

Designing Online Class using Discord based on Community of Inquiry Framework

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Abstract

COVID-19 pandemic changes the landscape of education, where online learning becomes very important and can not be avoided. Therefore, this article discusses how a gamer's platform, Discord can be used as an interactive online class. A comparison of Discord with other online platforms is spelled out in a tabular form. The principle used to design the online class using Discord is based on Community of Inquiry (CoI). CoI consists of three elements which are teaching presence, social presence, and cognitive presence for a better educational experience. The design discussed in this article are Discord features design for the online class and class activity using Discord in developing the three elements in CoI. Data collection is done using open-ended surveys. They are 58 respondents with engineering and non-engineering students. Most of the students are familiar with Discord and agreed that Discord can be adapted for an online class. Thematic analysis is conducted to analyze the open-ended questions. The themes that can be identified are parallel channels, structure, all-in-one platform, facilitation, and learning environment. Another analysis is message counts in each student group to show how active the students in online class using Discord. In conclusion, Discord is the best platform to make students active and construct knowledge with peers.

Keywords: Community of Inquiry, Online Learning, Constructivist Theory, Discord.

Introduction

Online classes can be categorized as full online classes or blended online classes. Whereas, full online class means all students are remote while blended online class refers to mix in-person group of students and online students (Innovation, 2020). The COVID-19 outbreak had affected the education landscape where all traditional classrooms need to be conducted online. Most of the educators and students are not ready physically and mentally. Although online learning has long been introduced, not all educators had implemented it before the outbreaks. Therefore five challenges have been identified which are self-regulation challenges (SRC), technological literacy and competency challenges (TLCC), students isolation challenges (SIC), technological sufficiency challenges (TSC), and technological complexity challenges (TCC) (Rasheed et al., 2020).

Students easily feel isolated and alienated because they do not have face-to-face interaction with their new peers in online classes. In addition, lack of confidence, poor writing or language barrier, connection difficulty, and lack of trust in the online community will make them fall into isolation and alienation as well (Rasheed et al., 2020). As a result, they will hesitate to participate in online classes.

Bao (2020) suggested six instructional strategies to improve online classes delivery methods for a smooth transition from the traditional classroom to online learning which are 1) prepare for unexpected problems during online classes; 2) develop teaching

content that last around 20-25 mins; 3) emphasizing "voice" because limited body language can be used during online classes; 4) working with teaching assistant to help unprepared students; 5) maintain active interaction outside class to provide feedback and 6) combining synchronous and asynchronous learning method.

The Community of Inquiry (CoI) framework has been introduced in education (R. Garrison et al., 2000) and identifies crucial aspects for a successful online class. Figure 1 shows the elements in CoI.

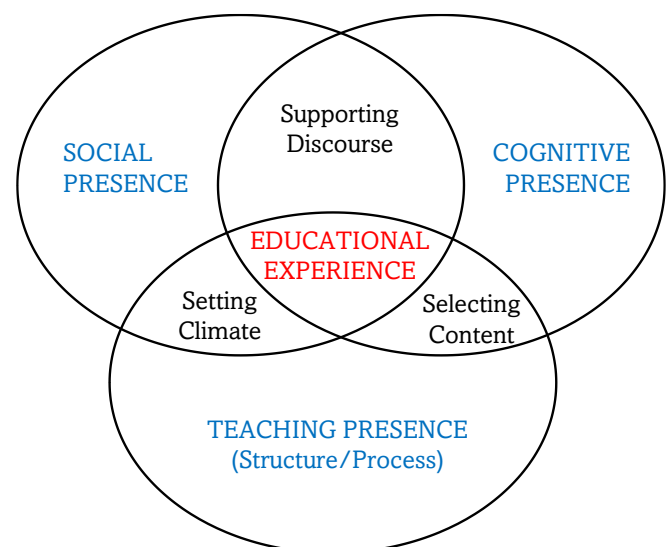


Figure 1. Community of Inquiry framework

CoI consists of three essential elements which are social presence, cognitive presence, and teaching presence that develop educational experience. Social presence creates open communication, group cohesion, and a trusted environment. Cognitive presence relates to learners who are able to construct and confirm meaning through the developmental phases of inquiry – a triggering event, exploration, integration, and resolution. The third element, teaching presence is linked with the design facilitation and direction of a community of inquiry. In summary, CoI is where “students listen to one another with respects, build on another’s ideas, challenge one another to supply reasons for otherwise unsupported opinions, assist each other in drawing inferences from what has been said, and seek to identify one another’s assumptions” (Lipman, 2003, p.20). CoI framework is based on the collaborative and individually constructivist learning experience.

The focus of this article is SIC. To overcome the challenges, CoI framework is referred therefore class design using Discord based on CoI framework is the main discussion in this article. The theory used is constructivism theory and will be discussed in the next section. Then, the introduction of Discord is introduced in the Discord section. After that, students' feedback will be discussed in the Findings & Discussion section before some concluding remarks.

Constructivism Theory

Constructivism is a learning theory that is based on the process of reflection and active construction in the mind to develop knowledge (Mascolo & Fischer, 2005). The key people who have contributed to the constructivism theories are Jean Piaget and Lev Vygotsky.

Piaget proposed individual cognitive structure where the focus is on the individual’s reaction to the experience and to the process through which understandings are formed. Piaget believed that the new information is developed based on the learner’s existing knowledge and modification of that existing knowledge.

Vygotsky introduced social constructivism which the focus is the interaction with others; knowledge is entirely viewed as a negotiated human construct. He believed that the origin of understanding is social. Vygotsky’s theory is based on two main principles which are the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD).

Social constructivism may occur in online classes through both synchronous and asynchronous using video conferencing, breakout rooms, forums, and class groups. CoI emphasis achieving social constructivism in online classes based on cognitive presence, social presence, and teaching presence. Yet educators play a

big role to demonstrate versatility and ability in online classes to tailor with the course outcomes because the quality of teaching can not be compromised.

Discord

The COVID-19 outbreak had affected Malaysia when the first case was reported in January 2020 and the number rose abruptly in early March 2020. Consequently, the Malaysian Government announced a Movement Control Order (MCO) on March 18, 2020 to help the Ministry of Health keep the spread and deaths under control (Shah et al., 2020).

Due to that reason, educators need to conduct online classes. In Mac 2020, the online classes had been conducted using Google Meet, Moodle, and WhatsApps. The synchronous class was conducted using Google Meet, all learning materials were posted in Moodle and WhatApps to connect with all the students asynchronously. Based on that practice, the problem with these technologies is that no social presence during synchronous class. Sometimes educators feel alone talking on Google Meet. Furthermore, when everybody goes online, Moodle servers always have a problem to be accessed. Therefore, educators need to plan for a backup situation. WhatApps group is created for each class but missing community features like conversation moderation, a stated commitment to inclusion, and expert assistance (Farah & Eagle, 2021). Due to this deficiency, Discord was suggested by a student in class feedback and reflection for interactive online learning.

Discord had been explored since June 2020 and it is found that Discord was introduced in 2015 for the social gaming platform. It is a free application incorporating text chat, voice, and video. It can be accessed via desktop app, mobile app, and web app. Comparative online platforms that are commonly used for online classes are spelled out in a tabular form in Table 1.

Based on Table 1, two interesting Discord features are a multiplayer screen and a parallel channel. The multiplayer screen feature allows more than one person to share their screens thus students can easily share screens and compare their works. On the other hand, the parallel channel feature makes the conversation between students-students and students-instructor become never-ending and educators can observe as well as assist each group of students throughout the semester. Due to this reason, it is believed that teaching presence, social presence, and cognitive presence can be achieved.

Discord features have been listed in Table 2 while Figure 2 illustrates multiplayer screen features and parallel channels.

Table 1. Comparative features of different online platforms

Features	Zoom	Webex	Google Meet	WhatsApp	Telegram	Facebook	Discord
Desktop + Mobile Messaging	√	√	√	√	√	√	√
Individual text message	√	√	√	√	√	√	√
Multiplayer screen	X	X	X	X	X	X	√
Parallel channel	X	X	X	X	X	X	√
Restriction on the number of users	Depend on package	X	X	256	200k	X	X

Table 2. Discord features

Features	Functions
Servers	Spaces that can be used as an online classroom.
Category	Allows managing multiple channels in the same category.
Channels	
Text	Spaces to post messages, upload files, share images and can be assessed at any time.
Voice	Spaces to conduct an online class and students can talk and collaborate.

Class Design

In this section, the implementation of Discord in the online class from October 2020 until present day will be shared. The improvements that have been made will be discussed. Discord was first implemented in Introduction to Scientific Programming, Capstone, and Graduate Success Attributes courses in Semester 2020/2021-01. Then, continued in the following semester for Electromagnetic Field Theory course and now in the Signals & Systems and again Graduate Success Attributes courses.

In the first year of implementation, Discord is used to replace Google Meet and WhatsApp groups. All learning materials were posted in Moodle. Figure 3 shows the Discord display in the Introduction to Scientific Programming online class.

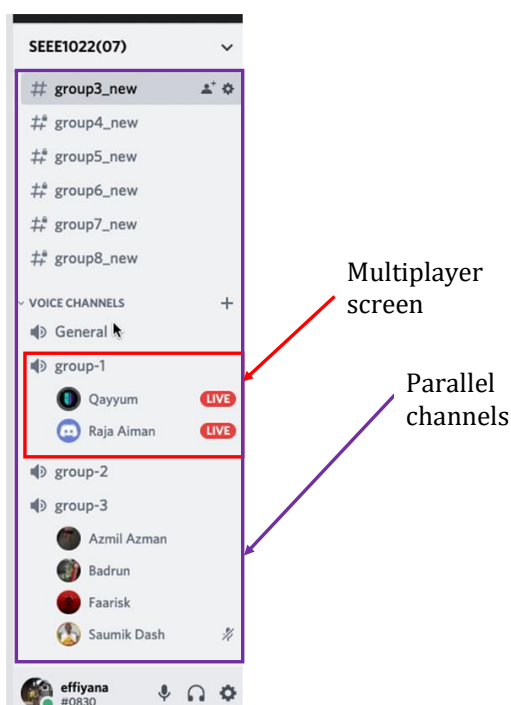


Figure 2. Advantages of Discord

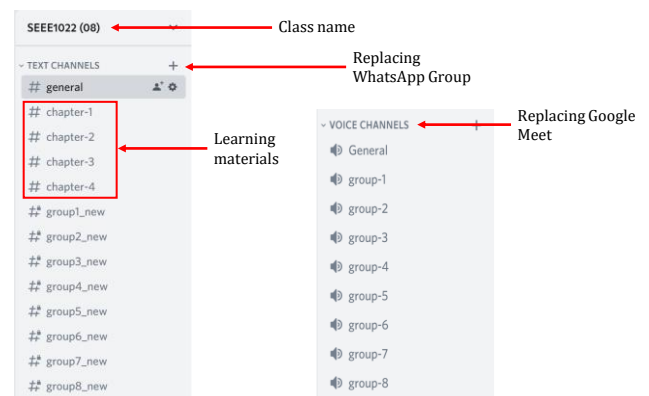


Figure 3. First-semester implementation

As can be seen in Figure 3, the Class name SEEE1022(08) is known as Discord server. Under this class, text and voice channels were created for each students' group, labeled such as group1_new for the text channel and group-1 for the voice channel.

The text channel for each group acts as a WhatsApp group and now easy for an educator to monitor all their students. Compared to the previous semester when the WhatsApp group was used, only one group was created for all students thus students created their own

WhatsApp group for group assignment. A problem occurred, when there is a member who did not contribute to the group assignment. It was difficult to show evidence and monitor on this issue throughout the semester. On the other hand, Discord is more organized compared to WhatsApp.

Other channels were created named as chapter-1 until chapter-4 for discussion based on the chapter. However, it did not work as no students posted in that channels. Nevertheless, they love to discuss within their small groups.

After a year of implementation, improvement has been done and a model is proposed in Figure 4. Discord is combined with Google for teaching and learning activities during online classes. One class server consists of several categories as depicted in Figure 5.

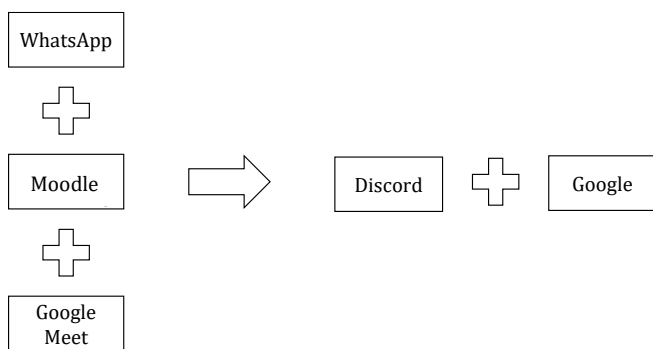


Figure 4. Online learning model using Discord

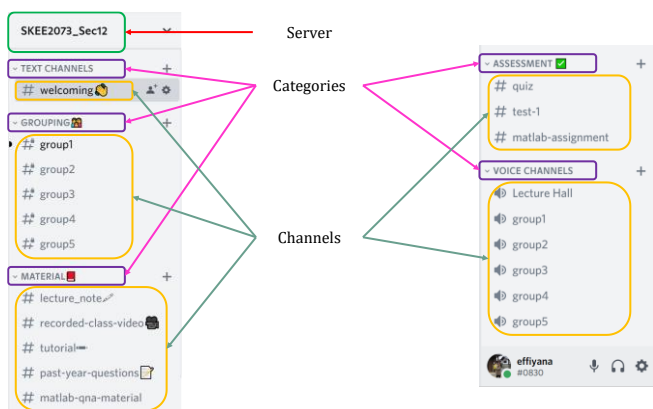


Figure 5. Class design in Discord

As can be seen in Figure 5, four text categories are created; Text Channels, Grouping, Material, and Assessment. Emoji has been added to make the appearance interesting compared to the first design in Figure 3. Due to this, Moodle is not the main platform to share the learning materials. Furthermore, class planning is not affected anymore because everything can be controlled by an educator.

In the welcoming channel, all students who entered the server will be greeted (Figure 6).

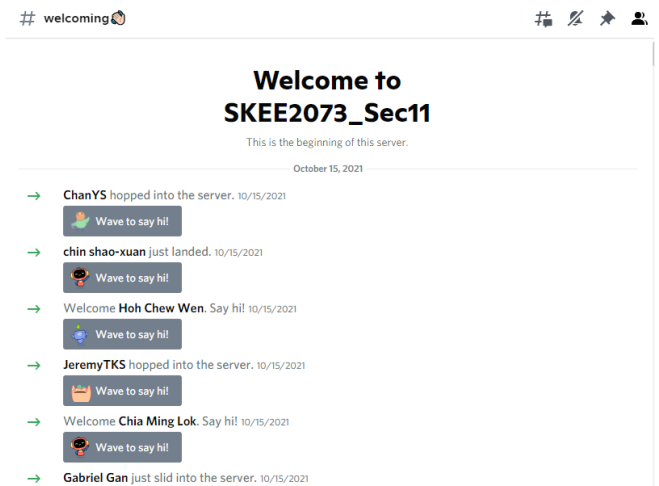


Figure 6. Welcoming message in class server

Under the grouping category, private groups for each students group have been created. Each group channel is set to private, thus only members of the group can view the channel. In this case, five groups are created, and each group consists of three to four students as illustrated in Figure 7. An educator can view all the channels because the educator is the admin of this server. A teaching assistant can be assigned as admin in the class server as shown in Figure 7.

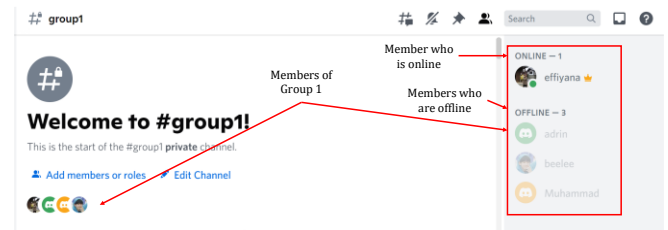


Figure 7. Private group

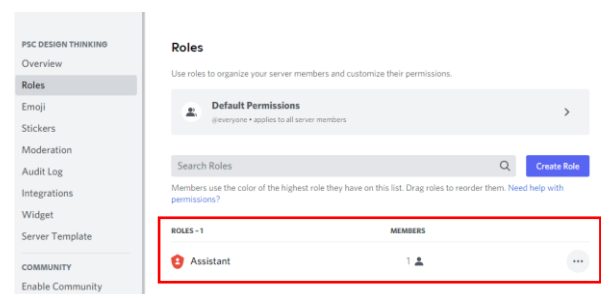


Figure 8. Adding another admin to the class server

In the material category, five channels are created related to the course materials and the students do not need to log in to the Moodle platform anymore. In the assessment category, channels related to assignments such as quiz, test and assignment are created. During the assessment, students will focus on the specific channel to get information about the question, the password to open the question, and the Google form link for assessment submission. Therefore, the information does not mix up with others, even structured.

In the voice channel category, one voice channel is created as a lecture hall for lecturing, and another five group channels for each students group. The voice channel is opened so that students are free to move from one voice channel to another voice channel for discussion. This is how Discord is designed for an interactive online class.

The activities that have been implemented in the online class to support teaching presence, social presence, and cognitive presence have been tabulated in Table 3.

Findings and Discussions

Data were obtained from 58 students who use Discord in class and participated in a brief survey. Only 19 respondents were new to Discord; 10 non-engineering students and 9 engineering students. Non-engineering students thought it was difficult to use Discord for the first time but engineering students felt fun and comfortable using it. From this finding, it is

suggested to prepare an introductory video to help the new users to use Discord for the first time especially for students who are non-engineering backgrounds. Respondents who had experience with Discord before joining the class, usually use it for gaming and entertainment such as watching movies together with their peers. One respondent commented, "I never think that this gaming platform can be used for the online classroom."

Open-ended questions have been included in the survey. The questions are:

1. Do you think that Discord is useful for teamwork experience? Why?
2. Do you think that Discord helps you to engage with your instructor and peers? Why?
3. Do you think that Discord motivates you during online classes? Why?

Thematic analysis has been used to analyze the open-ended questions. Table 4 demonstrates the themes and codes identified.

Table 3. Activities design to support CoI

CoI Elements	Activity	Description
Social presence	Ice-breaking	In the first meeting with the students, they will be informed about teaching philosophy and the role that is expected from them in that course. After that, they will be assigned into a group consisting of three to four students and the group are permanent throughout the semester. In Discord, they are assigned to the private text channel based on their group number. Then, the students need to introduce themselves to their group members using group voice channels and creating group rules in Jamboard. After they finish this round, they will randomly join other voice channel groups to virtually meet with their peers.
Cognitive presence	Tutorial	The students are given questions that from books, quiz, test, or past year final examinations. Sometimes the same questions are given to all the groups and sometimes two groups are assigned with the same questions. Each group needs to prepare the answer in Google Docs or Google Slides. After each group is done with their solution, they moved to another group for discussion to check whether their understanding is correct or not. The educator joined the discussion and checked their understanding. If they have a misconception, the educator can help the students by prompting questions that can help them to construct a correct understanding. The educator tries to avoid giving solutions or answers directly. After each session, students need to write their reflections based on the activities and understanding.
Teaching presence	Design and organization	Teaching presence is related to design and organization, facilitation, and direct instruction (D. R. Garrison, 2011). Discord and all the activities are designed to support teaching presence, where the educator act as a facilitator rather than giving direct instruction to the students. Furthermore, the educator created one Google Drive for each group and shared the link in each private group text channel, then the link is pinned. It is easier for the educator to facilitate students' works or activities and students have easy to access them too. All elements can be organized systematically in Discord.

Table 4. Theme and codes identified

Themes	Codes
Parallel channels	<ul style="list-style-type: none"> • Group class activity • Private group discussion • Group class monitoring • Media sharing in the channel throughout the semester • Join or leave a group without interrupting the whole class • Easy to chat and listen at the same time • Reactions for selected messages in the text channel
Structure	<ul style="list-style-type: none"> • Easy to navigate • Less group created • Creating guideline channels • Organize in different categories
All-in-one platform	<ul style="list-style-type: none"> • No need to create a meeting link • Join a meeting, send documents and images, and discuss in Discord
Facilitation	<ul style="list-style-type: none"> • Easy to talk with the instructor • Instructor join group channels to give suggestions or recommendation • Immediate ask instructor in the private group channel • Use tagging to call instructor for help • Instructors can monitor all groups at the same time • Track assignment progress • The instructor makes sure students are on track
Learning environment	<ul style="list-style-type: none"> • Easy to communicate with peers • No more free riders • Feel like a classroom • Class more fun • Feel relaxed because can do homework while listening to the music • Community of people in the server • Motivate to study when realizing other members in the channel

The themes and codes identified in Table 4 shows teaching presence, social presence, and cognitive presence are created during the online class (D. R. Garrison, 2011). In addition, the educators do not feel lonely anymore in the online classes.

Another data that is analyzed is message counts in each group in the Signals & Systems course. The reason is to share how active the students communicate during synchronous and asynchronous classes. This group discussion is better than a forum in Moodle because it is a casual discussion.

The data was collected from mid-October until mid-December 2021 and reported in Figure 9 for Section 12 and Figure 10 for Section 11.

Besides monitoring group discussion, individual messages in the group can be analyzed in Discord. Therefore, the educator can detect who is not communicating with other members of the group. Then, private message will be sent to the student personally, asked his/her problem, and will be advised accordingly.

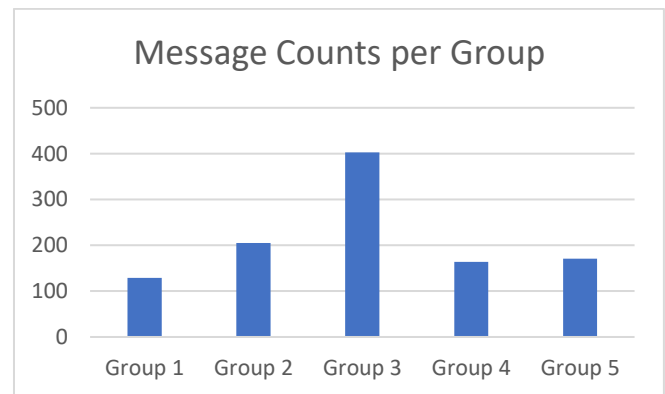


Figure 9. Message count in Section 12

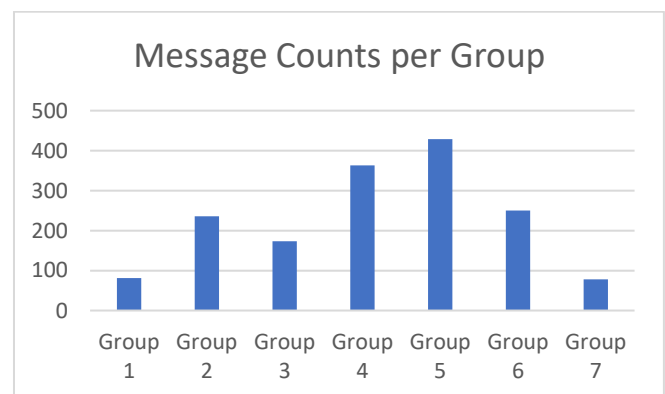


Figure 10. Message counts in Section 11

The message counts reflect the class attendance. Groups that have less than 100 messages are facing a problem with members who are always absent from the class. By knowing this, the educator can contact those students privately and monitor their improvement.

Conclusion

Online learning is different from traditional learning. Therefore, it is not simply converting traditional class activities into online class activities. An appropriate theory of learning should be referred to.

CoI framework has been used to design Discord for online classes. The CoI framework is based on constructivism theory. It means that a platform that can help to construct students' understanding based on social interaction is needed. Based on the two interesting Discord features which are multiplayer screen and parallel channels, Discord is chosen for the online classes.

Based on the findings, Discord is an all-in-one platform that makes educators' and students' online classes more interactive and fun. The learning environment in Discord makes students feel as in a class.

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