

Interaction among Undergraduate Students in Graduation Research Seminars in Japan during the COVID-19 Pandemic

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Abstract: Did the COVID-19 pandemic hinder free communication among undergraduate students in seminars and isolate them? In this study, we examine the effects of “online interaction” and “face-to-face interaction” among undergraduate students in seminar activities on their research activities of writing an individual graduation thesis through an interview survey. Using qualitative research methods, we found that the seminar tasks and the seminar system avoided the excessive isolation of the undergraduate students, and that “learning in a community” was established. In addition, while receiving direct advice from senior students facilitated individual research in online interactions, face-to-face interactions strengthened the upward social comparison, that is, the comparisons among peers.

Keywords: Seminar, Undergraduate Research, Online Seminar, COVID-19 pandemic

1. Background and Research Purpose

During the COVID-19 pandemic, the characteristics of the lockdown, such as isolation and reduced social contact, played an important role in higher education in the increase of negative affective symptoms among students (Oliveira et al., 2021). In situations where the students are forced to learn online, face-to-face free communication among them is reduced, which can lead to isolation (Putnam, 2000) and a lack of student interaction and feedback (Bdair, 2021).

In Japanese higher education, graduation research is often set as the major research project in the final stage of the educational program. When the students conduct their undergraduate research, including the graduation research, they usually belong to a “seminar,” which is a learning community consisting of supervisors, upperclassmen, and underclassmen. In relation to online learning communities in higher education, Teng et al. (2012) proposed that only through proper instructional design and facilitation, can promote the interaction among the learners, instructors, and content; maximize the strengths of various online resources and tools; and build learning communities.

However, while seminar activities are increasingly moving online owing to the pandemic, it has not yet been studied whether student-student interactions are functioning not only in online seminars but also in face-to-face seminars. In light of this situation, the current study aims to qualitatively clarify the effects of “face-to-face interaction” and “online interaction” in seminar activities on the students' research activities, and to obtain feedback on the learning support for online seminars.

2. Methods

2.1 Participants

The 14 research participants (Table 1) were fourth-year undergraduate students who were conducting their graduation research at the Q Faculty of the P University. They were numbered from A to N in the order of the interviews. The research period was from July 2021 to June 2022, and the interview time for each participant was about 120 minutes. Selection of the participants was based on snowball sampling, while taking diversity into consideration.

The participants in this study belonged to the same seminar for two years. The seminar format was online in the year 2020 and either face-to-face or online in the year 2021, depending on the seminar. There were about 20 undergraduate and master's students in the seminar.

Table 1. *Details of the Participants*

	Student	Gender	Characteristics and Participants of the Seminars
Face to Face	A	Female	The student belongs to a group of six members divided by the content of their research. Senior members of the group, and a supervisor of the other seminar give advice on research.
	B	Male	Biweekly, a supervisor advises the students on individual research.
	C	Male	A supervisor advises on individual research.
	F	Female	Teaching Assistant (TA) graduate students and, as the research progresses, a supervisor give advice on individual research.
	H	Male	A supervisor advises on individual research.
	I	Female	The student belongs to a group of 10 members who are divided according to the content of their research. Senior members of the group and a supervisor provide advice on research.
	J	Male	The student belongs to a group of three members who are divided according to the content of their research. Senior group members of the group and a supervisor give advice on research.
	M	Female	<u>A supervisor and TA graduate students give advice on individual research.</u>
Online	D	Male	The student belongs to a group of eight students divided by research method. Senior members of the group and a supervisor provide advice on research.
	E	Female	The student belongs to a group of three members divided by research method. Senior group members of the group and a supervisor give advice on research.
	G	Male	The student belongs to a group of two members, which is divided according to the research contents. Senior members of the group and a supervisor advises as needed.
	K	Female	A supervisor advises on individual research.
	L	Female	The student belongs to a group of four members who are divided according to the content of their research. Senior group members and a supervisor advises on research.
	N	Female	A supervisor provides individual research advice and guidance outside of the class via Zoom as required.

2.2 Data Analysis

The first author transcribed the data from the interviews with the students and identified the codes based on the verbatim transcripts using qualitative content analysis. To ensure the reliability of the findings obtained, the first author reached a consensus on the codes through discussions with the second author.

3. Results and Discussion

3.1 Online Interactions in the Seminar

Research Advising in Small Groups

As with the face-to-face practice in the seminar, with regard to the students belonging to the small group in the online seminar, there were cases where it was assumed that they would receive guidance from their seniors in the same research topic. The following excerpt reflects this:

(The reason for the transformation of my research) is the advice from my seniors more than from my supervisor. It is not that they directly taught me everything, but there are quite a lot of cases where they suggested me that I should study this kind of knowledge because it might be quite useful (Student D).

In online interactions, receiving direct advice from the senior students facilitated the individual research. This may be due to the fact that they are in the same group and therefore share some research background

3.2 Face to Face Interactions in the Seminar

Common Activities Related to Individual Research

In the laboratory of student M, there was a case in which the common activities were conducted in the seminar room because there was a common task such as “diagramming the relationships between people,” in the course of graduation research. The following excerpt reflects this:

When we would assemble in the seminar room, we used to gather almost all of us together, and we would say, “Hey, I’m struggling with this right now.” One of us would write out the problem on the whiteboard, and everyone would observe and discuss it. Later, we taught each other how to use Illustrator, since we were all using it quite a bit. (Student M).

The same student M sometimes compared her own work with that of the other seminar students that emerged out of their common activities, and incorporated the valuable points into her own research:

When the other seminar students consulted with the supervisor, they would show him their handwritten analysis of what they had drawn, and he would praise them and say, “Oh, this is good.” We would also view the materials that the student had used as a reference and make (relationship charts) together. (Student M).

Research Advising in Small Groups

Since the students belonging to the small groups in the seminar were supposed to be guided by the senior students of the same research theme, the discussion among them was not a priority, but some advice and suggestions were given:

Undergraduates receive guidance from the graduate students. I think it’s more like getting comments from the graduate students and making changes, rather than having discussions among the students. (Student I).

Face-to-face interactions strengthened the upward social comparison, that is, the comparisons among peers (Festinger, 1954) in the research activities.

4. Conclusion

The findings indicate that in situations where the students are forced to learn online, the seminar tasks and seminar system avoided excessive isolation (Putnam, 2000) of the undergraduate students, and that “learning in a community” was established. In addition, while receiving direct advice from the senior students facilitated the individual research in the online interactions while the face-to-face interactions strengthened the comparisons among peers. In conclusion, as learning support for online seminar that builds a learning community (Teng et al., 2012) despite COVID-19, the seminar system and preferably face-to-face common activities where the students can compare their work are suggested. The supervisor could also manage the seminar according to the purpose of learning, such as emphasizing face-to-face interactions for the common activities and online interactions for the research supervision.

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