Identifying Shifts in Agency by Analyzing Authority in Discussion

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Abstract: Increasing students' agency influences their persistence and has ramifications for their views of the nature of science. The idea of agency is closely tied to issues of authority and power. Here we study how classroom group conversations are directed and who has the authority to direct the conversation. We present a narrative analysis of a whole class discussion, analyze discourse patterns to infer the distribution of authority amongst relevant subgroups and demonstrate a shift toward a more equitable distribution and an increase in student agency.

Introduction

Increasing learners' agency, particularly in science, is dramatically important for their future persistence (Calabrese Barton and Tan, 2010). Here we introduce the idea of *inchargeness*: an individual or subgroup with high inchargeness is in a position to steer the conversation by setting the topic or choosing who speaks next.

The context for this study is a pre-enrollment summer program that seeks to improve retention in STEM degrees for incoming STEM undergraduates, specifically first-generation college (FG) students and Deaf and hard-of-hearing (DHH) students; the university studied is about 20% FG and 8% DHH overall. Participation is gender-balanced and racial distribution roughly matches the population of the United States. Participants develop models of climate change, write reflective journals, and engage in activities to improve their metacognitive skill and sense of community. In 2014, there were 20 participants: four who identified American Sign Language (ASL) as their primary language ('signers'), three who identified as DHH but did not use ASL as their primary language, and thirteen hearing students. All of the whole-group discussions employed simultaneous interpretation in ASL.

For this study, we analyzed video of a whole-group discussion in which students created a sign for the word "metacognition," which does not exist in ASL. The creation of new signs happens regularly in ASL, with varying degrees of formality. We chose this activity because the instructor and researchers noted an increase in student agency throughout the activity. We draw from Positioning Theory to explore the role of authority as this mixed group negotiated developing a new sign. Positioning Theory is "the study of local moral orders as ever-shifting patterns of rights and obligations of speaking and acting" (Harré and Van Langenhove, 1998, p.1). Positioning Theory involves three core ideas: communication acts, positioning, and storylines. Communication acts are the socially negotiated meanings of linguistic and paralinguistic (facial expression, gestures, etc.) actions. Storylines are the patterns by which interactions develop and through which discursive actions are understood. Positioning is the process by which participants take up or are assigned positions. These three ideas interact dynamically. Participants interpret communication acts based on the storylines at play and their positions within them. These acts impact both the relevant storylines and the relative positioning of participants within those storylines. In addition, for most interactions, there are multiple positions and storylines at play which occur over many timescales. We used the communication acts in each episode to infer the positions of individuals and subgroups with regard to their authority in the conversation by comparing these patterns to common storylines.

We introduce the concept of *inchargeness*, which is associated with directing the flow of conversation. An individual or subgroup with high inchargeness is positioned such that they are more likely to have successful bids to steer the conversation. Inchargeness is a deliberately volatile measure; a person's inchargeness is intimately tied to their current positioning, the positioning of the other participants, and the communication acts all engage in. Different storylines will promote different inchargeness distributions, from hierarchical to distributed.

Inchargeness is not the same as expertise, nor is it about the amount of participation, but instead the character of participation. There is no single discursive indicator of inchargeness, but we infer it based on patterns of who proposes, sets, or limits the topic(s) of conversation; whether talk is sequential or overlapping; types of discourse; and to whom speech and/or questions are addressed. We use a combination of behavioral markers to identify communication acts and infer the distribution of inchargeness by looking at positions within storylines. We analyze our data from the perspective of inchargeness and show a change in the distribution over time.

Analysis of inchargeness

We divided the discussion into five episodes with distinct discourse patterns and characterized the communication acts and inferred storylines within each episode. Given the nature of the activity, we were particularly attuned to similarities and differences between how the instructor, signers, and non-signers (including both hearing students

and non-signing DHH students) engaged in the discussion during each of these episodes. Here we present a very condensed narrative of the activity highlighting the results for how we characterized inchargeness in each episode.

Episode 1: The instructor began by eliciting information about ASL from the signers. The pattern of communication acts is similar to a "panel discussion" storyline, where a moderator (instructor) has high inchargeness, panelists (signers) have some inchargeness, and an audience (non-signers) has little inchargeness.

Episode 2: The instructor then asked all of the students to define metacognition. This episode shows a "call-and-response" storyline common in classrooms. In this storyline, the instructor still has the highest inchargeness, but now the signers' expertise is no longer relevant and there was no distinction between how the signers and non-signers engaged in discussion. Thus, all students have a similar level of inchargeness.

Episode 3: The instructor redirected the conversation toward ASL and then removed himself from the conversation. The storyline here feels more emergent: the students are engaged in making sense of this problem collaboratively, in contrast with the more constrained communication acts earlier. Students did the majority of the speaking and built each other's ideas, suggesting higher inchargeness than Episode 2, but there was again a clear difference in how signers and non-signers participated, such that signers had higher inchargeness than non-signers.

Episode 4: One of the non-signers redirected the conversation back toward metacognition and led the discussion like the instructor in Episode 2 ("call-and-response" storyline), indicating she had more inchargeness than her peers. However, the other students (with no distinction between signers and non-signers) did not respond in the same way they did to the instructor (e.g., comments directed to the group and not just to her), indicating her inchargeness was less than the instructor's and the other students had more inchargeness than in Episode 2.

Episode 5: The conversation returned to the task of creating a sign and took on a free-for-all character with overlapping talk and many task-related side conversations, like an "informal dinner party" storyline. The difference between participation of signers and non-signers was much less noticeable than in Episodes 1 and 3, suggesting a more similar level of inchargeness. At one point, the instructor tried to redirect the conversation, but students quickly returned to their earlier conversations, suggesting that he had equal inchargeness to the students.

Discussion

Inchargeness, as we have introduced it here, is about one's position within a group to direct a conversation and the degree to which one's voice is heard and acknowledged. Thus, it directly relates to agency, as well as equity.

We saw a variety of storylines represented, including some that were fairly constrained and recognizable (e.g., panel discussion, classroom call-and-response). Others were more emergent (Episode 3), where the students were collaboratively engaged in making sense of the task. The informal dinner party storyline in Episode 5 is the most interesting and unexpected for a classroom environment. Most classroom storylines position the instructor with a high level of inchargeness. However, in Episode 5, the students treat the instructor's bids to control the conversation without any particular deference, as if he has no more or less inchargeness than anyone else.

With regard to agency, this last episode suggests that by treating the instructor as another peer, the students are exhibiting more agency in this storyline than in earlier storylines where they positioned themselves with less inchargeness than the instructor. While we do not claim that any individual has an increased sense of agency, we believe the group eventually transitions to a storyline where they collectively have more agency.

Finally, inchargeness can potentially give us insight into issues of equity in group discussions. Equity is about "a fair distribution of opportunities to learn or opportunities to participate" (Esmonde, 2009). This suggests that storylines with a flatter distribution of inchargeness may be more equitable than those with a more hierarchical distribution. In this case, our shift toward greater agency may also be associated with a shift toward greater equity. We plan to explore this connection by comparing inchargeness to other measures of equity.

References

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