Situated Learning: An Inductive Case Study of a Collaborative Learning Experience

John W. Schell
The University of Georgia

Rhonda S. Black
The University of Hawaii

Some vocational teacher educators are beginning to reconsider the assumptions that underlie their graduate-level teaching. A particular concern is that learners often cannot adequately apply their acquired theoretical knowledge when solving complex problems in their professional lives (Schell & Rojewski, 1995). While searching for an instructional approach that encourages inquiry and active use of information, some have found that the view of the "professor as a dispenser of knowledge" is too confining and potentially exclusionary to some learners. Lave and Wenger (1991) have stated:

> The master as the locus of authority (in several senses) is, after all, as much a product of the conventional, centered theory of learning as is the individual learner…a decentered view of the master as pedagogue moves the focus of analysis away from teaching and onto the intricate structuring of a community's learning resources. (p. 94)

This research was designed to explore a decentered learning environment where the focus was on a community of learners learning and applying difficult concepts within an ill-structured environment, while the professor adopted a perspective of facilitation and support (Schell & Rojewski, 1995).

Schell is Associate Professor, Department of Occupational Studies, University of Georgia, Athens, Georgia. Black is Assistant Professor, Department of Special Education, University of Hawaii, Honolulu, Hawaii.

Situated cognition theory, based on an anthropological view of natural learning in natural settings, was the theoretical framework chosen to support this research. In theory, situated learning has the potential advantage of (a) placing learners in realistic settings where socially acquired ways of knowing are often valued, (b) increasing the likelihood of application within similar contexts, and (c) strategically applying the learner's prior knowledge on a given subject (Lave & Wenger, 1991).

While terminology used to describe situated learning may be new to many of today's teacher educators, the ideas clearly are not. Much of the work of John Dewey (1974) is based on his view of education as a *process of living* and not as preparation for the future. Modern theorists such as Brooks and Brooks (1993) and the constructivist movement also are appropriate philosophic companions for the situated learning perspective, as they encourage a community approach to the construction of new knowledge. Lastly, Gardner's (1993) extensive work on multiple intelligences is relevant as individuals are encouraged to learn in ways that are natural to their "type" of intelligence.

Obviously, situated learning (which occurs naturally in natural settings) can be problematic within the confines of a major research university where learning is typically limited to organized classes which are presented in the context of a fixed classroom. To address these issues, selected aspects of situated learning were applied in an upper-division course delivered through the use of an extensive, quarter-long simulation.

About the Course and The CEO Simulation

About the Course

The informants for this research participated in a doctoral-level organizational behavior course. Course content focused on issues such as motivation theory, organizational power, influence, affiliation, organizational structure, organizational culture and design, job design, and communications. Organizational change was a unifying theme for the course. Under the quarter system, the course was conducted on Saturday mornings (5 1/2 hours) for 10 weeks. Class meetings were organized into two to three hours of Socratic discussion of that week's content, with an additional two or three hours devoted to group work on the Changing Educational Organi-

zations (CEO) project. Each class session was concluded with periods of articulation and reflection—both important elements of cognitive apprenticeship which is often viewed as appropriate for situated educational activities (Brown, Collins, & Duguid, 1989; Lave, 1988; Schell & Rojewski, 1995).

About the Simulation

Aspects of situated learning were further applied through the use of the CEO simulated educational activity. With purposely minimal information and direction, students were asked to form groups, create roles, and interact within a community of scholars to design a model educational organization. Learners were provided with invented information about new state legislation and a Governor's mandate to create an organization where future workers are educated to be critical thinkers and problem-solvers. A careful reading of the CEO materials reveals many subtle details that often emerge only after a period of reflection. For example, students must develop organizational strategies in an environment where a very controlling school director comes out of character to mandate full employee participation in decision-making. Often students respond to these ambiguous expectations by asking questions such as: "Is this right?," "Is this what you want?," or "Just tell me what I have to do to get an A." These requests are consistently answered by the instructor who uses phrases such as: "There is no one right way," "What do you want out of the course?," or "Let's get beyond grades and concentrate on learning…grades will take care of themselves." As the course progressed, some learners gradually realized that this progression was really about group processes and the dynamics involved in a learning community. These realizations emerged as learners were encouraged to agree and disagree about very complex issues of organizational behavior. Other class members found this approach at once liberating and challenging and frustrating. All learners were required to apply their theoretical knowledge about organizational behavior to what became a very personal learning situation. The final product of the simulation was the development of a written proposal describing how their exemplary organization could incorporate complex and interrelated aspects of organizational behavior. The hypothetical proposal was to be prepared for submission to an imaginary state education agency for funding consideration.

Purposes of the Study

The purposes of this study were to examine the (a) assumption that situated learning and teaching activities can engage the learner in more realistic settings, thereby increasing the likelihood that the acquired information will be useful when students face similar situations in real life; (b) perceived "reality" of the CEO simulation and the likelihood of subsequent use of the information to solve organizational problems in the learner's own workplace; and (c) effectiveness of articulation and reflection instructional practices as tools for activating the learner's acquired knowledge.

Theoretical Framework

Situated Cognition Theory

"Situated cognition" has become an educational buzzword in recent years. While some aspects of the concept have emerged from the realm of cognitive science, a major movement within the field is grounded in anthropological research (Reynolds, Sinatra, & Jetton, 1996). In the context of this research, the sociological view of the term cognition (Lave, 1988; Lave & Wenger, 1991) has been adopted. This is a fundamental and major shift from the more traditional psychological views of learning theory. Anthropologists Lave and Wenger (1991) state that "learning is an integral part of generative social practice in the lived-in world" (p. 35). In their writing, they describe the concept of legitimate peripheral participation as a "descriptor of engagement in social practice that entails learning as an integral constituent" (p. 35). Participation in social contexts becomes a way of engaging the learner that involves both absorbing and being absorbed in "the culture of practice" (p. 95). Viewed from Lave's (1988) sociologic views of community, each CEO group member in the simulation negotiated his or her own role that was played out in the learning community.

A major issue that is included in situated cognition is the construct of learning transfer. This has been an important issue in educational research for many years. From the sociological view, however, generalizability of acquired information to other situations is viewed as relatively rare and unpredictable (Lave & Wenger, 1991; Greeno, 1997). Other researchers, working from within a psychological perspective, have also concluded that there is no general cognitive skill that promotes learning transfer (Detterman,

1993). The authors of this study are not arguing that transfer does not exist. In fact, they have adopted the perspective of Sternberg & Frensch (1993) that teaching should promote learning in a context that is as close as possible to the one where the acquired information will be applied. This ensures a better chance of it being activated when needed. This perspective is central to the initial research assumptions that support this research.

Cognitive Apprenticeship Teaching

Principles of cognitive apprenticeship have been advanced as an appropriate means of teaching through the use of "situated" activities such as the CEO simulation (Brown et al., 1989). This form of apprenticeship is more metaphorical than an attachment of a novice to a master craftsperson.

The CEO simulation was based on four interacting elements—the content, methods, sequence, and sociology of the learning community (Collins, Hawkins, & Carver, 1991). Content refers to the types and levels of knowledge required by experts to solve complex problems in the real world. Methods include a variety of instructional strategies employed by a facilitating teacher. They range from traditional demonstration to higher-order methods of exploration, articulation, and reflection (Brown et al., 1989). Articulation and reflection were two key instructional strategies used in this research. Articulation was used to encourage learners to verbalize their knowledge, reasoning, or approaches to problem-solving, while reflection enabled learners to compare their own problem-solving against those of an expert (Schon, 1983). Instructional sequence can be thought of as three basic strategies including (a) linear movement through materials, (b) increasing capacity (teaching one concept to be used repeatedly in different settings), and (c) global information before local details where an overview of information is provided before detailed instruction begins. The final characteristic of the cognitive apprenticeship model is the beliefs, values, and social settings in which real-world learning takes place. Three aspects of sociology are key for situated learning: (a) developing a community of practice, (b) encouraging intrinsic motivation, and (c) maximizing cooperation within the community.

These elements are instructional building blocks that have been well known for many years. However, when taken as an integrated and interactive whole, they constitute the framework for a substantially different instructional environment that includes new roles for both the learner and the teacher.

Preliminary Assumptions

From the situated cognition and cognitive apprenticeship literature, the following assumptions were constructed to guide the initial phases of this research.

Assumption #1: Learners who perceived the course as pertinent to their work/professional situation were more likely to use their knowledge to solve organizational problems in their workplace.

Assumption #2: Learners who perceived the CEO simulation as more "real" were more likely to use their knowledge to solve organizational behavior problems outside of class.

Assumption #3: Articulation instructional practices enhance the learner's use of their acquired knowledge.

Assumption #4: Reflective instructional practices enhance the learner's active use of acquired knowledge.

Research Population, Methods, Data Collection, and Analysis

Population

Class members ranged in age from 25 to 52, with only two members under 30 years of age and the majority in their 40s. All members of the class signed informed consent forms in compliance with the university's human subjects policy. The teaching experience among class members ranged from 1 to 21 years. Only three of the members lived near the university, and two of these three worked full-time and attended weekend or night classes. The rest commuted to the university on weekends after working full-time at their jobs in secondary and post-secondary settings as administrators and teachers around the state. One exception was one learner who commuted, but did not work full-time. These adult learners had families, friends, jobs, and lives that are quite apart from campus life. They comprised a very disparate group of learners with diverse needs and expectations about their classes.

Research Method—Analytic Induction

An analytic induction research design was employed (Patton, 1990; Robinson, 1951; Znaniecki, 1934). Husband and Foster (1987)

define analytic induction as a process of evaluating current data against pre-existing hypotheses and then expanding and refining the hypotheses or theoretical statements as needed to fully accommodate all of the data. This is done by searching the data for examples which confirm or refute the hypothesis. To avoid confusion with quantitative methodologies, the authors refer to their preliminary hypotheses about situated learning theory as "assumptions" which, when reformulated, may contribute toward a more developed theory of situated cognition.

Historically, theory has been assumed to "understand, predict, and control events" (Denzin & Lincoln, 1994, p. 39). Current research on situated learning has not yet established it as a complete theory worthy of "understanding," "prediction," and "control of learning events." In support of this contention, the authors point to the current academic debate in recent issues of the *Educational Researcher* (Anderson, Reder, & Simon, 1996, 1997; Greeno, 1997), where debate is raging over the concept of situated learning and its claims and/or disclaimers for the concept of learning transfer. In spite of these controversies, the authors believe that some aspects of the emerging theory serve as useful starting points against which to view and analyze data.

An inductive approach begins with the experiences of each individual where the focus is on "full understanding of individual cases before those unique cases are combined or aggregated" (Patton, 1990, p. 45). Therefore, the categories that emerged were examined after an analysis of individual cases. The primary research emphasis was on the identification of negative cases that refuted the preliminary assumptions of the investigators. Secondary emphasis was placed on the identification and subsequent analysis of cases judged to be confirmatory. In this way assumptions were continually refined until all examples were accounted for and explained (Goetz & LeCompte, 1981).

Data Collection

Two principal data collection methods were employed. First, unobtrusive measures were used to collect data from documents that were generated as a natural part of the class (Denzin, 1978). These measures included observations of learner performance in small groups, mid-course evaluations, instructional activities, and proposals that resulted from the CEO simulation. Second, detailed field

notes were compiled by both researchers throughout the course of the study.

Semi-structured interviews. Interviews were used for the purpose of capturing the expression of opinions or beliefs of the respondents (Merriam, 1988). With this method, the respondent and the interviewer allow dialogue to flow in an appropriate direction within the framework of the research (Husband & Foster, 1987). Six learners were selected for interviews. Interviews were conducted by the graduate assistant (co-researcher) about six weeks after the quarter had ended and participants had received their grades. This approach encouraged respondents to be frank and forthcoming with their remarks. Informants were selected on the basis that they were "typical" of the learners in the class and represented each work group.

In many cases, resulting data were positive about the class. However, several individuals expressed strong negative opinions. Special care was taken in the interviews to probe for deeper meaning in instances of both negative and positive information. Each interviewee was asked a similar set of preliminary questions in sessions lasting approximately 45 minutes. All interviews were tape-recorded and later transcribed.

Member checking and triangulation. Following transcription of the interviews, informants were asked to review the transcripts and validate them as accurate representations of their views and opinions. In several cases, additional clarification was required from informants. These additional data were added to the transcripts and used to refine the interpretation of the transcripts. Data generated for this research were further triangulated by checking against other data sources (Merriam, 1988). These sources included the mid-course evaluation, written student reflections from class activities, and the final CEO product.

Data Analysis

Data were analyzed using a five-step process. Independently, the two researchers (a) examined data from each case for probable congruence and incongruence with initial assumptions, and (b) compared each case according to the extent of congruence and incongruence with initial assumptions and the level of knowledge use. Collaboratively, the researchers then (c) scrutinized combined cases on levels of knowledge use by emergent categories, (d) prepared a narrative summary of categories resulting in drafts of

reformulated assumptions, and (e) refined interpretation of the data concluding in reformulated assumptions.

Data analysis proceeded using narrative matrix analysis techniques. Step one was accomplished as each researcher, working independently, read all transcriptions and coded each relevant verbalization while identifying emergent categories. Further, each relevant section was assigned to the best assumption and a preliminary estimate of congruence or incongruence with the studies' original assumptions. These notes were made in the margins of the transcripts along with other pertinent notes and comments. For steps two and three, matrices were created using the "tables" feature of WordPerfect 6.1.

In step two, each researcher made preliminary assignments to categories relative to the learner's apparent application of acquired knowledge and skills, and one of the four original assumptions. Each researcher's preliminary assignments of data to categories were then combined and compared for agreement and disagreement

Case: Tracy

Assumption #1: Learners who perceived the course as pertinent to their work/professional situation were more likely to use their knowledge to solve organizational problems in their workplace.

Congruence	Incongruence
"He did have us integrate theories to try to come up with workable approaches to applying those theories."	*"Ahhh, I suppose it did in someways, but in other ways, I just don't think it addressed it all. People did talk about their particular work situations, but we really talked about kinda of fluffy ify kinds of stuff that—you know—sounded real idealistic and it's good to think about those things, but I really didn't see a lot of realistic stuff that could be applied back to individual work situations."*

Figure 1. Representative step two data analysis matrix.

(Patton, 1990). Each relevant point of data was then discussed and consensus was achieved as to how the data were finally categorized. A representative matrix of the second step of analysis is presented in Figure 1.

In step 3 of the data analysis, individual cases were combined. These data were also placed on a matrix prepared for each assumption. An example table from step 3 is provided in the form of Figure 2.

Steps 4 and 5 were accomplished in narrative format with step 5 emerging from the results of step 4. In step 4, emergent categories were compared to their assumptions and more carefully examined in light of the supporting literature. Here, the researchers were searching for exceptions to the expected findings when compared to the assumptions (Goetz & LeCompte, 1981). These data then were organized into a narrative discussion of confirmatory and nonconfirmatory findings, and then possible explanations were generated from the known professional literature. Step 5 consisted of an overall examination of the data generated in step 4 and the process of reformulation of the assumptions began. New assumptions emerged when the existing data failed to support the original assumptions (Goetz & LeCompte, 1981). The results of steps 4 and 5 are presented in the next section.

Findings

In this section, each assumption is presented along with summary data that is either confirmatory or nonconfirmatory for that position. Near the end of this section, the unexpected findings that resulted from the analysis are presented and discussed.

Assumption #1: Learners who perceived the course as pertinent to their work/professional situation were more likely to use their knowledge to solve organizational problems in their workplace.

Nonconfirmatory Finding: Knowledge Use for Different Purposes

When individual cases were combined in step 3, it became obvious that class members had many different reasons for taking the class. Learners had different expectations of what they wanted to learn and often held dissimilar beliefs about how to apply the material to their lives. As the data were analyzed in light of the

Case: Combined Cases

Assumption #1: Learners who perceived the course as pertinent to their work/professional situation were more likely to use their knowledge to solve organizational problems in their workplace.

	Low Use	Medium Use	High Use
Low Pertinence	"[In other classes]…*we talked about real stuff—what has really worked—we were challenged to actually go out and try things and see what would work and then come back and talk about* [it] …*So, I didn't get that from this particular class.*"	"*While I understand it a little bit more from the sense of organizational structure, the overall picture, I can understand a little bit more, but it's still kinda frustrating in the situation that we are in.*"	
Medium Pertinence	"*Well only in the sense that I've been more aware of how hierarchies work, how they operate.*"	"*Basically, I've just taken it—I've used it more in class...I do have a little more insight about how the organization that I work for* [XXX] *County, is set up and [organizational] thing[s] that have happened. Basically, I've tried to incorporate more in my teaching....*"	
High Pertinence		"*Almost everyone in there had teaching experience…how a lot of things were very relevant … to see how a lot of these theories actually* [worked]. *When they would try to apply whether they worked or didn't work...*"	"*I think being in that class made me become a part of that because I have been on board at* [XXX]*Tech for at least 21 years, but his class really inspired me..when you challenge an organization...you have to have your duck[s] in order, you have to be willing to go the distance....*"

Figure 2. Representative step 3 data analysis matrix.

different ways and levels at which people used the information, it became clearer why some learners chose to use the information to make instructional changes rather than directly trying to make more overt attempts at larger organizational changes.

> Tracy: "*You come to realize..in your own little domain in your classroom, sometimes, you don't get that concerned about the big picture of how things are operated because...once that door is closed, you kind of feel empowered to do what you want to do, and then run your class the way that you want to run it.*"

Because different motivational factors were operating for each individual, it is not surprising that class members used the information in different ways (Patton, 1990). Schon (1983) has stated:

> when a practitioner sets a problem, he [or she] chooses and names the things he [or she] will notice…and selects things for attention and organizes them guided by an appreciation of the situation…. Those who hold conflicting frames pay attention to different facts and make different sense of the facts they notice. (pp. 4-5).

Confirmatory Finding: Learners Do Use Acquired Knowledge

The degree to which class members applied their acquired knowledge varied widely. Jean reported having a profound experience as a result of her participation.

> Jean: "*The president in my school has certain ways of doing things. Another instructor brought a case against him, and I was called in to testify.*"
>
> Interviewer: "*Tell me more about that.*"
>
> Jean: "*And we testified...before a lawyer from the attorney general's office... the school* [which is] *thirty years old ... has never hired a minority administrator. Yet, it hired some white administrators that only have a high school education and we have a minority person who has a doctorate...a deliberate attempt not to hire minorities* [was made] *so we brought this case before the attorney general. I think being in that class made me become a part of that...but this class really inspired me. ...you have to be willing to go the distance, and you have to know that what you're doing is correct, and is best*

for the institution…."

Jean made an important contribution to her organization because she *expected* that efforts made in this context would result in desirable outcome(s). These expectations also have instrumentality because there is the potential for favorable outcomes for other minority learners. Jean further believes that this will lead to other desirable conditions.

> Interviewer: "*So you think that some of the things we had to think about, organizational change,* [were] *instrumental in you taking a role in this case?*"
>
> Jean: "*Yes, it was very instrumental in me taking a role in that I think it is going to be good for the community, it's going to be good for the people we serve, and it's going to be good for the minority students on campus ...*"

Other learners used the course information to make changes in the culture of the classrooms where they interact with students every day. After much reflection, the researchers have come to accept these changes as limited evidence of low road learning transfer (Detterman, 1993). Mackenzie reported:

> "*I thought* [the instructor's teaching] *technique was very very good. I have started using it in my own classroom. It makes you think and try to start putting things together... It's just a good way of teaching long term for long range effects.*"

When pressed about using the course information to help solve larger organizational problems beyond the door of his/her classroom, Mackenzie equivocated.

> "*Basically, I've just taken it ... I do have a little more insight about how the organization that I work for...* [a local school], *is set up and things that have happened...we've been asked to do a lot of information research and what we think we need to do to improve our program, but not much is going to come from that...I think they pretty much know what they are going to do anyway.*"

It is apparent that Mackenzie does not have strong expectations with regard to his/her ability to influence the emerging direction of the school. Several other learners reported making a contribution to their organization by adopting some of the instructional practices

modeled in this class as the only way that they could safely make a difference.

Assumption #2: Learners who perceived the CEO simulation as more "real" were more likely to use their knowledge to solve organizational behavior problems outside of class.

The data were neither confirmatory nor nonconfirmatory. Several instances were observed where learners engaged at different levels of situatedness with the CEO simulation. Even allowing for individual differences, the simulation was simultaneously perceived by class members as both real and not real. Some learners perceived the biggest differences between the simulation and the real world to be the level of risk involved and the freedom to try new things without administrative or public backlash.

> Tracy: "*The idea of a group making a proposal was very realistic in the sense that in schools, and in vocational education, we are in the process of writing proposals for grants to get monies for programs. And for me it was probably more applicable than actually changing the organization. In a simulation, you don't have the public outcry, the backlash from the public, the administration, or whoever it is that you are trying to change. With a simulation, you are basically just putting it on paper, so everything looks nice, and everything seems possible.*"

While it is true that much of the content was about research in organizational behavior, the class did have a strong component of interpreting that literature in the context of everyday situations. Pat adds that this particular approach was not sufficiently authentic to engender strong expectations or connections between theoretical knowledge and the real life "tricks of the trade" that he/she expected to acquire from the class.

> Pat: "*[In other classes] we actually talked about real life applications for things and not so much theory about what might be…what could be…you know…what theories are out there…we talked about real stuff what has really worked. We were challenged to go out and try things and see what would work and then come back and talk about what worked and didn't work. I didn't get that from this particular class.*"

Assumption #3: Articulation instructional practices enhance the learner's use of their acquired knowledge.

The third and fourth assumptions attempted to explore the utility of articulation and reflection instruction in activating student knowledge (Brown et al., 1989). Although one might intuitively know that trust is an important factor in group learning, its extensive role was not at first appreciated by the researchers. Trust played an extensive role in enabling individuals and groups to construct new knowledge and extrapolate meaning from it. However, the chain of evidence was more complex than had been anticipated.

Confirmatory Finding: Articulation in an Environment of Trust

Learners were asked periodically to articulate the relationship between theory and real world practice through the use of probing questions. Tracy discusses articulation instructional methods as a way to activate knowledge and promote alternative ways of viewing an issue.

> "[the instructor's style of questioning] *really stimulated a lot of class discussion, and got a lot of the students involved, and a lot of good verbal exchanges took place. And one student would take one side of an issue of motivation and someone who read the same article, would have a different perspective..and some good dialogue took place.*"

But, articulation depended heavily on the development of a culture of trust and safety among class members.

> Mackenzie: "*We were encouraged to discuss a lot of our ideas and thoughts and to ask questions. I never once felt that I couldn't ask questions or tell an opinion about something that somebody else said. I felt like we all respected each other and there was an atmosphere where there was open discussion and we could say whatever we felt.*"

Asking the right question at the right time further maximizes opportunities for learners to express their points of view. In discussing their knowledge, learners reveal their conceptions, reflect on them, and grow intellectually through the literal construction of knowledge that is new and meaningful to them (Brooks & Brooks, 1993). "Teachers' ability to uncover students' conceptions is, to a large degree, a function of the questions and problems posed to students" (p. 65).

> Taylor: *The classroom atmosphere was relaxed, jovial, and yet at the same time, it was also challenging because* [of] *the instructor's method of pulling in the theory into the discussion, really caused everyone to think. You had to really be able to match the textbook information and the lecture information with the kinds of things that we were doing in the groups and in the discussions.*

These complex actions can only take place in a class where learners (and teachers) are willing to risk being considered "wrong" and still be a valued member of the community. Scholarly exploration of ideas is also enhanced when considered in the context of their meaning to the scholar. That often requires periods of reflection.

Assumption #4: Reflective instructional practices enhance the learner's active use of acquired knowledge.

The evidence here indicates that when articulation and reflection are considered separately, the instructional power of each technique may be diminished. This insight has led to a reformulation of Assumptions 2 and 3. When a trust foundation is established for articulation, new knowledge is often socially constructed (Brooks & Brooks, 1993). By hearing the perspectives and experiences of others in a social context, learners often reflect on the meaning of learned information and its implications for their own practice.

> Taylor: *Because of what you are doing, through the use of those higher learning skills, synthesis and evaluation, you just can't go to a textbook and pull something back out and then regurgitate it. You're having to take a very amorphous kind of a situation and coalesce all these different ideas, thoughts and philosophies, and beliefs, and pull [them] together into something that is sensible and is potentially usable."*

Confirmatory Findings: Trust and Articulation Lead to Reflected Meaning

A purpose of this class was to encourage learners to question existing management practices. Articulation and reflective instructional methods helped learners see others' opinions and viewpoints and encouraged consideration of alternative views. A few individuals reported looking at their organizations differently resulting in an

increased understanding of organizational practices. By having to create an organization, class members put themselves in the shoes of the administration and considered their reasons for doing things as well as the implications of those actions. In talking about the reflective classroom environment, Mackenzie stated: "*The environment enhanced* [motivation] *by having the discussions and the creativity to challenge other people's viewpoints and challenge our own viewpoints.*" Others, such as Jean, shared this perspective: Jean: "*It* [the class discussions] *made you think about the old way that you perceived things and gave you some other possibilities of looking at situations.*" Taylor spoke of how articulation led to his/her reflection on the meaning and application of course materials.

> Taylor: *The experience that we had in the class was that when one student brings up a particular set of circumstances…that will spark a thought in another student, and you have a chain reaction that occurs. That gives you a really wide spectrum of different possibilities…any time you can take a real life situation and apply it to an academic point then you will have a good transition, and that was the case here. That the information that we were receiving became meaningful when you could relate it to your everyday working situations.*

In summary, articulation instructional strategies can provide many opportunities for learners to view their acquired knowledge from alternate viewpoints. In this context, articulation of ideas further enhances reflection on the meaning and application of information.

Findings That Emerged From the Analysis

As is common in qualitative research, several unanticipated themes emerged. In this case, these findings provide a rich context for deeper analysis and understanding of situated and collaborative learning.

Unnecessary Competition May Inhibit Trust Affecting Articulation and Reflection

Dividing the class into groups, each with their own CEO project, produced an element of perceived competition which served to simultaneously enhance and inhibit learning. Competition enhanced learning by providing motivation to form groups that were cohesive

and which worked together to produce a quality project. One learner described competition as enhancing the quality of their project:

> Jean: "*My group was competing with the other groups. Because our mind set said that we are going to deliver the better project, we competed as if it were going to be cash money, and we also wanted quality in the project*."

Jean felt that competition with the other work groups added to the realism of the project. However, the negative side of competition emerged near the end of the quarter resulting in limited sharing of ideas and protected "turf." Competition inhibited the benefit of gaining different perspectives from others' viewpoints and restricted the sharing of information. Another way that competition inhibited the learning process was that the openness of work groups to new information declined dramatically near the end of the quarter. Tracy explained that:

> "I wanted to work on the simulation. We got involved...in the project and applying some of the things that we learned in class, about how to change organizations, and that was more important than just getting new information and new material... and to be honest, I could have cared less about discussing new material."

In this case, the instructor had less power over individuals than did group members. The motivation to produce a quality project came from the individual and other group members rather than from the grade they would receive from the instructor. These conditions contributed to the perceived competition while significantly increasing tension among learners.

Initial Tension Resulting from the Ambiguity of the CEO Simulation

Based on the mid-course evaluation, 50% of the comments regarding suggestions for improvement noted a desire for additional structure or guidelines for the CEO simulation. By the end of the course, however, learners better understood the positive role that ambiguity had played. Taylor described some of the tension he/she felt about the project, but also indicated why it was necessary.

> "*I think the ambiguity of the project, has* [its] *pluses and cons. The cons first, I would say that because it is so ambiguous that you have an anxiety level that goes with this. It takes you out of the mainstream of your educational format that you are*

used to following which is basically listening to an instructor provide information and then you regurgitate that. This is a quantum leap from that. So there is a discomfort factor when you move away from that. The pro, of course, is that, in real life, you have the kinds of situations that we've experienced with the project, plus, in real life a lot of work that you do is ambiguous. . .So in terms of gaining valuable insight in real world situations, I think that class structure was very helpful and very positive."

Schon (1983) agrees that "problems of real-world practice do not present themselves to practitioners as well-formed structures. Indeed, they tend not to present themselves as problems at all but as messy, indeterminate situations" (p. 4). The ambiguity of the project did provide an authentic environment in which reflective thinking could occur. "Reflective thinking is called for when there is awareness of a real problem or when there is uncertainty about a solution. Reflective judgments are based on the evaluation and integration of existing data and theory into a solution about the problem at hand" (King & Kitchener, 1994, p. 8). However, reflection and articulation often are enriched by ambiguous tensions found in ill-structured and complex instructional environments.

Implications For The Practice of Situated Learning/ Teaching

Consistent with an analytic induction strategy, reformulated assumptions resulted from a comparison of data with the original presumptions. Following each reconstituted assumption, each of the major themes that have influenced their development is discussed.

Reformulated Assumption #1: Unnecessary competition between groups may inhibit communication, and possibly restrict the application of acquired information.

Competition Among Learners

Competition played a negative role by inhibiting communication *between* CEO work groups. However, there is evidence to suggest that it accomplished a positive motivational function *within* the groups. Competition helped some groups become more cohesive and enhanced motivation for producing high-quality projects. The role that competition played in this research was difficult for the re-

searchers to understand until their perspectives and roles as instructor and student were examined. Both researchers recognized the existence of competition, but placed different emphasis on it. From a learner's perspective, competition was a very strong theme historically present in schooling. From the instructor's perspective, competition was a background theme, minimized by the expectation that learners would cooperate rather than compete. Instructionally, natural competition may be used to enhance the reality or situatedness of an activity, as well as to form cohesive work groups. Yet, it is nearly impossible for competition in a school setting to be eliminated or easily controlled. Learners' past socialization experiences are too strong to be reversed in 10 weeks. Thus, competition should be expected and used in a positive manner.

Reformulated Assumption #2: Contextualized learning expectancies are present within each individual. These expectancies *can* lead to self-empowerment resulting in more active use of knowledge.

Relationship of Situation and Learner Expectations

In the beginning, the researchers expected that realism and pertinence would lead to active use of course materials to resolve problems in the learner's workplace. After conducting this research, it was concluded that instructional simulations are often not situated enough to stimulate direct replication of acquired knowledge. Although several learners provided some evidence of having used the information, applications were typically determined by each individual's expectations for that knowledge. What emerged was a realization of the importance of understanding how the expectations of learners influence how they choose to use acquired information.

Situated Expectations are Potentially Transitory and Anxiety-Producing

Teachers interested in adopting this type of teaching are encouraged to think of learner expectations as potentially transitory. The expectations of class participants shifted and evolved as the quarter progressed. Mackenzie described how his/her expectations changed.

> "*At first, it was more like a project for a class. Then as we got into it, we started making it more personal and it became more like it would be a real project. We were meeting deadlines, we were going back and doing a lot of revisions, and I believe it changed from a view of just a project for a paper for*

a grade, [to] *a real project."*

Others suggested that as time grew short at the end of the quarter, they began to view the simulation as a project to be completed. At that time, learners' readiness for new ideas and concepts was severely restricted. Also, learners exhibited signs of stress at the beginning and end of class. Students who had never participated in this type of class were somewhat unsure about learning in such an ambiguous environment. They would ask, "What do I have to do to get an A?" As time went on, however, they began to develop trust in their co-learners as well as in the process.

During the later stages of the quarter, a different type of reality emerged. Time factors began to once again reshape learner expectations. Several reported that the simulation had become a project to be managed. During this stage, learning was also inhibited and anxiety again resurfaced. This project illustrated the importance of carefully designing educational experiences in order to allow trust to emerge as a culture of the class.

Reformulated Assumption #3: In an atmosphere of trust, learners often empower themselves enabling articulation of acquired knowledge and reflected meaning.

Connections: Trust-articulation-reflection

From these data, as learners were encouraged to discuss their newly acquired knowledge, they often reflected on its application to their personal situations. Articulation and reflection strategies seemingly are maximized in a culture where some level of trust among co-learners can be established. Articulation practices engender reflected meaning of information. When co-learners are encouraged to verbally make connections between theory and application, the initial steps may be taken that will lead to making acquired knowledge more active. These practices are supported in theory by Lave and Wenger's (1991) assertion that knowledge is socially constructed. In this way, learners are more directly connected to the information. Bransford and Vye (1989) also assert that these connections are motivating. Our research lends strong evidence with regard to the utility of learner motivation and reflected meaning when viewed through the lens of alternative perspectives on learning and teaching.

In summary, this research describes a community of highly motivated learners. The motivation evolved from learner's self-

empowerment in situated learning contexts where secure work groups, managed competition, and a culture for openness and exchange of ideas were nurtured in an environment of mutual trust and respect. These learning community values were not transmitted directly by the professor. They emerged for learners who assumed responsibility for their own learning and the welfare of their own learning community. The theme of trust is an element that emerged continuously throughout this research. When these learners exercised their right to pursue knowledge, they also came to respect these rights in others. This created an atmosphere where social and intellectual risks could be exercised. When learners' expectations were met within a realistic learning community, and a sufficient level of trust was achieved, a solid foundation for innovation and active learning was realized.

References

Anderson, J. R., Reder, L. M., & Simon, H. A. (1996). Situated learning and education. *Educational Researcher, 25*(4), 5-14.

Anderson, J. R., Reder, L. M., & Simon, H. A. (1997). Situative versus cognitive perspectives: Form versus substance. *Educational Researcher, 26*(1), 18-21.

Berryman, S. (1991). *Solutions.* Washington, DC: National Council on Vocational Education.

Bransford, J., & Vye, N. (1989). Cognitive research and its implications for instruction. In L. Resnick & L. Klopfer (Eds.), *Toward the thinking curriculum: Current cognitive research* (pp. 171-205). Alexandria: Association for Supervision and Curriculum Development.

Brooks, G. J., & Brooks, M. G. (1993). *In search of understanding: The case for constructivist classrooms.* Alexandria, VA: Association for Supervision and Curriculum Development.

Brown, J., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher,18*(1), 32-42.

Collins, A., Hawkins, J., & Carver, S. M. (1991). Cognitive apprenticeship for disadvantaged students. In B. Means, C. Chelemer, & M. S. Knapp (Eds.), *Teaching advanced skills to at-risk students* (pp. 216-254). San Francisco: Jossey-Bass.

Denzin, N. K. (1978). *Sociological methods: A sourcebook.* New York: McGraw-Hill.

Denzin, N. K., & Lincoln, Y.S. (1994*). Handbook of qualitative research.* Thousand Oaks: Sage.

Detterman, D. K. (1993). The case for the prosecution: Transfer as an epiphenomenon. In D. K. Detterman and R. J. Sternberg (Eds.), *Transfer on trial: Intelligence, cognition and instruction,* (pp. 25-38). Norwood, NJ: Ablex.

Dewey, J. (1974). *John Dewey on education: Selected writings*. In R. D. Archambault (Ed.), Chicago: University of Chicago Press.

Gardner, H. (1993). *Multiple intelligences: The theory in practice.* New York, NY: Basic Books.

Goetz, J., & LeCompte, M. (1981). Ethnographic research and the problem of data reduction. *Anthropology and Education Quarterly, 12*, 51-70.

Greeno, J. G. (1997). On claims that answer the wrong questions. *Educational Researcher, 26*(1), 5-17.

Husband, R., & Foster, W. (1987). Understanding qualitative research: A strategic approach to qualitative methodology. *Journal of Humanistic Education and Development, 26*(2), 50-63.

King, P. M., & Kitchener, K. S. (1994). *Developing reflective judgment.* San Francisco: Jossey-Bass.

Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life.* Cambridge: Cambridge University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Merriam, S. B. (1988). *Case study research in education: A qualitative approach.* San Francisco: Jossey-Bass.

Patton, M. Q. (1990). *Qualitative evaluation and research methods.* Newbury Park, CA: Sage Publications.

Reynolds, R. E., Sinatra, G. M., & Jetton, T. L. (1996). Views of knowledge acquisition and representation: A continuum from experience centered to mind centered. *Educational Psychologist, 31*(2), 93-94.

Robinson, W. S. (1951). The logical structure of analytic induction. *American Sociological Review, 23,* 812-818.

Schell, J. W., & Rojewski, J. W. (1995). Community and technical college teaching for thoughtful results. *Community College Journal of Research and Practice, 19*(2), 133-150.

Schon, D. A. (1983). *The reflective practitioner: How professionals think in action.* Cambridge: Basic Books.

Spiro, R., Coulson, R., Feltovich, P., & Anderson, D. (1988). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. *Proceedings of the cognitive science society*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Sternberg, R., & Frensch, P. A. (1993). Mechanisms of transfer. In D. K. Detterman & R. J. Sternberg (Eds.), *Transfer on trial: Intelligence, cognition and instruction*, (pp. 25-38). Norwood, NJ: Ablex.

Znaniecki, F. (1934). *The method of sociology*. New York: Farrar & Rinehart.