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Understanding the participation structure in school for students with intellectual disabilities: Applying social network analysis to classroom discourse

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Summary

Proposal Information/Research/Questions and Theoretical Approach

This research aims to understand the structure of classroom discourse for students with intellectual disabilities using social network analysis (SNA) (Scott, 2007). In a knowledge-based society, learning and teaching through interaction with others is important. Students are not a homogeneous group, but they have individual characteristics and abilities (Mack, 2012). Furthermore, teachers act on the basis of their own agencies, which function differently depending on the current context (Priestley, Biesta, & Robinson, 2015). The communication between actors in a classroom is called "participation structure" and is beneficial for understanding how individual students and teachers participate in the classroom (Cazden, 1986; Erickson &Schultz, 1977). Although conservative classes have the structure of teacher-led I-R-E sequences where students have restricted opportunities to participate in discussions (Mehan, 1979), recent researchers argue that it is important to change this structure to students-led or co-led structure to enable students to learn on the basis of their own goals and interests (Mayer, 20012). Few studies have clarified the participation structure in school for students with special needs. In schools for students with intellectual disabilities, students have various abilities, difficulties, and needs. Thus, the students' preferred participation structures implemented in the classroom will vary. It is important to clarify what conditions support a greater number of students' participation in the classroom. SNA, used in anthropology and organization theory, is an effective method to apply to grasp the whole structure of interactive practices between various actors. Though some researchers tried to apply SNA to classroom discourse analysis (Mameli et al., 2015; Wagner et al., 2018), they were trial-research targeting only a few data, in which SNA theory's analytical tools are not used enough. SNA indicates a large number of data about interpersonal connection, so I videotaped practices in a classroom for a year. I discuss the conditions that support the participation of students with intellectual disabilities.

Methods

The target is a junior high school for students with intellectual disabilities in Japan. Six students and two teachers participated in the study. I videotaped 27 "Life Studies," in which all participants attended, and extracted 39 targeted segments classifying by activities. In SNA, the actors are vertices and the talks are directional edges. I labeled all talks between the actors (a main teacher, six students, and the class), and then transformed the labels into adjacency matrixes (indicating the presence or absence of the combination that a cell represents) for the segments, and I identify whether the cell denotes presence or absence by displaying the labels in the video data. Using R program, I calculated the Hamming distances between the matrixes and clustered the segments (Butts & Carley, 2001). From the comparison of the structure of sociograms of each type, I interpreted the elements of the participation structure.

Conclusion and Findings, Scientific Significance

The SNA and the cluster analysis identified six types of participation structure. The first and the second types show a teacher-centered star graph. All the edges extend from the teacher in the first type, but all the edges are reciprocal in the second. The third and the fourth types include only presentation activity. Though all students talk to the class, there is no interaction between students in the third type. On the contrary, after each students' presentation, the fourth type implements a Q&A session between students. The fifth and sixth types have reciprocal edges between students. Only a few students participate in the interaction in the fifth type, but all students can participate in the interaction in the sixth type. These findings reveal that the following elements provide the difference of the six structures: reciprocity between teacher and students, presence or absence of the utterances from the students to the rest of the class, and the number of students who participate in interactive discussion. This suggests that the participation structure is not a simple dichotomy between teacher-centered and student-centered. Even if teachers relinquish their right to speak to students, the students are not necessarily able to speak proactively. Dialogical classes between students or between teachers and students were supported by the following conditions: opening space for proactive participation while distributing opportunities for untalkative students, providing well-structured collaborative setting, and selecting popular topics for all students promotes proactive participation in conversations.

Abstract

This study aims to understand the participation structure of classes for students with intellectual disabilities. I applied the social network analysis (SNA) to understand the structure of interactive practices between individual students and teachers in classroom as a whole. The target is a junior high school for students with intellectual disabilities in Japan including six students and two teachers. I videotaped one year "Life Studies" lessons and elicited 39 segments from them. I labeled all the discussions between the participants, and transformed the labels into adjacency matrixes per segment, which show the presence or absence of the talks between the participants. Applying the SNA method, I calculated the Hamming distances between the matrixes and clustered the segments. The analysis extracted six types of participation structure. The findings reveal the following elements provide the difference of the six structures: reciprocity between teacher and students, presence or absence of the utterances from the students to the class, and the number of students who participate in interactive discussion. This suggests that the participation structure is not divided by the dichotomy between teacher-centered and student-centered. Dialogical classes are not enabled by the release of teachers' right of speak to students. The following conditions affect the dialogical classes: opening space for proactive participation while distributing opportunities for untalkative students, providing well-structured collaborative setting, and selecting popular topics for all students promotes proactive participation in conversations.

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