

Hylable for visualization of online group discussions

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Challenge

The challenge is to make online group discussions effective for both students and teachers. Before the COVID-19 situation, in-face group discussion was a common activity for student-centered education. It is known that when the students can sense the group dynamics that they involve, their motivation and conceptual understanding is fostered. However, online group discussion is difficult for students to use their metacognitive skills and improve them because of the lack of feedback. Similarly, the teachers have difficulties to overview the online groups from the outside. Therefore, the teacher's effective sensing and feedback method is essential.

Solution

We have developed Hylable, a web conferencing system that visualizes online group discussions in real time, by applying our patented microphone array processing and visualization technology that has visualized over 20,000 face-to-face discussions. Hylable can be used only with a web browser.



Figure 1 on the left shows an online group discussion using Hylable. Students are able to change their behavior based on their own metacognition while watching the real-time updates of total speech time, turn taking, and activity.

(Figure 1: Students using Hylable)



Figure 2 on the left is a screen where the teacher can list all group discussions. The graph of the change in the amount of speech over time is listed in Figure 1. From the graph, the teacher can check the level of activity in the discussion and determine which groups need support based on the evidence.

(Figure 2: A screenshot of each group discussion in Hylable from the outside)

Learning Impact Outcomes

While offline education has seen an increase in interactive activities, online education has often reverted to one-way distribution of materials and attending lectures. The novelty of Hylable is that it provides an unprecedented way of looking at multiple simultaneous discussions by visualizing them.