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Author

Nussbaum, E. Michael

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Learning How and When to Ask Why: Social and Linguistic Processes in Informal Reasoning

E. Michael Nussbaum

School of Education

Stanford, CA 94305

(NUSSBAUM@LELAND.STANFORD.EDU)

Although there has been growing attention to the social aspect of informal reasoning and argumentation (e.g., Resnick, Salmon, Zeitz, Wathen, & Holowchak, 1993), the processes whereby reasoning structures may be learned during peer interaction is not well understood (Pontecorvo & Giradet, 1993). This study examined the processes involved in learning "how and when to ask why."

Method and Findings

Over the course of one year, two classes of low-income 5th/6th graders were asked to design a futuristic city by simulating a political urban planning process. The participating teachers placed a heavy emphasis on having students provide support for opinions. To assess program effects, eight target students were divided into two discussion groups of four students each: four extraverts and four introverts. Each group was periodically asked to reason about various social dilemmas related to the city design project. Over time, the students more frequently asked one another to support their statements. The effect remained even after controlling for amount of talk.

Members of the two different discussion groups tended to request support in different ways. The group composed of introverts used support requests to explore different perspectives; "why" questions tended to follow "if-you" questions (for example, "If you were a recent immigrant to the city, would you want them to cut down trees to make houses?"). In contrast, the extraverts used support requests to challenge assertions with which they did not agree.

The two groups also differed in respect to when they showed growth. The introverts showed growth early in the year while the extraverts showed stronger but more delayed growth. The introverts' growth was related to intragroup modeling while the extraverts' growth was related to more active participation in the classroom simulation. The latter conclusion was supported by the pattern of growth and by metacognitive talk ("you have to have reasons") appropriated by the extraverts from the classroom discourse.

Discussion

From a linguistic standpoint, the students were learning both certain "word forms" for requesting support (e.g., "why," "where does it say that") and pragmatic knowledge concerning when one should or should not make a request. As suggested by theories of situational reasoning (e.g., Greeno, 1994), such pragmatic knowledge involves becoming attuned to conversational constraints and affordances. For example, students negatively sanctioned one another for asking "why" repetitively or asking "how do you know" questions for statements the question-asker had accepted; in this way, students may have become attuned to constraints on the appropriate use of certain word forms. Students also appeared to become more attuned to conversational affordances, i.e., situations in which it was appropriate and useful to make support requests.

During this study, learning about function was found to be as important as learning about form. By allowing argumentation to occur naturally in the classroom, in service of a goal (building a futuristic city), students were able to discover constraints and affordances on the appropriate use of different word forms for requesting support.

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