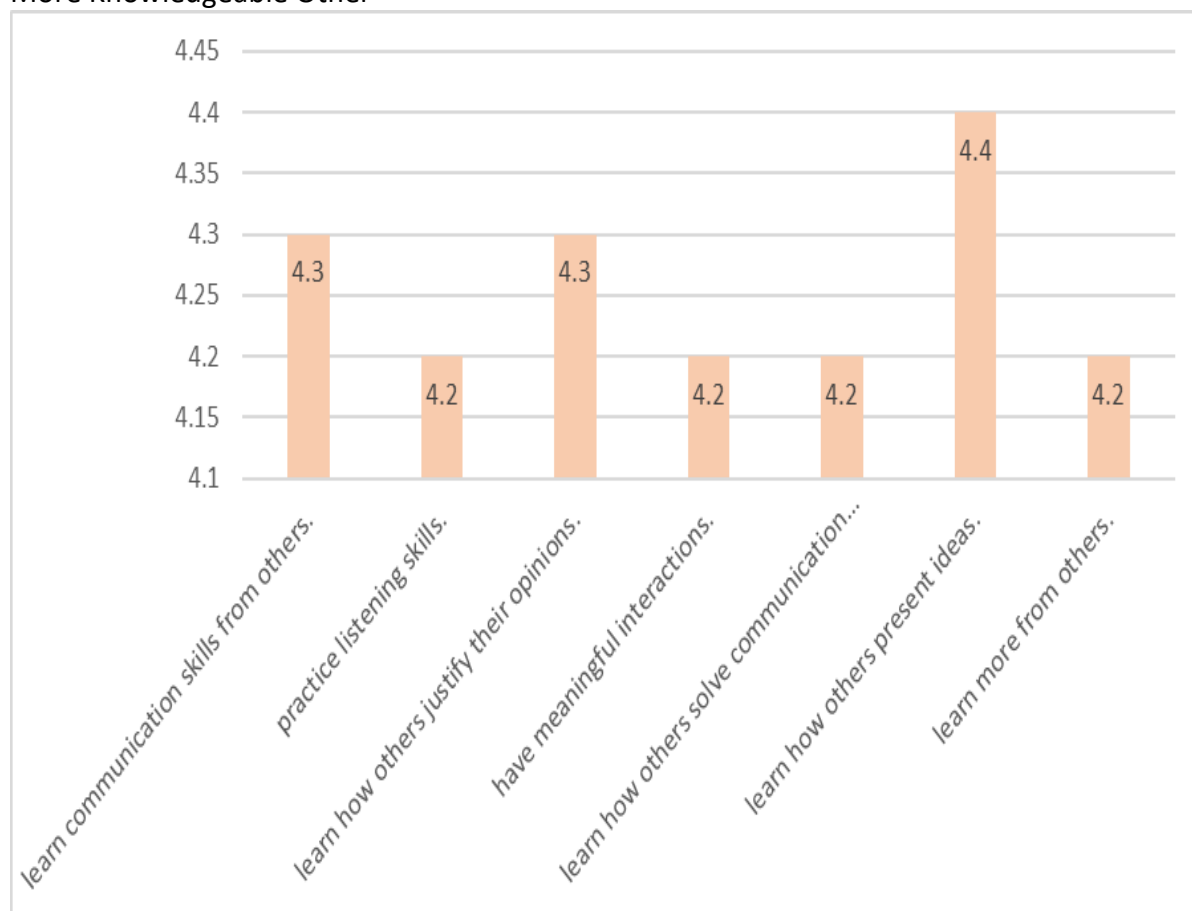
More Knowledgeable Other



Figure 7: Mean for More Knowledgeable Other

The items MKOQ1 to MKOQ7 are used to elicit findings on the impact of storming on students' online engagement. As can be seen on Figure 7, the highest mean representation (M=4.4) portrays the ability of participants to learn how others present ideas via storming. A slightly lower distribution (M=4.4) calculates for learning communication skills and justifying opinions of others as key takeaways from this second stage of group development. The least valuable skills (M=4.2) learnt from participants via group work are listening, having meaningful interaction, solving problems and other miscellaneous skills.

*Findings for Norming*
This section presents data to answer research question 3: How does norming have an impact on students' online engagement? In the context of this study, Norming is seen through Learner-to-Instructor Interaction.
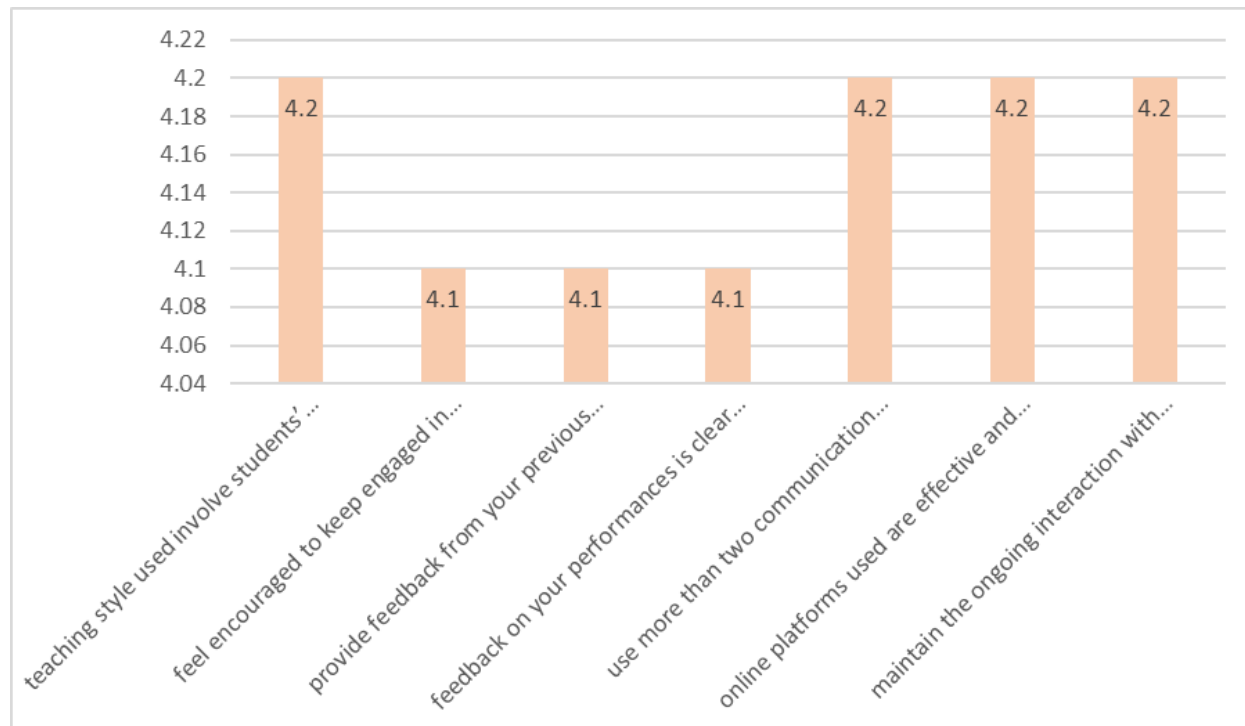
Learner-To-Instructor Interaction



Figure 8: Mean for Learner-to-Instructor

On the other hand, Figure 10 outlines the findings for Norming. Based on the mean values, most of the participants agree that their instructors encourage active engagement from the class and to keep in touch with students, their instructor uses more than two communication channels. The participants also agree that their instructor uses efficient and practical online platforms for their online class (M=4.2). In addition, the participants are of the same opinion that their instructor maintains the ongoing interaction with students after online class (M=4.2). However, fewer participants have thoughts that their instructor encourages them to remain active in the online classroom and provides feedback from their previous assessment as well as believe their instructor provides specific, positive feedback on their performances (M=4.1).

**Findings for Performing**
This section presents the data to answer research question 4: How does performing give an impact on students' online engagement? In the context of this study, performing is seen through Zone of Proximal Development and Learner-to Content Interaction.
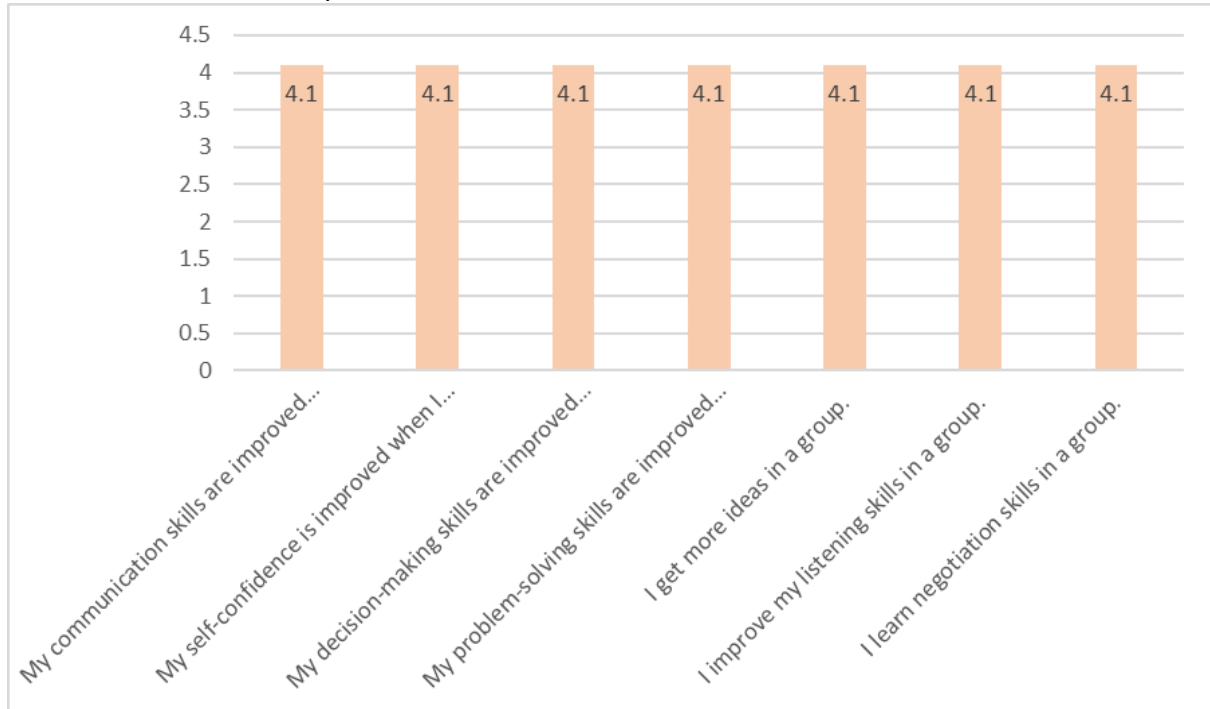
Zone of Proximal Development



Figure 9: Mean for Zone of Proximal Development

Figure 9 displays the mean for zone of proximal development. All seven items show a constant mean score which is 4.1 which means the participants agree to all statements. The participants agree that their communication skills, self-confidence, decision-making skills, and problem-solving skills are improved when they interact in a group. Group work also allows them to get more ideas, improve their listening skills, and learn negotiation skills.
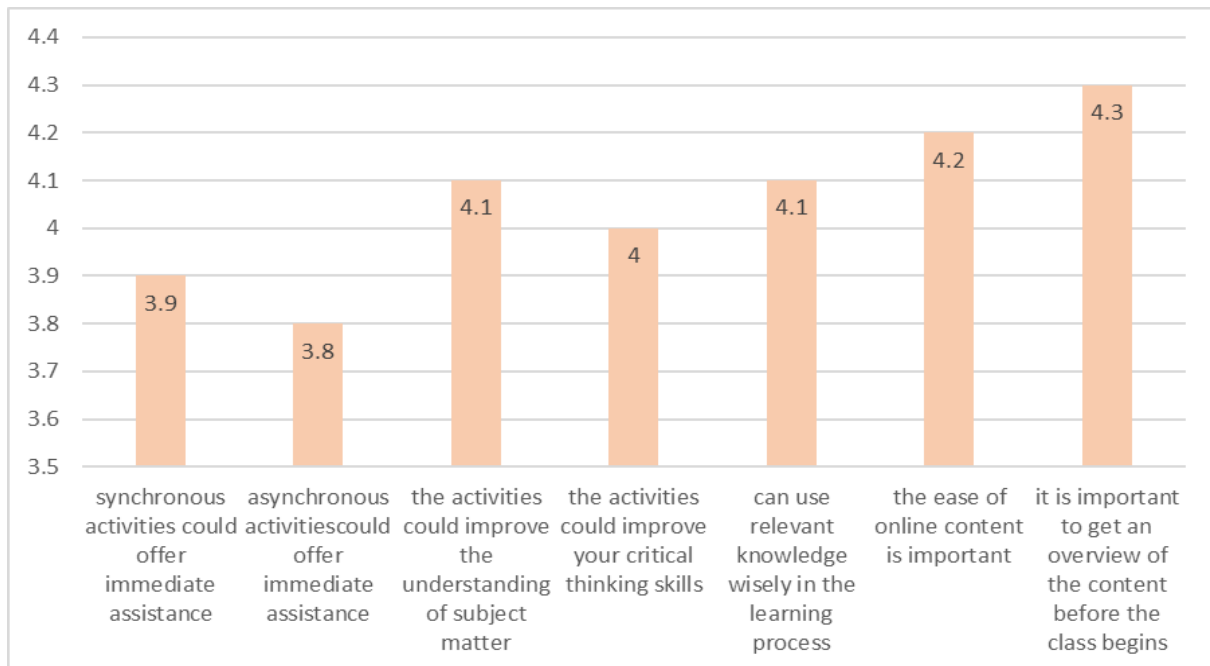
Learner-To-Content Interaction



Figure 10: Mean for Learner-to-Content Interaction

Figure 10 reviews the results for learner-to-content interaction. The highest mean of 4.3 indicates that most of the participants agree that it is important to get an overview of the content before the class begins. They also feel that the ease of the online content is important (M=4.2). The lowest mean of only 3.8 shows that the participants quite disagree that the asynchronous activities (i.e. assignment) could offer immediate assistance for them. It also shows no difference in synchronous activities which is recorded at 3.9.

**Conclusion**
*Summary of Findings and Discussion*

The study explores the impact on students' online engagement when working in a group. The findings for the first research question depicted that forming stage was portrayed in online group engagement through social interaction and learner-to-learner interaction. Findings indicated that group work facilitates the participants in social interaction. The respondents reacted positively towards how group work aids them in interacting with team members, adds more connections, and hence allows them to see different perspectives from others when working in a group. These motivate a learner to perform better in the online learning process. These findings support a study by Wildman et al (2021) that reported positive improvement was seen in communication among students when having online group work. Harianingsih et al (2021) also found that effective communication was achieved when online discussion among members occurs. However, this is contrary to Chang and Kang (2016) and Rojabi (2020) who reported that communication issues arise in completing work when in a group. Time zones variation, irresponsible group members, internet connection interruption, and language barriers have made it hard for successful communication to occur in an online group (Chang & Kang, 2016; Rojabi, 2020).

Next, in response to the second research question, it is shown that storming influenced online engagement through more knowledgeable counterparts in the group. According to Jones (2019) storming is when team members embrace the differences by self-change and produce self-skills abilities. Findings showed that the participants learn and improve several skills inspired by more knowledgeable team members. The storming stage positively benefitted the participants as they learn many aspects from the members. The respondents responded positively to the improvements they gain from working in a group. This is aligned with a study by Goni et al (2020) that reported that when participants successfully go through the storming stage, they are able to manage conflicts and gain benefits from the online group.

In addition, norming impacts the online engagement through learner-to-instructor interaction to answer the third research question. This means the online engagement is also depending on the instructors. This stage is associated with excellent teaching strategies, ongoing assessments and interactions that occur between students and instructor (Martin & Bolliger, 2018). The findings of this study indicated the participants reacted positively on the instructors' teaching styles, platform used, communication tools, and the feedback provided. Instructors still need to be actively involved in the learning process (Martin & Bolliger, 2018) to achieve a successful online group interaction even though mostly learners interact with their team members.

Lastly, performing can be seen affecting online engagement through the interaction between learner and content as well as zone of proximal development to answer the fourth research question. Findings discovered that the participant thought that having easy online content and getting overview of the content before the class starts, and online learning activities are critical to facilitate understanding and enhance the engagement during online

learning session. Additionally, the respondents showed positive improvements in their communication skill, self-confidence, decision-making skills, problem-solving skills, listening skills, negotiation skills, and getting more ideas. The findings are parallel to Situmorang (2021); Haugland et al (2021) where online group work developed understanding to complete task and provided contribution to achieve intended goals.

This study was based on the constructs of group work and online interaction and engagement. The group work online engagement is supported by group development model by Tuckman (1965). Generally, this study revealed that different stages of group development encourage the engagement of students during online learning. Not only among learners, instructors and content used also act as catalysts for engaging online group interaction.

*Pedagogical Implications and Suggestions for Future Research*

The findings of this study assisted educators and learners to recognise how forming, storming, norming, and performing have impacted students' online engagement. Based on the highlighted impacts of online engagement when working in group, instructors can take action to improve and design online group work learning activities that could engage the learners and enhance their interest to learn. The findings can be used as a guidance for educators to encourage and motivate the learners to be engaged in an online group work more comfortably and confidently. Apart from that, the findings of this research can also lead to the development of modules for teachers' training.

It is suggested that future research to use mix method design which also includes interviews to understand the learners' experience even more. Besides, it would be interesting if future researchers could explore the online engagement in group work and its effect focusing on any specific skills; i.e speaking skills.

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