The Role of People Knowledge in Learning Narrative and Domain Content

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Abstract: We argue that the addition of people knowledge to curricula has the potential—still largely unrecognized—to improve classroom learning. We describe the results of two studies on people knowledge and learning. Study 1 indicates that narrative information organized around familiar, as contrasted with unfamiliar, people is better remembered and judged to be more interesting and concrete by learners. Study 2 focuses on people knowledge and learning and transfer of pedagogical content knowledge.

Rationale and Background

People's exceptional memory for other people suggests that *knowledge organized around people* may have a special status, much like spatial organization and script-based organization have special mnemonic effects. We use the term "people knowledge" to refer to this phenomenon. The ubiquity of people knowledge may have a unique neural basis; alternatively, it may be a type of knowledge where many forces conspire to make it special (e.g., people are one of the primary sources of early learning, people are motivating, people are discrete but change locations and appear in different contexts). The basis of people knowledge and whether it can be dissociated from other forms of learning are important questions to explore (Lin & Bransford, 2005; Hong & Lin, 2005). One reason it is important is that instruction does not take advantage of people knowledge to help students learn. Most knowledge presentations are person-neutral (e.g., a textbook voice), and this may reflect a missed educational opportunity.

This poster describes the results of two preliminary investigations of people knowledge on learning. Our studies are different from some approaches to instruction that tie a particular theory to a person: for example, "Newton created thermodynamics." While we think this approach can be valuable, people knowledge is probably most useful when there is some meaningful connection between the theory (or action) and the person, such that one can imagine why the person has a particular theory (or actions). Studies of effective elaboration provide support for this view (e.g., Stein, Morris & Bransford, 1978).

Study 1: The Effects of People Knowledge on Interest and Memory for Narrative

Study 1 was designed to investigate the degree to which learning can be enhanced by organizing information around familiar, rather than unfamiliar, people. Twenty-six graduate students participated in the study. They read a five-person conversation in which each person was marked only by their names (e.g., Len, James, Jenny, etc.). Then the participants rated the comprehensibility of the conversation. Next, the participants were randomly assigned to two groups: Unfamiliar People and Familiar People. The Unfamiliar People group read the same conversation a second time and rated it for changes in interest and concreteness. The Familiar People group was reminded of five people whom they all "knew" (characters from a short movie they had seen 2 weeks prior for a different, unrelated purpose) and then were asked to read the same conversation a second time—with one difference: the initial names (e.g., Len, James, etc.) had been replaced with names of the familiar people (i.e., characters from the movie). The Familiar Knowledge group also rated the conversation for changes in interest and concreteness.

The results indicate that participants in both groups rated the first conversation as equally comprehensible (mean rating of 2.6 and 2.8 on a 4-point scale for the Unfamiliar People and Familiar People groups, respectively). However, participants in the Familiar People group rated the second conversation as significantly more interesting ($t(24) = 4.960$, $p=.000$) and more concrete ($t(23) = 7.064$, $p=.000$) than students in the Unfamiliar People group. The Familiar People students also recalled significantly more of the main ideas of the conversation ($t(24) = 2.087$, $p=.000$) than the Unfamiliar People students.

Study 2: An Investigation of People Knowledge on Learning Pedagogical Content Knowledge

Study 1 revealed that information organized around familiar people is better remembered and judged to be more interesting and concrete by learners. Study 2 extends this work by focusing on the question: How does instructional material organized around people improve learning of pedagogical content knowledge?

In Study 2, 48 undergraduates learn about mathematics pedagogy using one of two types of instructional documents: expository text (Expository) and a teacher's journal (People Knowledge). Participants in the Expository group read text on the development of young children's whole number sense (i.e., counting and quantity). The text defines various principles (e.g., cardinality, one-to-one correspondence) and presents examples that illustrate each principle. Participants in the People Knowledge group read a teacher's journal that tracks the mathematical development of three fictional students and contains some information about each student's background (e.g., SES, home life, etc.) and personality (e.g., shy, energetic, etc.). Where the expository text presents general examples to illustrate children's understanding of the mathematics principles, the teacher's journal defines and describes these principles in the context of the individual students. It is important to note that the introductory sections of the teacher's journal and the expository document were identical.

Dependent measures include 1) interest, imagery, and comprehensibility ratings occurring at four time points in each document, 2) recall of the mathematics principles described in the documents, and 3) transfer of these principles to a teaching situation. In the transfer task, participants read a transcript of a first grade mathematics class and made judgments about students' understanding of counting and quantity. Our hypothesis is that participants who read the teacher's journal containing "people knowledge" will be more interested in and better able to remember the content because they would be able to draw inferences and elaborate based on their knowledge of the people involved.

Participants in the People Knowledge group rated the teacher's journal significantly higher for comprehensibility ($F_{1,46}$= 10.638, p=.002), interest ($F_{1,46}$ = 18.032, p=.000), and imagery ($F_{1,46}$ = 32.647, p = 0.000) than participants in the Expository group. Ratings were made on a 4-point scale (see Table 1). Interactions were significant for interest ($F_{3,138}$ = 3.721, p=.013) and imagery ($F_{3,138}$ = 2.820, p=0.041) but not for comprehension. A multiple comparison procedure revealed that comprehension, interest, and imagery ratings for the introductory section (rating made at time point 1) of both documents were not significant. Since the introductory section was verbatim for both documents, it follows that there should be no difference in ratings.

Table 1: Means for Expository/People Knowledge main effect

	Expository	People Knowledge
Comprehension Ratings	2.85	3.37
Interest Ratings	2.06	2.74
Imagery Ratings	2.54	3.36

Data from the recall and transfer tasks are currently being analyzed. Results of this analysis will indicate whether the differences in ratings reflect how well participants learn and transfer pedagogical content knowledge.

References

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