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Observing Students' Co-construction of Meaning: Operationalizing Vygotsky

Abstract

This paper presents discourse data from academic tutoring pair work at the college level that documents students' co-construction of meaning, with the goal of identifying dialogue that demonstrates student-centered inquiry consonant with Vygotskian theory. This study challenges the hegemony of Bloom's taxonomy, which has been the preeminent means by which to judge the intellectual level of classroom behavior.

The activity was based on scaffolding using a set of indices derived from Zuckerman (2003). Sociocultural theory supports several predictions: a) general interpsychological rapport furthers the learner's cognitive behavior, b) the learner moves from the personal/emotional (derived from the interpersonal) to a cognitive/ abstract focus, and c) ideas appear first on the social level, then in the learner's cognition (from interpsychological [shared activity] to intrapsychological [learner's individual competence])

Eighteen paired tutoring sessions are reported that took place between graduate students in the M. A. in Education, TESOL Option program at CSUSB. Ten tutors, 15 tutees and 10 analysts, participated; 8 tutors, 12 tutees, and 6 analysts had native or near-native English fluency, whereas 2 tutors, 3 tutees, and 4 analysts did not. Many combinations of tutor moves and tutee responses are documented, with some interesting scaffolding moves included and others omitted.

Source: Adapted from Zuckerman, G. (2003). The learning activity in the first years of schooling: The developmental path towards reflection. In A. Kozulin, B. Gindis, V. S. Ageyev, & S. M. Miller (Eds.), Vygotsky's educational theory in cultural context (pp. 177-199). Cambridge: Cambridge U. Press.

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Replacing Bloom's Taxonomy as a Means of Analyzing Cognition

Since the 1950s, Bloom's taxonomy has been the preeminent means by which to judge the intellectual level of classroom behavior. At the lowest level, a teacher may ask students to display their Knowledge by recalling dates, events, places; at the level of Comprehension, to interpret, compare, or summarize facts; at the level of Application, to solve problems; at the level of Analysis, to organize information, classify, or identify components; at the level of Synthesis, to generalize, predict, or draw conclusions; and at the highest level, Evaluation, to assess the value of information.

Although this hierarchy seems intuitively plausible, in fact Bloom used no empirical evidence to validate this ranking, nor does this taxonomy reflect a given body of research about how the brain processes information; in short, there is little empirical evidence to substantiate a claim that this represents a cognitive reality. The taxonomy, then, appears to be an artifact from another era, still in circulation for lack of a replacement means of rank-ordering cognitive behavior in the classroom--an atheoretical remnant without substantial backing from empirical psychology, adrift from theoretical underpinnings in any prevalent learning-theory paradigm.

Vygotsky's Sociocultural Framework as a Mean of Analyzing Classroom Cognitive Activity

The Russian psychologist Lev Vygotsky (1981, 1982) emphasized the role of social interaction in the development of language and thought: language joins with thought to create meaning. Interaction occurs in a cultural, historical, and institutional context, which shapes the availability and quality of the tools and signs that mediate higher mental functions.

According to Vygotsky, teaching must take into consideration the student's "zone of proximal development," defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development...under adult guidance or in

collaboration with more capable peers" (1981, p. 86). Social interaction between adults and students operates within this zone.

Children's knowledge develops through their "taking for themselves" the ways of thinking and talking provided by their culture (Kozulin & Presseisen, 1995). This mediation of learning--assisting students' performance--requires teachers to adapt to the level of the student, provide help when needed, and to help students to work with one another and the teacher to co-construct meaning (see Tharp & Gallimore, 1988).

In recent years, increasing attention has been paid to Vygotsky's notion that the child internalizes language and cognitive processes from participating in the social sphere. In a richly stimulating environment, students collaborate to negotiate meaning with one another as they dialogue, share, listen, respond, and engage in cooperative inquiry. The notion of collaborative inquiry as a means of enhancing thinking skills has been robust across many ages and levels of schooling. Thinking itself has come to be seen as a cooperative endeavor, with teamwork touted across multiple settings of business and scientific enterprises as the new model of cognitive behavior. This is consonant with the idea of scaffolding, providing temporary cognitive support to a learner in a structured way.

This paper shares a rich data set of classroom discourse that has been collected in search of a means of ranking students' co-construction of meaning in classrooms. The analysis has sought to identify the type of dialogue necessary to produce a high level of student-centered inquiry in the search for a valid means to sustain cognitive activity in a manner consonant with Vygotskian theory. The paper first outlines a means of scaffolded tutoring based on operationalizing social constructivist theory, and then discusses several interchanges within a set of data that help to microanalyze scaffolded cognitive activity and suggest a theoretical model.

Scaffolded Tutoring

Zuckerman (2003) operationalized Vygotsky's work in an elegant exegesis of scaffolded instruction for preschoolers. This paper adapts Zuckerman's analysis to scaffolding tutoring within an adult-adult setting. Table 1 isolates ten components of scaffolding from the point of

view of both the teacher and the learner. These ten components provided a theoretical basis for graduate students to use when tutoring one another.

Table 1. Scaffolding: Ten Components (adapted from Zuckerman, 2003).

During tutoring and analysis, look for these components of scaffolding:

<u>Component</u>	<u>Explanation</u>
The teacher...	The learner...
1. creates general rapport during the learning activity.	...finds the experience positive and the teacher well-intentioned.
2. offers a general overview of the topic.	...understands the scope of the mutual work.
3. establishes a baseline of the current state of the learner's knowledge and/or skills.	...shows the current skills or knowledge he or she has through discussion or offering a demonstration.
4. maintains the learner's control of the activity: what goal is to be attained and what help is expected.	...generates goals, and is aware of these goals in relation to the possibilities in the learning activity.
5. sustains a pace of progressive task difficulty.	...develops more sophisticated inquiries, problems to solve, and possible solutions.
6. moves from interpsychological (shared activity) to intrapsycho-logical (student's individual competence).	...moves from imitated activity (copying the teacher) to independent activity; from concepts discussed to concepts understood.
7. facilitates the learner's initiative.	...offers queries, doubts, suggestions, and hypotheses.
8. encourages new learner initiative.	...takes risks and thinks up new ways to act.
9. helps the learner to decenter and resolve conflicts.	...analyzes errors and overcomes fixed ideas to reach more general solutions.
10. supports the learner's move from the personal/emotional to a cognitive/abstract focus.	...turns from helplessness, cluelessness, and personalized emotion reactions to specific, task-oriented questions and directed inquiry/discovery.

The Research Format

Because graduate students find writing research papers a difficult task, this study focused on scaffolded instruction as a means not only to offer peer assistance within a graduate program, but

also to provide participants the opportunity to analyze data from peer-scaffolded tutoring events. Eighteen paired tutoring sessions are reported that took place between graduate students in the M. A. in Education, TESOL option program at a state university. Ten tutors, 15 tutees and 10 analysts participated; of participants, 8 tutors, 12 tutees, and 6 analysts had native or near-native English fluency, whereas 2 tutors, 3 tutees, and 4 analysts did not. Each paired tutoring event was filmed twice by a peer (once with each partner serving as tutor and tutee, which provided the videographer-researcher with two conversations to be transcribed and analyzed. As a result, each participant was once a tutor, tutee, and videographer. Many combinations of tutor moves and tutee responses were documented, with some interesting scaffolding moves included and others omitted.

Results

Although this brief format does not support a lengthy analysis of graduate students' attempts to perform scaffolded tutoring, a few examples are closely examined. Appendix A illustrates the beginning of a tutoring session between Isadora as tutor and Carole as tutee. This transcript clearly shows Isadora's opening move, the attempt to assess Carole's prior knowledge. What the transcript does not show is a rapport-building move; the two apparently did this before the camera was activated or perhaps omitted the move entirely. [The conference session provided a full transcript and as a learning activity, participants matched parts of the transcript to the model below.)

A New Model of Scaffolded Activity

Appendix B (See attached file) shows a new model of Vygotsky's Zone of Proximal Development, with complementary moves that begin with the tutor framing and sustaining the emotional tone of the interview (moves #1 and #10) establishing rapport and maintaining cognition in the face of emotional distraction; complementary moves #2 and # 9 that frame the nature of the problem and plan the session, then prepare to generalize the knowledge gained to subsequent circumstances; complementary moves #3 and # 8 that assess prior knowledge and help the learner to build long-term retention; complementary moves #4 and #7 that maintain

momentum and sustain the learner's control over the course of events; and finally, the heart of the endeavor, moves #5 and #6 that encourage the learner to seize the learning initiative and support the learner when he or she does so. Thus the work within the ZOPD is complementary, balanced in its transfer of power from teacher to learner, and centered on the idea of the learner's autonomy and initiative.

Conclusion

This work provides a clearer look of the work that must be done within a tutoring session, and analyzes some sample data that document this work. Much more data is needed to see if this can become a pedagogical model that will help graduate students, for instance, to engage in peer-supported intellectual work when faced with difficult cognitive tasks.

References

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Appendix A. Scaffolding Analysis of Tutoring for a Master's –Level Literature Review

Tutor: Isadora; Learner: Carole

<u>Tutor</u>	<u>Tutee</u>	<u>Text</u>
1	I	Tell me where you are.
2	C	Ok. Well, I've been doing my article on social identification, and I came to see that social identification is how the society sees you. Because <u>social identity</u> is how you see yourself in a social sight. And <u>social identification</u> is how society sees you in social groups.
3	I	OK.
4	C	Yeah, and I have just been on ERIC and on Google Scholar to try and find articles but there's like a broad range, I don't know if I should focus on social identification in youth or in adult because there are a lot of social groups in the workplace or should I just generalize. I need help because I've only found like six articles.
5	I	So what's your teaching level?
6	C	Elementary.
7	I	So you probably want to focus on elementary then, right?
8	C	OK. Right.
9	I	So the one's that yo u've already printed out, is it mostly elementary? Or what have you got so far?
10	C	Only this one, this one has to do with learning in a school setting. I haven't done it yet, it's thirty some pages. But this one has an abstract that's pretty good-- it has to do in a classroom setting.