Revisiting the Online Classroom: A Study on Instructors and Peers Affecting Students' Engagement

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ABSTRACT

Coronavirus pandemic has changed the classrooms globally. Due to the pandemic, the online classroom plays a vital role in education systems instead of the traditional classroom. However, there are some difficulties that learners have to deal with which affect their satisfaction and engagement. This study aims to survey the critical aspects of instructors and student peers on the students' engagement. In particular, interactions (instructor-student interaction and peer interaction), social presence, and communication channels that meet students' needs to foster effective online learning were observed. The online questionnaires were used to capture student attitudes, experience, and broad insights into synchronous online learning. Results suggested that interaction with instructors and peers tended to positively impact students' engagement ($\bar{x}$ = 4.49, S.D = 0.82, and $\bar{x}$ = 4.02, S.D = 1.12, respectively). Moreover, instructor presence tended to have a higher impact on students' engagement than peer presence ($\bar{x}$ = 4.00, S.D = 1.24 for the instructor presence, and $\bar{x}$ = 3.36, S.D = 1.30 for the peer presence, respectively). Finally, it was found that the most favorite communication channels with instructors were chat applications (i.e. Line), e-mail and mobile phones, respectively. Additionally, the favorite communication channels with peers were chat applications (i.e. Line), social media (i.e. Facebook and Instagram), and mobile phones. These study findings should benefit the classroom design on choosing suitable activities and interactive tools to increase student engagement in an online learning environment.

Keywords: *online classrooms, social presence, interaction, students' engagement, students' perspective*

INTRODUCTION

Online learning has shown significant growth over the last decade, especially in the current situation of the coronavirus (or the COVID-19) pandemic. Online learning or distance learning suddenly shifts students away from a physical to an online classroom to continue their study safer in the current lockdown. In response to the significant demand for online learning, many companies offer their services and technology to support online classrooms. However, not only the technology itself to make effective learning but also the institutions, policies, and classroom design that are in place.

The massive scale of changing from a traditional classroom to an online classroom leads to various difficulties for both instructors and learners who might experience an online classroom for the first time due to the pandemic. Many online classrooms face challenges of students' engagement compared to a physical classroom. This could cause students to pay less attention to a class, withdraw the subjects, and dropouts (Youngju & Jaeho, 2011, Bardh et al., 2020). Furthermore, some lecturers might have no idea to manage a classroom flipping from a face-to-face classroom to an online environment. Therefore, it is an excellent start to understanding what factors affect students' satisfaction and engagement, especially in the online learning environment. Knowing those factors will help instructors decide on teaching activities and tools to effectively facilitate the teaching class.

Research has shown that a good learning environment and interactions are connected to higher students' satisfaction and engagement (Roach & Lemasters, 2006, Farrell & Brunton, 2020). Students' satisfaction and engagement were considered to be essential indicators of the quality of academic experiences. It was found that interactions with instructors (instructor-to-student interactions) and peers (student-to-student interactions) could have a positive impact on learning satisfaction (Roach & Lemasters, 2006). However, there is a lack of research that has goals to indicate the interactions that serve students to participate in online learning. In addition, social presence or "the sense of being there with someone" is also founded to influence students' satisfaction and engagement. Social presence was profoundly shaped through interaction (Garrison & Cleveland-Innes, 2004).

Therefore, this study examined the critical aspects of instructors and student peers, who have direct interaction, in an online classroom and their impact on students' engagement. This study will focus mainly on the interactions mentioned by students to increase their study engagement. Furthermore, this study surveyed the effects of social presence between instructor-student and student-student on student's engagement. Finally, the most favorite communication channels with instructors and peers will be examined. The findings of this study could be helpful in online interaction design for instructors and could be fundamental for designing online classroom tools or systems that foster students' engagement.

This paper will highlight the theoretical framework, research methodology, and discussions as follows.

THEORETICAL FRAMEWORK

ONLINE LEARNING

Although both online and physical classrooms have some advantages and disadvantages, a lot of students tend to prefer a face-to-face learning environment rather than an online learning environment (Orton-Johnson, 2009), especially when they want to share understanding with others or to discuss course content because they feel more engaged with the class, gain more immediate feedback and increase more profound knowledge of the course content (Paechter & Maier, 2010, Kemp & Grieve, 2014).

Online learning, however, provides students with a safer way to continue their education in this pandemic situation. Moreover, online learning has many benefits, such as convenience and flexible classes. Online learning gives learners the flexibility to study on a schedule that fits their time (Crews & Butterfield, 2014).

Online learning/teaching could be separated into a synchronous and asynchronous mode (Murphy et al., 2010). Synchronous online teaching could be defined as teaching that allows people to connect instantly at the same time in different places using video or audio conferencing. In contrast, asynchronous online teaching will enable students to learn with class materials on their own time, under the guidance of an instructor. The examples of asynchronous online teaching are many classes in the Massive Open Online Course (MOOC). From the definitions, synchronous online teaching is more like a physical classroom than asynchronous online teaching. This study uses Google Meet, which is easy and famous to create a classroom in the synchronous online teaching environment.

Both traditional and online classroom (asynchronous or synchronous online teaching), instructors and learners (students) are the two main roles to interact in the class. Thus, this study will mainly emphasize the interactions with instructors and students as described in the next section.

THE IMPORTANT ASPECTS OF INSTRUCTOR AND STUDENT PEERS

Instructors and student peers play essential roles in an online classroom. Farrell and Brunton (2020) found that online students' engagement was influenced by peer community, instructors 'support, and students' balancing life commitments, confidence, and approach to learning. Students' engagement influences student learning achievement and success. It could be defined as "a student's emotional, behavioral and cognitive connection to their study." (Kahu et al., 2014). A sense of community could promote a connection to the study, which could be developed by establishing interactions in the course and social presence (Buck, 2016). The following aspects, interactions and social presence are studied as crucial factors influencing students' engagement.

Interactions:

There is no doubt that interaction with instructors could increase learning effectiveness (Parahoo et al., 2015, Farrell & Brunton, 2020). However, the research showed that interaction with peers could also increase students' satisfaction and perceived learning in distance learning (Swan, 2001, Parahoo et al., 2015).

Interactivity is not only focusing on user interfaces or technological considerations but also involves the design of the learning environment and user experience. The various communication tools within online learning management systems raise instructor-to-student and student-to-student interactions. Rourke et al. (2001) separated three forms of interaction in a classroom, including interaction with content, interaction with instructors and interaction among students. Interaction with instructors and interaction among students is commonly more predictive of students' satisfaction in learning than interaction with content (Parahoo et al., 2015). Thus,

interaction with instructors and among students (peers) as direct interactions in the classroom will be observed in this study.

Social Presence:

Social presence could be defined as "the sense of being there" or "the sense of being there with others" (Lin et al., 2008). It was found that social presence either with instructors or with other students was positively correlated to the learning experience (Swan, 2001). Teaching presence, including acknowledging students' work, monitoring and participating in the discussion, and giving feedback to students, was crucial to encourage students in online learning (Goh et al., 2017). Furthermore, a sense of belonging to a community of learners could decrease a feeling of isolation and increase retention of online courses (Farrell & Brunton, 2020). The research showed a positive correlation between social presence and perceived learning and learner satisfaction (Richardson & Swan, 2003, So & Brush, 2008). Thus, social presence may increase students' engagement. In addition, it was suggested that some mediums such as videoconferencing or telephone could enhance social presence more than other text-based mediums such as e-mail. The media higher in social presence are more efficient for relational communication and relationships (Calefato & Lanubile, 2010). This study will observe the influence of instructor presence and peer presence on students' engagement.

METHODOLOGY

An open-ended questionnaire was used to collect student responses because this quantitative method allows more insight into students' knowledge and permits a comprehensive collection of student responses without bias (Nehm & Schonfeld, 2008). In addition, a five-point Likert scale for agreement with options ranging from strongly disagree and strongly agree was used to quickly assess student perceptions, and the six open-ended questions were asked to gain more deep understanding:

1. Do you think instructors are essential to impact class engagement, and how?
2. Do you think instructor presence is essential to impact class engagement, and how?
3. Do you think that peers are essential to impact class engagement, and how?
4. Do you think peer presence is essential to impact class engagement, and how?
5. What are the three most favorite communication channels with your instructors?
6. What are the three most favorite communication channels with your peers?

Profile of Respondents

Participants were 53 undergraduate students as convenient samples (N=53) from a mix of freshman and super senior-level courses in the Liberal Arts and Science faculty, Kasetsart University. There were 25 (47.2%) males and 28 (52.8%)

females who participated in the study. All respondents have experience in online learning.

Setting

The learning environment in this paper was in a Google classroom that uses Google meet as synchronous online teaching where students and instructors have direct interaction. Google meet is a tool that the university has the license to operate.

The results of the open-ended questionnaires and discussions will be presented in the next section.

RESULTS AND DISCUSSIONS

In this section, the results will be analyzed and reported into separate topics as follows:

The Importance of Instructors

According to students who experience in an online classroom, instructors tended to strongly impact students' engagement ($\overline{x}$ = 4.49, S.D = 0.82). Moreover, the responses mentioned some qualities of instructors that influenced students' engagement: encouragement and support, personality, explanation skills of instructors, providing a good activity in the class, and time management skills, as shown in Table 1.

Table 1: The Important qualities of Instructor affecting Students' Engagement (N=53students)

Qualities	Sample Student Comments
Encouragements and Support (n=15, 28.30%)	-"Instructors, who pay attention and understand students, could encourage students to study." -"If lecturers give a supportive learning experience to their students, it will encourage them to participate and ask more questions in the class."
Personality (n=12, 22.64%)	-"A good tone of voice of instructors and their personality could encourage students to study." -"Some students want to attend a class with instructors who have good personalities and good characteristics."
Explanation Skills (n=9, 16.98%)	-"Instructors who have a clear explanation of a class content and homework could encourage students' engagement." -"Instructors who give a good explanation about practical case studies could help students to understand the class content clearer."

Providing a good activity in the class (n=9, 16.98%)	-"The classes that provide question and answer sessions could help students to understand the class content." -"Discussions on classroom case studies could promote understanding the content of the lessons." -"Lecturers should give feedback for each assignment/homework."
Time Management Skills (n=2, 3.77%)	-"Lecturers should use a productive amount of time for teaching and taking breaks in between."

N is the total number of students
n is the number of students mentioned about the qualities. Some students did not respond to all questions on the surveys.

From the results, instructors' qualities, including their support, personality, and skills, influenced class engagement. Furthermore, the respondents mentioned that the activities (or interactions) which promote understanding of the class content, for example, providing a question and answer session, discussing a case study, and giving feedback for assignments, could enhance their engagement. Therefore, if the instructors choose these activities and the right tools to interact with students, they are likely to pay more attention to the class.

Instructor Presence:
Instructor presence tended to have strong impact on students' engagement ($\overline{x}$ = 4.00, S.D = 1.24). Some students mentioned that "Instructor presence, especially when the lecturers turned on their cameras make the class more interesting and students will stay more focused in the class." This result is congruent with what mentioned in the research of Swan (2001) stated that teachers' verbal behaviors such as giving praise and soliciting viewpoints and nonverbal behaviors such as touch, eye contact, facial expression and gestures could lessen the psychological distance between themselves and students which lead to greater learning.

The Importance of Peers
According to students' experience in the online classroom, student peers were likely to strongly impact students' engagement ($\overline{x}$ = 4.02, S.D = 1.12). Moreover, the responses mentioned the importance of peers in sharing information and discussion, encouraging them to study, making them feel like part of a community, and helping them do a group assignment, as shown in Table 2.

Table 2: The Important qualities of Student Peers affecting Students' Engagement
(N=53 students)

Qualities	Sample Student Comments
Sharing information and discussion (n=17, 32.08%)	-"We cloud share some class information and have a class discussion with friends." -"I prefer first to ask my classmates about the class content more than go directly to ask lecturers."
Encouraging to study (n=12, 22.64%)	-"A good friend could encourage me to study." -"To have friends in the class could help reduce boredom."
Being part of a community (n=9, 16.98%)	-"With friends, I do not feel alone in a class." -"It is more relaxed and fun to study with friends."
Doing group assignment (n=9, 16.98%)	-"Friends are important, especially when working on an assignment." -"We can collaborate and consult friends about group work."

N is the total number of students
n is the number of students mentioned about the qualities. Some students did not respond to all questions on the surveys.

From the results, it can be seen that the impact of peers tended to have less impact on students' engagement ($\overline{x}$ = 4.02, S.D = 1.12) compared to instructors ($\overline{x}$ = 4.49, S.D = 0.82). However, interactions with peers could encourage students' engagement in sharing class information, discussing, encouraging, being part of a community, and collaborating in group assignments. Therefore, if the online classroom systems provide tools to support discussion and collaboration among students, it could increase online learning success.

Peer Presence:
Peer presence tended to have some impact on students' engagement ($\overline{x}$ = 3.36, S.D = 1.30). Some students mentioned that "when they saw their friends concentrating on the class, it made them pay more attention to the class too." However, some students mentioned that "peer presence could also cause distractions in a classroom."

These results showed that peer presence had less impact on class engagement ($\overline{x}$ = 3.36, S.D = 1.30) compared to the instructor's presence ($\overline{x}$ = 4.00, S.D = 1.24). Thus, instructor presence, especially turning on their cameras in an online classroom, could raise the sense of connecting when teaching. However, for students, instructors should leave choices to design to turn their cameras on or off when in a classroom. Concerning their privacy, some students mentioned that "instructors should not force them to turn their cameras on when participating in a classroom".

The Favorite Communication Channels with Instructors and Peers

From the 53 respondents, the three most favorite communication channels with instructors were chat application (i.e. Line) (n=39, 73.58%), e-mail (n=23, 43.40%) and mobile phones (n=18, 33.96%), respectively. The three most favorite communication channels with peers were chat application (i.e. Line) (n=36, 67.92%), social media (i.e. Facebook and Instagram) (n=22, 41.51%) and mobile phones (n =18, 33.96%), respectively.

As can be seen from the results, although a classroom system like Google Meet provides an instant chat application in the class, students prefer to communicate with their instructors and peers after class using those chat applications, e-mail, social media, and mobile phones. It is a hard job for instructors to communicate with students after class. Therefore, if they could use tools like e-tutors or have some facilitators to help them answer, discuss, and give students feedback, they could have more time to create more creative activities and content for the class.

CONCLUSIONS

The findings of this study suggest that the interaction with instructors and peers influenced students' engagement. The activities or interactions with instructors to enhance the student understanding of the class content, including establishing question and answer sessions, discussing a case study, and giving feedback for an assignment, tended to increase students' engagement. The interactions with peers also influenced students' engagement, including sharing class information, discussing, encouraging, and collaborating in group assignments. In addition, the social presence of instructors and peers tended to increase students' engagement in the classroom. However, instructor presence was likely to have a more significant effect on students' engagement than peer presence.

Moreover, the results suggested that after class contact with instructors and peers was essential for students in online learning. The preferred communication channels with instructors are chat applications (i.e. Line), e-mail and mobile phones. Additionally, the preferred communication channels with peers are chat applications (i.e. Line), social media (i.e. Facebook and Instagram), and mobile phones. The contribution of the study is twofold. First, the results could help instructors design the classroom activities, tools, and interactions with their students. Second, the software designers could capture some students' requirements to create interactive features for an online classroom.

LIMITATION

This research has several limitations, including convenience sampling and low response rates. However, the results could be beneficial for instructors and designers to design activities and systems in an online classroom environment. More participatory design methods should be applied to gain more knowledge to create an effective online learning classroom.

REFERENCES

Bardh, P., Giovanni, S., & Lorenzo, M. (2020). Challenges and Solutions to the Student Dropout Prediction Problem in Online Courses. In Proceedings of the 29th ACM International Conference on Information & Knowledge Management (CIKM '20). Association for Computing Machinery, New York, NY, USA, 3513–3514.
DOI:https://doi.org/10.1145/3340531.3412172

Buck, S. (2016). In their own voices: Study habits of distance education students. Journal of Library & Information Services in Distance Learning, 10(3–4), 137–173. https://doi.org/10.1080/1533290X.2016.1206781

Calefato, F. & Lanubile, F. (2010). Chapter 6- Communication Media Selection for Remote Interaction of *Ad Hoc* Groups. Advances in Computers. 78, 271-313.

Crews, T. & Butterfield, J. (2014). Data for Flipped Classroom Design: Using Student Feedback to Identify the Best Components from Online and Face-to-Face Classes. Higher Education Studies. 4(3), 38-47.

Farrell, O. & Brunton, J. (2020).A Balancing Act: a Window into Online Student Engagement Experiences. International Journal of Educational Technology in Higher Education. 17(25). https://doi.org/10.1186/s41239-020-00199-x

Garrison, D. & Cleveland-Innes, M. (2004). Critical factors in student satisfaction and success: Facilitating Student Role Adjustment in Online Communities of Inquiry. Elements of Quality Online Education: Into the Mainstream. 29-38.

Goh, W., Ayub, E., Wong, S. Y. & Lim, C. L. (2017). The Importance of Teacher's Presence and Engagement in MOOC Learning Environment: A case study. In Proceedings of 2017 IEEE Conference on e-Learning, e-Management and e-Services (IC3e). 127-132, DOI: 10.1109/IC3e.2017 .8409250

Kahu, E. R., Stephens, C., Zepke, N., & Leach, L. (2014). Space and time to engage: Mature-aged distance students learn to fit study into their lives. International Journal of Lifelong Education, 33(4), 523–540.
https://doi.org/10.1080/02601370.2014.884177

Kemp, N. & Grieve, R. (2014). Face-to-face or face-to-screen? Undergraduates' Opinions and Test Performance in Classroom vs. Online Learning. Frontiers in Psychology. 5, 1-11.

Lin, Y.M., Lin, G. Y., & Laffey, J.M. (2008). Building a Social and Motivational Framework for Understanding Satisfaction in Online Learning. Journal of Educational Computing Research. 38(1), 1-27

Murphy, E., Rodríguez Manzanares, M. & Barbour, M. (2010). Asynchronous and Synchronous Online Teaching: Perspectives of Canadian high school

distance education teachers. British Journal of Educational Technology. 42. 583 - 591.

Nehm, R., & Schonfeld, I. (2008). Measuring knowledge of natural selection: A comparison of the CINS, and open-response instrument, and oral interview. Journal of Research in Science Teaching. 45(10), 1131-1160. http://dx.doi.org/10.1002/tea.20251

Orton-Johnson, K. (2009) "I've stuck to the path I'm afraid": exploring student non-use of blended learning. British Journal of Educational Technology. 40(5), 837–847.

Paechter, M. & Maier, B. (2010). Online or face-to-face? Students' experiences and preferences in e-learning. The Internet and Higher Education. 13(4), 292–297.

Parahoo, S., Santally, M., Rajabalee, Y. & Harvey, H. (2015). Designing a Predictive Model of Student Satisfaction in Online Learning. Journal of Marketing for Higher Education. 1-19.

Richardson, J., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. Journal of Asynchronous Learning Networks, 7, 68-88.

Roach, V. & Lemasters, L. (2006). Satisfaction with Online Learning: A Comparative Descriptive Study, Journal of Interactive Online Learning. 5(3), 317-332.

Rourke, L., Anderson, T., Garrison, D.R. & Archer, W. (2001). Assessing Social Presence In Asynchronous Text-based Computer Conferencing, Journal of Distance Education. 14(2).

So, H.J. & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. Computers & Education 51,318-336.

Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. Journal of Distance Education. 22(2), 306-331.

Youngju, L. & Jaeho, C. (2011). A Review of Online Course Dropout Research: Implications for Practice and Future Research. Education Tech Research Dev. 59, 593-618.