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UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

AN EXPLORATION OF PROCESSES USED IN CASE ANALYSIS

BY PRE-SERVICE TEACHER EDUCATION STUDENTS

IN A MEDIA AND TECHNOLOGY COURSE

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

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By

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A Dissertation APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY

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ABSTRACT

The purpose of this study was to examine the processes used in case analysis by preservice teachers in a media and technology course. Four aspects of case analysis were examined: a) how students process information in case analysis, b) how these processes of analysis develop over time, c) motivational patterns which match theoretically consistent patterns of case processing, and d) students' perceptions of the usefulness of cases for learning.

This research took place in the context of an actual college course in which case analysis was a normal part of instruction. Verbal protocols of case analyses from six participants and written protocols from another six participants were the primary data sources, supplemented by several surveys and personal interactions with participants. Data were analyzed using the constant-comparative method.

The data suggested that several processes were occurring during students' analyses of the cases and that the amount and depth of these processes varied by participant across time. These processes included restating, reflecting, questioning, and perspective-taking. Such processes are consistent with the literature regarding the importance of prior knowledge, schema induction and acquisition, restructuring of schema during problem-solving,

and the development of expertise. Process evidence from the
protocols also showed mismatches with survey data in
motivation and self-regulation. The findings also support
previous studies about the use of case-based instruction as
an appealing method which helps students learn to "think
like teachers."

CHAPTER I

INTRODUCTION

Transfer is the application of knowledge acquired in one situation to another (new) situation and could be considered the goal of education. One of the challenges facing teacher educators is the difficulty in helping preservice teachers bridge theory to practice. Courses and curricula are periodically redesigned in efforts to provide instruction and "field" experiences to facilitate this transfer. However, due to the complexity of the teaching and learning process, pre-service teachers often have difficulty making the connections between this knowledge base and its application to actual classrooms. Case-based instruction may be one instructional technique that can foster such transfer. The purpose of this study was to examine the processes used in case analysis by preservice teachers.

In Chapter I, I will review the theoretical foundations and related literature for the study (see Appendix A for definitions of terms specific to this dissertation). I will begin with a review of schema theory and general findings on prior knowledge effects, as that forms the basis for current approaches to transfer. The development of procedural knowledge is also key to transfer and will therefore be

described next. I will then review the relevant research on transfer, with specific emphasis on schema induction and acquisition, training and transfer task similarities, and metacognition. Since transfer and metacognition can be viewed as examples of problem-solving, I will next describe problem-solving research as well as the research on the development of expertise which informs our understanding of problem-solving processes. I will include some description of problem-solving in complex domains. Motivation will then be addressed in terms of a learner's goals, self-efficacy, and perception of future utility on motivation for learning. In the last section of the literature review, I will describe recent research on case-based instruction. Chapter I will conclude with a statement of the purpose and overview for the study. Following the introduction, a method section will explain the details of the study. The results will be presented in the following chapter. The final chapter will be concerned with interpretation and discussion of the findings.

Theoretical Foundations of the Study

Most current approaches to transfer are based on the idea of schemata. Schemata are the mental structures in long-term memory used to identify, process, and store incoming information. Research has shown that information that fits into existing schemata is more easily understood,

learned, and retained (Anderson, Reynolds, & Schallert, 1977; Anderson, Spiro, Anderson, 1978; Beck, Omanson & McKeon, 1982). Additionally, deliberately activating relevant schemata can affect comprehension, inferences, attention allocation, and memory of what is read (Anderson & Pearson, 1984; McKeown, Beck, Sinatra & Loxterman, 1992; Spilich, Vesonder, Chiesi & Voss, 1979).

Adults and children have schemata for familiar events and this determines how new information is processed, interpreted, and retrieved. Differences in prior knowledge of a topic account for differences in ability to answer inferential questions (Pearson, Hanson & Gordon, 1979) as well as the quantity of inferences drawn. Thus, it would appear that inference ability is not a function of age per se but reflects a difference in the knowledge available for drawing inferences (Anderson & Pearson, 1984; Omanson, Warren, and Trabasso, 1978). This ability to make inferences between new and prior knowledge is crucial in facilitating transfer.

Differences in prior knowledge affect the way learners process information relevant to learning tasks. With familiar content, learners with high prior knowledge relate to the familiar knowledge base and make more meaningful connections (relating new information to existing knowledge). It has been found that children learn more from text when they have prior knowledge of the topic presented

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in the text (Means and Voss, 1985; Pearson, Hansen, & Gordon, 1979). Thus, these meaningful connections are more easily remembered and can then be used to help interpret new information in transfer situations.

In addition to classifying existing knowledge in terms of schemata, another important distinction is between declarative and procedural knowledge. According to Anderson's ACT* Theory (Adaptive Control of Thought, 1983), declarative knowledge is our knowledge of the world that we can state or declare from memory. Procedural knowledge refers to knowledge about how to perform cognitive and motor activities (Anderson, 1990).

Most tasks require both declarative (facts) and procedural (how to perform) knowledge. The transition from declarative knowledge to procedural knowledge by knowledge compilation is called proceduralization (Anderson, 1983). Proceduralization is an adaptive process that occurs over time with practice. After the procedure has been practiced repeatedly, the procedure becomes automatic. Procedures thus practiced to automaticity require less attention from the learner, reduce cognitive processing load, and allow the learner to focus on other activities.

The ADAPT Model (Apply Delayed Automaticity for Positive Transfer) was developed by Jelsma, Van Merrienboer, and Bijlstra (1990) and is based on Anderson's ACT* Theory (1983). ADAPT proposes guidelines for developing

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instructional systems that maximize transfer. Although recognizing that automaticity and schematization are both important for skill acquisition, the ADAPT model assumes that instruction facilitates either automaticity or schematization. Schematization is the process responsible for the changes in schema due to changes in skill levels or background experiences (Jelsma et al., 1990). According to the ADAPT model, instructional strategies that result in automaticity hasten the process of knowledge compilation by creating domain-specific procedures which are required to perform the desired task. Practice quickly leads to mastery and automaticity. Unfortunately, these strategies provide little opportunity for more elaborate encoding and depth of processing. However, these strategies can be very effective when the transfer task is very similar to the original task.

In contrast, instructional strategies that result in schematization slow knowledge compilation but encourage well-developed schemata due to the use of elaborative and inductive processes. These elaborative processes use schemata already in memory to establish "new" information (Jelsma et al., 1990). The result of such encoding processes is that information has more interconnections in the schemata. This is thought to aid in retrieving information from memory because of multiple traces in memory. In general, schematization strategies are very effective in facilitating transfer when the original task

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and the transfer task are less similar. Thus the transition

from declarative to procedural knowledge and then learning

how far that procedural knowledge will generalize is key to

understanding transfer.

Recent Transfer Research

The type of transfer questions asked in the past decade

have focused on several broad categories: schema induction

and acquisition, processing similarities, and metacognition

and strategy use. Research related to each of these

categories is described below.

Schema Induction and Acquisition

Numerous studies have focused on schema induction and

acquisition using analogies as the vehicle for study.

Schema induction occurs when hints given to learners before

training help them access their existing schemata related to

the analogy. Phye conducted a series of studies with

college students using analogical reasoning to determine the

various conditions under which transfer is maximized (1989,

1990, 1991). Findings revealed that the effects of advice

and/or feedback varied according to the type of transfer

that was required. If the goal was memory retention,

feedback was critical. However, if the goal was development

of procedural knowledge, hints about what to look for before

training were as effective, if not more so, than feedback

without such hints. Evidence also emerged that both general

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and specific schemas were required when memory-based processing was required. Error analysis during multiple training sessions revealed that advice prior to training helped learners access knowledge and that types of errors changed as learners had additional training. Phye's studies indicated that advice and feedback during training, with practice, helped the learners access prior knowledge and schemata.

In a study of college students, Robins and Mayer (1993) examined the question of which cognitive processes improved analogical reasoning skills - active responding theory, a behaviorist perspective, or active learning theory, a cognitive approach. They manipulated the salience of schematic relations as well as the demands of learners' working memory. Schema induction was maximized for near transfer, but only if the schemas were made salient and learners' working memory was not overloaded. Thus, support for the active learning theory was provided.

Other researchers have also investigated the demands of working memory and its role in schema acquisition. Paas (1992) looked at the demands of training performance, transfer performance and cognitive load on statistics instruction in a secondary technical school. The conventional method of instruction in which students solve statistics problems was compared with solving partly worked out problems or studying completely worked out problems.

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Students also rated the mental effort involved in each method. Paas found that the completion strategies, especially those problems completely worked out, were superior to the conventional method.

A study of third graders by Pierce, Duncan, Gholson, Ray and Kamhi (1993) found that children who focused on the goal of attaining the "right" answer tended to use means/end analysis during problem solving and didn't develop the richer schema as did children who focused on the problem space. In addition, children who were allowed to solve problems themselves before errors were explained required fewer moves and less time on the transfer tasks, presumably because they were better able to map base schemas to nonisomorphic targets (i.e., higher quality of schema developed). In both of these studies, the results suggested that better performance may have been due to the superior schema acquisition during training. In these cases mental effort could be directed to abstracting appropriate schema and errors did not interfere with development of new schema or increase mental effort.

Similarities in Training and Transfer Tasks

Interest in the similarities between training task and transfer task has encouraged research in this area. In a series of studies with college students, Holyoak and Koh (1987) examined the conditions prerequisite to spontaneous transfer by manipulating both surface and structural

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similarities of convergence word problems (i.e., lightbulb, radiation). Although both were found to aid transfer, structural similarity resulted in greater transfer, especially once a hint was provided. Novices appeared to represent the problem based on surface features, while experts' representations of the problem focused on deeper structural features. Thus, although both novices and experts were able to retrieve potential analogies for solving a problem, experts were better able to focus on causally relevant features (structural similarity) to use as retrieval cues than were novices.

In a series of studies with preschool children, Brown and Kane (1988) further explored the ability to transfer across problems that shared a common structural similarity, but differed in surface similarity. Their findings revealed that even very young children can learn to use prior solutions to solve subsequent problems. By "learning to learn" the children were exposed to structural similarities and their set to learn was enhanced. Examples were more effective than general rules in facilitating transfer, thus demonstrating the efficacy of learner-generated explanations.

Needham and Begg (1991) also examined spontaneous transfer to target problems after college students used problem-oriented or memory-oriented processes with analogous training problems. Memory-oriented processes require the

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learner to study something for subsequent recall (i.e., a recall task). Problem-oriented processes require the learner to try to explain or solve a problem (i.e, a solution task) (Needham & Begg, 1991). Findings indicated that both processes affected transfer, depending on the type of task required. Thus, memory-oriented processes were more useful for memory-based tasks (such as recall) and problem-oriented processes lead to greater transfer for tasks requiring solution of a problem. In addition, processing for problem-solving was beneficial even after delay.

Other research in such domains as Logo programming (Lehrer & Littlefield, 1993) and hypertext environments (Jacobson & Spiro, 1993) have also added to the evidence confirming the necessity for congruence between training and transfer tasks.

Metacognition and Transfer

Some of the research cited above involved the use of hints or advice during training (Brown & Kane, 1988; Phye, 1989, 1990, 1991). Although not called "strategy training," studies like these laid the groundwork for the interest in how knowledge of specific or general strategies affect transfer as well as the usefulness of explicit instruction to aid in transfer. Some researchers in the 80's began calling attention to the possibility that "mindfulness", strategy instruction, and motivation should come under closer scrutiny (Salomon & Globerson, 1987; Salomon &

Perkins, 1987).

Metacognition is knowledge about one's own thinking
(Flavell, 1985). Metacognition consists of both declarative
and procedural knowledge about thinking and learning.
Learners must be able to explain the knowledge and processes
they are acquiring and be able to use them in order for
transfer to occur. Both general strategies and domain-
specific strategies can be taught to all learners to
increase their metacognitive awareness (Ghatala, 1986;
O'Sullivan & Pressley, 1984; Pressley, Borkowski, &
O'Sullivan, 1985). Metacognition about when and where to
use strategies results from practice using them (Anderson,
1983). Learners with low prior knowledge benefit from
learning general strategies to help them connect with the
new material. Teaching these learners general strategies
such as rehearsal, organization, and elaboration helps them
learn and remember new material (Stein & Bransford, 1979).
In addition, students must be shown that their performance
is better as a result of using a particular strategy than if
the strategy is not used.

Strategy use combined with knowledge has been shown to
be effective for instruction. Research provides evidence
that learners' ability to "know about knowing" develops with
age and experience (Wellman, 1985). Additionally, studies
have shown that students who have greater metacognitive
awareness exhibit greater transfer (Lin, Newby, Glenn, &

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Foster, 1994; Pirolli & Recker, 1994; McDey, 1993;

Bielaczyc, Pirolli, & Brown, 1995).

In general, students and experts who are more
metacognitively aware achieve greater transfer than students
and novices who are not as aware of their own cognition.
Even when controlling for differences in content knowledge,
skill acquisition appears to be aided by higher
metacognition and is most effective when used in conjunction
with specific learning strategies (Kreutzel, Leonard &
Flavell, 1979; McDey, 1993; Pirolli & Recker, 1994; Rao &
Moely, 1989; Speer & Flavell, 1979). Students who have
been taught general, task-specific or domain-specific
strategies exhibit greater transfer than students who have
not received such strategy instruction (Bielazyc, et al.,
1995; Garcia & Pintrich, 1992; Klein, 1994; Lin, et al.,
1994; Phye & Sanders, 1992).

Weaver and Kintsch (1992) demonstrated that failure to
transfer can be caused by failure to notice the underlying
structure of a problem and can be remedied easily in some
instances. By teaching college students to analyze algebra
word problems according to their underlying structure,
students were able to increase their competence in problem-
solving. Even preschool children can be taught
organizational strategies using manipulation of task
structure and procedure, task familiarization and practice,
and explicit verbal instruction. Although children this

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young do not spontaneously use organizational strategies, they can do so when given explicit hints (Carr & Schneider, 1991).

Further, a growing body of literature supports the idea that higher performance is related to higher learner self-regulation (Corno, 1986; Pintrich & DeGroot, 1990). Self-regulation is the process of setting goals and standards for oneself and then making necessary adjustments to achieve those goals and standards (Ormrod, 1995). Teaching students to monitor their own progress increases the effectiveness of instruction (Delclos & Harrington, 1991).

Self-regulation appears to develop slowly through childhood. While school age children can become quite proficient in their metacognition, they are still not good self regulators. However, they can make corrections if given hints and suggestions (Beal, 1990). As they mature, students become better at self-regulation and by adolescence, self-regulation appears to be a strong predictor of academic success (Borkowski, Carr, Rellinger & Pressley, 1990; Zimmerman, 1990). Thus it appears self-regulation can and should be encouraged to enable students to learn more effectively. Research is continuing in order to better understand the role of self-regulation and ways to better instruct students in its use for effective learning.

Problem-Solving and Expertise

Transfer and metacognition may also be viewed as examples of problem-solving, which Anderson noted is often considered synonymous with higher level cognition (1990). Early problem-solving research focused on well-defined problems which are solved using specific task instructions and general reasoning skills. Newell's Tower of Hanoi problem (1980) is an example of this type of "knowledge lean" problem (Proctor & Dutta, 1995) which helped researchers study how problem-solving behavior occurs. According to Newell and Simon (1972), problem-solving occurs within a problem space, in which the individual describes the possible problem states and operators for moving from one problem state to another and finally to the goal state. The sequence of operators that is applied to successive states is called a path. Specific problems may have constraints on the paths that may be taken.

Two processes important in the problem-solving process are understanding and search (Van Lehn, 1989). The problem solver must devise a mental representation (understanding) of the problem to be solved, derived from information that is provided about the problem as well as inferences made by the problem solver. The search process then involves finding an appropriate solution path within the problem space. This search process may reveal information that affects understanding of the problem and thus changes the

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problem space. This creates a dynamic process between search and understanding and is most important when dealing with ill-defined problems.

Recent problem-solving research has focused on ill-defined ("knowledge rich") problems, more typical of those in everyday life, that draw on specific domain knowledge. In ill-defined problems, it is not always possible to specify the problem state, goal state, operators, and constraints. Problem solvers must try to understand the problem representation and seek information from memory or other sources to define the appropriate operators and constraints. This often results in restructuring the problem, resulting in mental models based on prior knowledge yet integrated with new conditions in new ways when responding to new goals.

As learners learn new ways to solve problems, they relate current problems to prior knowledge. Some studies suggest that learners who are taught to explain new problems to themselves in light of prior knowledge about other problems were more successful on transfer tasks than those learners who did not use such strategies (Bielaczyc, Pirolli, and Brown, 1991; Chi, Bassok, Lewis, Reimann, and Glaser, 1989). These studies suggest that trying to understand new problems by searching prior knowledge for relationships between new information and prior knowledge can improve both memory for the new material as well as

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application to new problems. It is this aspect of problem-solving that may be useful when learning to solve problems in ill-structured domains such as teaching.

Research on the development of expertise also helps us understand the processes involved in problem-solving. General characteristics exhibited by experts reveal their superior problem-solving ability (Glaser & Chi, 1988). As individuals become more expert in a domain, they can more readily perceive complex, meaningful patterns within their domain. They encode domain information into larger meaningful chunks, resulting in a larger knowledge base. This larger knowledge base also contributes to improved memory for information ("skilled memory theory") within the domain of expertise (Chase & Ericsson, 1982). Additionally, because experts have lots of practice in their domain, many basic components of the skills become automatized. As a result of the larger knowledge base and automatized skills, experts can represent problems at a deeper level than novices. Experts sort problems into categories based on fundamental principles; novices sort by surface features (Chi, Feltovich & Glaser, 1981).

Experts also generate more solution plans before attempting to solve the problem (Priest & Lindsay, 1992) and spend more time thinking about the problem before trying to work it out than do novices. They take the time to form a mental model, and for ill-defined problems may add

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constraints (Voss & Post, 1988).

Problem-Solving in Complex Domains

As learners move beyond the introductory stages of
learning to the more advanced stages of knowledge
acquisition, two important events emerge: 1) content
becomes more complex and its application more ill-structured
and 2) the goals of learning shift a) from superficial
learning of concepts to mastery of important aspects and b)
from accurate reproductive memory and imitative rule
following to the ability to apply what was taught in varying
contexts (Spiro & Jehng, 1990).

Ill-structured domains require multiple representations
(explanations, analogies, dimensions of analyses; open, not
closed; acknowledgement of irregularity and heterogeneity).
These multiple representations require cognitive flexibility
or "the ability to adaptively re-assemble diverse elements
of knowledge to fit particular needs of a given
understanding or problem-solving situation" (Spiro & Jehng,
1990, p. 169).

In other words, learners must access prior knowledge
and schemas from memory, encode new information based on the
new situation, and thereby create more interconnections in
the schemata for use in coping with domain problems (Jelsma
et al, 1990). And because problems in complex domains
seldom are solved with one answer, learners benefit from

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multiple examples of important domain concepts during training.

Wittgenstein's metaphor of the criss-crossed landscape is useful when describing cognitive flexibility theory (1953, as cited in Jacobson & Spiro, 1995). Criss-crossing "topical/conceptual landscapes" results in highly interconnected web-like knowledge structures that permit greater flexibility in knowledge assembly. In ill-structured domains, flexibility is critical. By "criss-crossing," knowledge that has to be used in many ways (as in ill-structured domains) is taught many ways.

Motivation

Strategy use and other self-regulation measures typically require extra effort. Student motivation is likely to affect the willingness to put forth such effort. Various researchers have called for study of the motivational factors influencing transfer (e.g., see McKeachie, 1987; Pea, 1987; Prawat, 1989; Salomon & Perkins, 1987). Although strategy instruction has been found to be valuable for transfer, there is some evidence that even when students know the strategy to use, they sometimes do not use it. Often this is because they either do not enjoy using the strategy or they fail to see that the gains of strategy use are worth the effort (Rabinowitz, Freeman & Cohen, 1992).

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The goal orientation of the students can play a vital role in motivation for learning (Ames and Archer, 1988; Dweck, 1986; Nicholls, 1989). Students with a learning goal orientation focus on acquiring new skills, developing new understandings, and developing capacity and they tend to be more intrinsically motivated. Students with performance goal orientations are concerned with obtaining evaluations of their abilities and finding ways to avoid looking bad and tend to be more extrinsically oriented. Situations that heighten competitiveness foster performance orientation tendencies. Research also shows that goal orientation can be both domain and task specific (Maehr & Midgley, 1991).

Two recent studies provide evidence that goals are positively related to measures of academic achievement (Greene & Miller, 1996; Pintrich & Garcia, 1991). Additional studies indicate that students with learning or task goals exhibit more self-regulation strategies, as well as meaningful cognitive strategies, than students with performance goals (Ames & Archer, 1988; Miller, Behrens, Greene & Newman, 1993; Pintrich & Garcia, 1991). There is also emerging evidence that a positive relationship exists between obtaining future consequences and students' task engagement and achievement (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996).

In addition to goal orientation toward a task, students' perceptions of their own abilities to perform well

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on a task, or self-efficacy, can significantly affect choice
and persistence in a task. Students who have high self-
efficacy in a domain are motivated to attempt other tasks in
that domain. Conversely, students with low self-efficacy
will avoid those situations in which they lack confidence
(Bandura, 1986; Zimmerman, 1989). Determinants of self-
efficacy include previous attempts at a task, social models,
persuasion, and feedback from one's own efforts at learning
and performance (Schunk, 1991).

Instruction to improve students' self-efficacy toward a
task should include opportunities to practice the new task,
with informative feedback about how the student is
progressing toward successful completion of the task. The
task must be challenging so that students can feel a sense
of accomplishment as they learn new skills or information.
If the task is too easy, students don't learn anything about
their new achievements. This approach also fosters a
learning goal orientation. Strategy instruction is vital
during the practice phase so students will learn how to be
successful at the new task and achieve a measure of control
over their learning, thus reinforcing the belief that their
efforts are the reasons for success in the task.

Garcia and Pintrich (1992) examined the relationship
between motivation, learning strategies, critical thinking
(i.e., deep processing) and classroom experience across
various domains (English, social sciences, biology).

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Findings with college students in these domains revealed that metacognitive self-regulatory strategies and critical thinking were positively related across domains. In addition, it appeared that motivation, cognitive engagement and subject domain influenced students' critical thinking. There were also differences in intrinsic and extrinsic orientation by domain. Garcia and Pintrich speculated that these domain differences may be caused by the nature of the domain itself (i.e., tasks and content).

Case-based Instruction

One instructional technique often used to help students "criss-cross" the knowledge landscape in ill-structured domains is case analysis. Cases depict incidents or events in a domain in order to raise issues for consideration and discussion. Case analysis is often used to encourage students to thoughtfully consider facts, issues, solutions and consequences as they are learning in particular domains. Instruction using case analysis is often referred to as case-based instruction, teaching with cases, or case method (Harrington, 1992; Schulman, 1992).

Case analysis in the classroom may foster meaningful learning as students actively create knowledge structures (such as rules, concepts, schema) during their interpretations of the case. As mentioned previously, students' interpretations are influenced by their prior

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knowledge and experience. These interpretations can be facilitated by interactions with a skilled teacher during case-based instruction.

Case-based instruction has been used for some time by medical and legal educators to try and help their students gain useful insights and apply knowledge and skills that will be necessary in their future professional life. Both disciplines use cases in different ways.

Many medical education programs have adopted Problem-based Learning (PBL) in which students in a tutorial group are presented a patient case (usually symptoms without explanation). Students must then solve the problem, with the guidance of a faculty tutor. Students typically have no formal knowledge of medicine when they attempt to solve their first problem although they have had undergraduate science courses. Several studies compare this type of curriculum to more traditional medical curricula. (For review, see Albanese & Mitchell, 1993; Williams, 1992).

Results of research conducted about the effectiveness of PBL in medical education are mixed. Although there is some evidence that PBL is as effective as traditional methods used in medical education (Vernon & Blake, 1993) and that PBL students may retain factual and procedural knowledge longer than traditional students (Norman & Schmidt, 1992), there is also evidence that PBL students may not develop factual knowledge deemed necessary by medical

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educators (Dolmans, Schmidt, & Gijselaers, 1995).

Legal educators use a different type of case-based instruction. First year law students are presented with appellate court cases and then prepare briefs to present in class. The professor challenges their points of view through questions and comments in an adversarial atmosphere in order to mimic their future courtroom reality. (For review, see Williams, 1992).

Empirical data concerning the use of cases in legal education is scarce and legal educators have not focused much attention on researching the relative effectiveness of the method. In fact, teaching law students using court cases has become "tradition" since it was first used in the late 19th century (Williams, 1992).

Although medical, law, and business schools have used case-based instruction for some time (Merseth, 1991), teacher educators have recently been looking with interest at the use of case-based instruction. Proponents advocate its use to provide opportunities for preservice teachers to practice thinking like teachers, integrating declarative, procedural and contextual knowledge so crucial for their professional development (Harrington, 1991). Case-based instruction has been suggested as a viable instructional method because it allows students to simulate problem solving in a complex domain (Grossman, 1992; Stake, 1987; Sykes & Bird, 1992) and could aid in increasing cognitive

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flexibility in the analysis of diverse cases (Spiro, Coulson, Feltovich, & Anderson, 1988).

The recent literature on the use of cases in teacher education is comprised mainly of theoretical articles (Harrington, 1991; Harrington & Garrison, 1992; Shulman 1992a), suggestions for implementation (Cooper, 1995; Shulman, 1992; Silverman & Welty, 1992; Silverman, Welty, & Lyon, 1991; Wasserman, 1993) and anecdotal accounts (Barnette, 1991; Patterson, 1994; Shulman, 1992b; Wineburg, 1991). Few empirical studies have examined the claims of proponents. The few that exist examined case-based instruction contrasted with "traditional" lecture methods (Kleinfeld, 1991a), the effects of writing cases on students' insights (Kleinfeld, 1991b), the effects of writing cases and teachers' pedagogical beliefs (Kagan, 1991), the effects of different methods of case-based instruction (Jackson & Greene, 1996) and factors that seem to facilitate or limit students' ability to learn from case-based instruction (Ertmer, P.A., Newby, T.J., & MacDougall, M., 1995).

Kleinfeld (1991a) conducted a study in which preservice teachers were taught together in a weekly lecture and then randomly assigned to weekly meetings taught either by the case method or by discussion of readings. Students in the case method discussions were not explicitly taught how to analyze cases; discussions were teacher-led. Students'

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responses to a problem case on the mid-term exam were analyzed according to their abilities to identify issues, sophistication of their analysis of educational dilemmas, and suggestions for possible alternatives for action. The case methods students showed significant gains when it came to analyzing complex pedagogical situations.

In a later study of preservice teachers (1991b), Kleinfeld found that the teachers engaged in writing cases about their own student teaching experiences became more sophisticated in their thinking about teaching. Their written cases were then examined according to an analytic framework developed by Kleinfeld. Those preservice teachers who began with rigid conceptual maps ended with more complex, contextual, and explicit conceptual maps about their role as teachers. Results of these studies indicate that case-based instruction may enhance preservice teachers' abilities to analyze subsequent complex situations as well as influence their own perceptions of themselves as teachers.

Kagan (1991) also studied the use of cases as a way to analyze teachers' beliefs. In this study, both inservice and preservice teachers were asked to write four case narratives. Significant differences emerged between the two groups of teachers in the structural and content features of the cases. Although writing a response or solution to a case appeared to constrain teachers from expressing personal

beliefs, teachers' own beliefs emerged when they wrote their own cases.

In actual practice, cases are often used in various formats (Barnette, 1991; Cooper, 1995; Patterson, 1994; Shulman, 1992a, 1992b; Silverman & Welty, 1992; Silverman, Welty, & Lyon, 1991; Wasserman, 1993; Wineburg, 1991). Jackson and Greene (1996) investigated the relative effectiveness of three methods of case-based instruction in fostering greater transfer to new situations in a preservice teacher education course. The three methods investigated in a semester-long study were teacher-led discussion of cases with the whole class, small cooperative group analysis of cases, and individual analysis of cases. All three groups performed well on the case analysis transfer task. However, it was the individual analysis group that significantly outperformed the other two groups, perhaps because of the individual mental processing required to perform the task.

Other researchers have also begun to focus on the individual responses to use of cases. Ertmer, Newby, and MacDougall (1995) investigated how different types of students responded to and learned from case-based instruction. In this study, first-year veterinary students enrolled in a biochemistry lab which used case studies as one of the primary methods of instruction. Qualitative as well as quantitative data were gathered at different times during the semester to explore initial and changing

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responses to case-based instruction. Findings revealed that students who scored high on self-regulation measures were more comfortable with this method of instruction and this affected the type of goals they set for themselves (i.e., process over product). In contrast, students who were low self-regulators progressed through the course, but let contextual factors interfere over time and expressed more stress using the method. However, even these low self-regulators made gains in terms of the goals they selected for themselves, moving from product goals to process goals by the end of the semester. As students progressed in their case-analysis approach, their interest, motivation and confidence increased, or was sustained, for future case analyses.

Summary and Overview of Present Study

The results of these studies suggest that case-based instruction may be effective in helping preservice teachers apply knowledge and skills to the complex situations that arise in actual teaching practice. Teaching students specific strategies for analyzing cases appears to increase their effectiveness in analyzing future cases. Fostering domain-specific problem-solving skills as well as metacognitive awareness of useful strategies may be other areas in which case-based instruction will prove valuable in ill-structured domains such as teaching.

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However, we still do not know enough about the processes used by individuals during case analysis or how the processes of analysis develop over time. Motivation factors may also play a role in the efficacy of case-based instruction. Finally, although teachers are enthusiastic about using cases for instructional purposes, we do not have a clear understanding of the students' perceptions of the usefulness of the technique.

The purpose of this study was to examine the processes used in case analysis by preservice teachers in a media and technology course. Specifically, I wanted to examine four questions. First, how do students process information in case analysis? I wondered if the processes used during case analysis would correspond to the types of processes suggested by the literature regarding schematization, problem-solving, and metacognition. Second, how do processes of analysis develop over time? I predicted that the processes used would evolve toward greater sophistication as the students developed procedural knowledge related to the case analysis task. Third, are there patterns of motivation, as in perception of ability and goals, found among the participants, and do those patterns match theoretically consistent patterns of case processing? For example, I predicted that participants with high learning goals and high perception of ability would demonstrate relatively deep processing of cases as compared

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to participants with performance goals and lower perception of ability. The fourth question asked was: What are the students' perceptions of the usefulness of cases for learning?

This study was designed so that students would receive instruction in case analysis and then respond to a series of cases over a five-week period. Because performance improves when students have been taught general, task-specific or domain specific strategies (in this instance, for case analysis) (Garcia & Pintrich, 1992; Phye & Sanders, 1992), students were given instruction in case analysis using a Case Analysis Guide (see Appendix B). This Guide was designed to help induce students' schemas for relevant knowledge, encourage metacognitive awareness of their own learning via cases, increase their ability to problem-solve in the ill-structured domain of teaching, and encourage future transfer.

This research was conducted in the context of an actual college course in which case analysis was a normal part of instruction. Since case analyses are typically conducted in real classrooms, the ecological validity of this setting seemed appropriate. Additionally, this setting facilitated exploration of the importance of prior knowledge of course concepts, teaching specialty, and proximity to student teaching as contributing factors in students' processing of cases. Results of this research might also be more readily

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received by teacher practitioners who use the technique and could benefit from a more thorough understanding of the processes that occur.

CHAPTER II

METHOD

Participants

Participants in this study were volunteers from three undergraduate sections of a media and technology in education course at a small, mid-South university. The course was designed as an introduction to media and technology and focused on the systematic planning, selection, use, and production of media for instruction. Computer applications for instruction, including internet and World Wide Web, were also emphasized. Class sessions included lecture, demonstrations, individual and group learning tasks, and hands-on activities (see "Course Syllabus" in Appendix C).

Students in the course were junior and senior education majors who had been admitted to the Teacher Education Program and had a minimum GPA of 2.5. Selection of the participants was based on analysis of their initial processing of a single case. The same case was used as part of the regular course in all sections. Due to the subjective nature of evaluating the case analyses, I used a scoring rubric to evaluate students' performance in identifying case content and metacognitive strategy use (see "Scoring Rubric for Cases" in Appendix B). Determination of

students' relative sophistication in case analysis was based on the number of issues and depth of elaboration of those issues in the students' analyses of the selection case. Three participants who showed initial sophistication in case analysis and three participants who showed relative unsophistication were selected for the study. Students did not know the basis for their selection. Additionally, survey data were collected from all students enrolled in the three course sections.

Data Sources

Descriptive Information

In order to provide a student profile for each participant, the following descriptive information was collected via surveys at the beginning of the course.

ACT Scores

ACT scores were used to compare initial differences or similarities between participants. Note that due to the special population of students already admitted to the Teacher Education Program, the minimum GPA was 2.5. Scores were obtained from the university registrar, with participant permission. Students indicated permission to obtain their scores on the Informed Consent Form (see Appendix D).

Teaching Specialty

Information about students' choices of teaching specialty (elementary v. secondary; English, math, PE, art,

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etc.) were used to compare any differences or similarities in students' analysis of cases. Previous research suggests that motivation, cognitive engagement and subject domain influenced students' critical thinking (Garcia and Pintrich, 1992) (see Appendix E).

Prior Education Courses

Students in the course were junior and senior students who had already been admitted to the teacher education program and could take the restricted professional education courses. Professional education courses include methods courses, developmental psychology, educational psychology, and tests and measurements. However, some students were just beginning to take the professional education courses while others were completing them. I thought this variability in prior knowledge might impact students' responses to the cases. I also thought students for whom student teaching was imminent (i.e., the next semester) might be more receptive to course concepts and might approach case analysis in a more meaningful way (see Appendix E).

Prior Knowledge

Since prior knowledge of course concepts could affect students' case analyses, a survey was used to determine initial individual differences. A 35-item multiple choice format survey included questions about the following concepts: 3 definitions of learning, instruction and technology; learning theories (1 behavioral, 4 cognitive);

3 communication theory; 2 media use; specific media attributes (1 use of visual media, 3 use of video, 6 use of computers); 5 listening/hearing process; 2 learner analysis; 2 use of objectives; 1 evaluative feedback; and 2 technology v. humanism. These items were included to gauge students' initial familiarity with many (not all) of the concepts embedded in the cases which were analyzed in the study. A similar survey is administered each semester to gauge prior knowledge at entry to the course.

Since students might have had varying prior experience in the technique of case analysis, two open-ended questions determined students' prior use of case analysis for instruction as well as their opinion of such experience. I thought students with varying prior experience in analyzing cases might process the cases differently and their opinion of the technique could impact their engagement with the cases.

Prior knowledge and use of equipment (specifically the overhead projector, audiotape recorder, videocassette recorder, and computer) were determined by two check-list type surveys (see Appendix E). These surveys are routinely administered each semester to the media and technology classes to gauge prior knowledge.

I designed the course schedule so that students would have studied and practiced the concepts and skills embedded in the cases before the cases were distributed for analysis.

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Motivation

I thought students' attitudes and beliefs about
learning and studying might affect their performance on the
case analyses (i.e., content and metacognitive strategies)
as well as the processes used to analyze the cases. To
study these possible effects, students completed a 52-item
instrument based on the "Motivation and Strategy Use Survey"
(Miller, Greene, Montalvo, Ravindran & Nichols, 1996) (see
Appendix F). This instrument measured goals students might
have for doing academic work, perceived ability, self-
regulatory activities, strategies used, and the amount of
effort and persistence expended in class. The instrument
was validated by Miller et al, 1996, in terms of
theoretically predicted intercorrelations and regression
analyses with both cognitive engagement and achievement as
dependent measures. Cronbach alpha reliabilities for the
survey items used in this study are reported in the
following description of items.

In this study I used only those items on the survey
measuring the following variables: goals (5 items for
learning goal orientation, alpha = .80/.82; 5 items for
performance goal orientation, alpha = .87/.86; 2 items for
pleasing the teacher, alpha = .68/.70; 2 items for future
consequences of learning the material, alpha = .69/.65),
perception of ability (8 items, alpha = .93/.93), and self-

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regulation (6 items, alpha = .80/.78) (see Tables
1 and 2). A five-point Likert scale was anchored with
"strongly disagree" and "strongly agree." The survey's
authors granted permission to use the survey for this study.

Students' responses on the Survey were used to profile
their attitudes and beliefs about learning and studying.
students were considered "low" in an area (i.e., learning
goal, performance goal, etc.) if they marked predominantly
1s and 2s on the scale. Students who marked 4s and 5s on
the scale were considered "high." Students who marked 3s
were considered "medium" or "undecided."

Table 1

Goals, Pleasing Teacher, and Future Consequences Items from
the Miller-Greene Motivation and Strategy Use Survey

Category   Statement

Learning Goals

    I do the work in this class because...

        I want to understand the concepts.
        I like learning new material or ideas.
        I like the challenge of learning new things.
        I like to understand what I am learning.
        I like to acquire new knowledge.

Performance Goals

    I do the work in this class because...

        I like to perform better than other students.
        I don't want others to think I'm not smart.
        I like to look capable to my peers and friends.
        I like others to think I'm smart.
        I don't want to look foolish or stupid to my
        peers or to my instructor.

Pleasing Teacher

    I do the work in this class because...

        I want the instructor to be happy with me.
        I don't want the instructor to be unhappy with me.

Future Consequences

    I do the work in this class because...

        good grades lead to other things that I want
        (e.g., money, graduation, good job, certification)
        my grades have important consequences for my
        future (e.g., money, graduation, good job,
        certification)

Note. From Miller, R.B., Greene, B.A., Montalvo, G.P.,
Ravindran, R., & Nichols, J.D. (1996). Engagement in
academic work: The role of learning goals, future
consequences, pleasing others, and perceived ability.
Contemporary Educational Psychology, 21, 388-422.

Table 2

Perception of Ability and Self-Regulation Items from the
Miller-Greene Motivation and Strategy Use Survey

Category   Statement

Perception of Ability

    Compared with other students in this class I don't know
        very much about the subject.
    I understand the ideas being taught in this course.
    I am doing well in this class compared to others.
    Compared with other students in this class I think
            I am doing well.
    My knowledge and skills are better than those of
        other students in this class.
    I can do the work in this class.
    In a next course in this area I would probably
        have difficulty understanding the material.
    I have limited understanding of the concepts in this
            class.

Self Regulation

    As I progress through the course I have a clear
        idea of what I am trying to accomplish.
    Before a quiz or exam, I plan out how I will
        study the material.
    It is easy for me to establish learning goals
        for this class.
    When I study I take note of what material I have
        or have not understood.
    I find it difficult to organize my study time
        effectively.
    I make sure I understand material that I study.

Note. From Miller, R.B., Greene, B.A., Montalvo, G.P.,
Ravindran, R., & Nichols, J.D.   (1996). Engagement in
academic work: The role of learning goals, future
consequences, pleasing others, and perceived ability.
Contemporary Educational Psychology, 21, 388-422.

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Verbal Protocols

Verbal protocols ("think-alouds") were conducted with the participants to get at the processes used by students when analyzing cases as well as how processes of analysis develop over time. Prior to receiving their first case for think-aloud analysis, I demonstrated the verbal protocol and use of recording equipment to each student, using a paragraph-length mini-case. Each student then practiced the protocol, using another paragraph-length mini-case (see "Demonstration and Practice of Verbal Protocol" in Appendix G). This demonstration and practice offered opportunities for any questions the students had about the procedures to be followed for the protocols as well as offered an opportunity for me to encourage their verbalization of thought processes.

Participants then performed "think-alouds" as they analyzed three cases (Cases 3, 4, and 5) and recorded their thoughts on audiotape for later transcription. For each protocol, students were given an instruction sheet which prompted them regarding the verbal protocol procedure, the case to be analyzed, blank paper and pencil, and an audiotape cassette recorder (see "Verbal Protocol Instructions" in Appendix G). Students read aloud the case, including any thoughts they had while reading. If they

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wished, they could underline points on the written case or make other written notes on the blank paper provided. They then stopped the tape and took as long as they needed to write their impressions of the case. Then they turned on the tape again and explained their analysis. They could add comments that they hadn't thought of during the read-aloud or writing stage.

Pilot of Protocols. In order to determine a verbal protocol which would yield appropriate data, I conducted a pilot test with a senior education student who had completed the course and had the prior knowledge necessary to analyze the pilot cases. (See Appendix H for all pilot documents.) Three verbal protocols were conducted for consideration in the study. Additionally, three different cases were piloted, one for each protocol.

The first protocol was Read Aloud - Think Aloud. For this protocol the student read the case aloud and then thought about the case aloud. I thought this option might closely mimic actual thought processes during analysis.

The second protocol was Read Aloud - Write - Think Aloud. This protocol allowed the student to read the case aloud, write her thoughts, and then think aloud, explaining her written comments. This option was explored since it more closely approximates the procedures people often follow when analyzing a problem.

The last protocol was Read Aloud - Write and Think

Aloud. In this "dual code" protocol, the student read the case aloud, then wrote her comments while thinking aloud. I thought this option might yield a richer understanding of processes used as the student wrote her response.

After the student completed the third protocol, she completed a written questionnaire about the protocols. Questionnaire items asked which protocol she found more or less comfortable to do, whether any protocol seemed difficult to do, which protocol seemed to help her think aloud more efficiently, and also whether she had any suggestions about the protocols. The questionnaire also asked which of the cases she enjoyed analyzing most or least. (See "Interview re Pilot of Protocols" in Appendix H).

On the questionnaire, the student noted she enjoyed analyzing two of the cases ("Mr. Fishbein" and "Long Division Blues") but did not enjoy the "Quickstart" case. She seemed bothered by the format of this case, which varied from a "typical" case scenario. In this case, brief conversations of three teachers' attitudes towards the use of a new computer program were reported. The student reported she felt she was "picking apart a person not ideals [sic]" and felt "very ineffective." As a result, I re-framed the ending of the case and returned to the more familiar format. This revised version provided more closure to the case and was used in the study (see Appendices H and

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I for both versions).

The student also reported she felt comfortable with Protocols 1 and 2, but preferred 2 because she "had time to think, write, extend on writing, then explain my answer. I could add extra thoughts as [I was] rereading my answers." The student was most emphatic that Protocol 3 was the least comfortable because she was trying to think and write at the same time. "The idea of dead air time on the tape while I was writing made me a bit subconscious [sic]."

Based on the student's responses to the questionnaire/interview and because the second protocol seemed to produce more evidence of her thought processes, I chose the second protocol as the protocol that would be more likely to get at the mental processes normally used by students during case analysis. I also thought that having the student's writing as well as any underlining or other marks on the case text itself could be informative about processes used during analysis.

Written Protocols

Although I did not expect the protocol task to interfere with processing the case, I wanted some way of gauging the extent to which the verbal protocol might be different from a more typical academic task. Therefore, I chose to also look at written protocols for comparison.

Six students for the written protocols were

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selected on the basis of their initial analysis of the first case, "Mr. Fishbein." I matched these students with the verbal protocol students according to depth of initial processing of the case, proximity to student teaching, and subject specialty.

Personal Reaction to the Use of Cases

At the end of the study, I administered an open-ended survey to each student to determine their personal reaction to the use of cases (see Appendix J, "Case Analysis Survey"). Questions prompted students to respond about what they liked or disliked about the use of cases, what they found easy or difficult about case analysis, whether they felt they learned course concepts using cases, specific cases they might have enjoyed or not enjoyed analyzing, whether they recommended the use of cases as an instructional technique, and whether they had used case analysis in other classes and their impressions of the experience. I also included a cue for students to offer additional comments concerning the use of cases (see the "Case Analysis Survey" in Appendix J).

Students' answers to the open-ended survey were analyzed by type and frequency of responses. Responses were compared to their verbal protocol responses for consistencies, inconsistencies, patterns and themes.

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Mini-Cases

Participants received an individual demonstration and practice session before the case analysis instruction and three analyses began. I constructed two paragraph-length cases to use during the verbal protocol demonstration and practice session described earlier in this document. (See "Demonstration and Practice of Verbal Protocols" in Appendix G).

Verbal Protocol Instructions to Participants

For each case analysis using the verbal protocol, students were given a copy of written instructions so they could more easily follow the protocol. A copy of these written instructions sheet is in Appendix G (see "Verbal Protocol Instructions").

Cases

Cases which exemplify a variety of educational media and technology situations and issues were used. The first case was the "selection case" and contained many possible concepts on which students could focus attention. I designed the remaining cases so that each case became gradually more complex than the previous case, consistent with authentic instructional practice. Copies of all six cases and a list of the issues contained in each are provided in Appendix I. In addition, a content matrix which lists major issues in each case is provided in Appendix I

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(see "Overview of Case Issues"). Note that all cases required students to consider basic learner and task analysis, the role of objectives, and the use of media and technology.

Mr. Fishbein (Case #1)

This case was adapted from a case written by Barbara Greene and used with her permission. The case was given to all students for written analysis in class and was the "selection case" which was evaluated to select the six participants for the study, as described earlier in this document.

Vietnam History Lesson (Case #2)

This was a 10-minute case on video from the supplementary course materials accompanying Jeanne Ormrod's Educational Psychology: Principles and Applications (Merrill, 1995). This video case was used when modeling case analysis in class using the Case Analysis Guide.

Jack Writes a Paper (Case #3)

This case was the first case analyzed using the verbal protocol described earlier in this document and was written by Mark Grabe and Cindy Grabe (1996). Students were encouraged to use the Case Analysis Guide to help them with their analysis. (This guide is further described in the following section.) Also, they could refer to their class notes and the textbook. This condition mimicked actual student practice when preparing assignments for a course,

especially when students are novices in a subject. Students were told they would not be able to use these aids during the test later in the semester.

Rx for Ailing Instruction (Case #4)

This case was the second case analyzed using the verbal protocol described earlier in this document. Again, students were encouraged to use the Case Analysis Guide, and could refer to class notes and textbook if desired.

Long Division Blues (Case #5)

This case was the third case analyzed using the verbal protocol described earlier in this document. The same procedure regarding use of the Case Analysis Guide, class notes, and textbook was followed.

QuickStart (Case #6)

This was the last case analyzed by participants. Students did not use the verbal protocol for this analysis but instead wrote their analysis of this case in class without using the Case Analysis Guide, class notes or textbook.

Case Analysis Guide

Because students need instruction in case analysis in order to perform successfully, I constructed a Case Analysis Guide to scaffold their analyses in the course (see "Case Analysis Guide" in Appendix B). Recommendations in the literature on case-based instruction include using stimulus questions to help students learn to analyze cases (Shulman,

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1992; Wassermann, 1993). Three questions on the Guide reflected those typically recommended to prompt students' responses. Question 1 ("Describe the case's situation, problem, dilemma, or issue.") cued distinctive features of the case. Question 5 ("What are your recommendations for possible alternatives, consequences, solutions, or outcomes?") cued application of appropriate principles. Question 6 ("What is/are the factual, theoretical, experiential and/or empirical basis/bases for your recommendations?") cued articulation of student's rationale.

The remaining questions were designed to guide students' metacognitive awareness as they analyze a case. Questions 2, 3 and 4 were designed to help students transition from novice analysis to the deeper analysis more typical of experts. ("What do you already know about a similar situation from prior knowledge or experience? How is the situation in the case similar to or different from your prior knowledge or experience? Is there additional information about the case you need or would like to know to analyze the case more fully?") Question 7 ("Under what other or future conditions might the information, insights and analyses of this situation be useful to you?") was designed to encourage students to think about future usefulness of concepts in the case.

The Guide was distributed to all students when case analysis was modeled using Case 2 (Vietnam). Students then

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used this guide as a scaffold when analyzing Cases 3 (Jack), 4 (Rx), and 5 (Long Division). The Guide was not used when analyzing Case 6 (QuickStart).

Scoring Rubrics

Due to the subjective nature of scoring the case analyses, I constructed scoring rubrics to assess content and metacognitive awareness. The rubrics were based on the Case Analysis Guide which was modeled during instruction. Students were encouraged to use the Guide during their analyses, and their analyses reflected this use (see "Case Analysis Guide" and "Scoring Rubrics" in Appendices B and I).

For each case, relevant issues regarding content were listed on the rubric. Student's responses made "no mention," "mention," or "mention plus elaboration" of these issues. Students also mentioned issues I had not identified. In that event, this was noted under "other" on the rubric. In addition, students' responses concerning recommendations and rationale for recommendations were noted.

Metacognitive awareness was also evaluated according to the Case Analysis Guide questions. Students also made "no mention," "mention," or "mention plus elaboration" of prior knowledge, case similarities and differences from prior knowledge, additional information needed to analyze the case, and future usefulness.

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I provided written evaluative feedback concerning each case analysis to each participant before any subsequent case analysis was assigned. The feedback to students was carefully designed to provide evaluative comments which would promote their progress in analyzing cases, while not unduly influencing students' responses. Students received instructions to analyze the cases using the Case Analysis Guide. They could also use class notes, their textbook, or other resources, if necessary. On my written evaluations of their analyses, I noted when students were not following the Guide and encouraged them to do so. For example, if a student did not mention relevant personal experiences, I wrote "Have you ever seen or experienced anything similar?" If students provided vague statements, I encouraged them to be more specific ("Be more specific about this." or "Can you give me an example of what you mean here?"). Some feedback regarding a particular point or description was more informal and, I hoped, would help personalize students' written dialogue with me about the cases ("I have seen this too." or "Isn't that something?")

While these types of feedback focused on the processes I hoped to encourage thorugh use of the Case Analysis Guide, I occasionally provided corrective feedback if a student appeared confused about a concept. For example, some students revealed a naive understanding of the cognitive domain and feedback was provided to re-direct their

consideration of that concept. Thus, while the nature of the feedback varied somewhat, according to the students' responses, I tried to strike a balance between providing authentic evaluative feedback to promote further student development and also keep some distance to lesson the effects of my feedback on the students' responses.

Equipment

A Panasonic transcriber with variable speech control was used for transcription of verbal protocols. An audiotape recorder using a standard cassette was issued to each participant for use in the study.

Procedures

During the first week of classes before course instruction began, the following surveys were administered to all students: 1) Survey of Prior Knowledge of Media and Technology Course Content, 2) Media Equipment Use, 3) Computer Use Survey and 4) Case #1 - Mr. Fishbein. Before the study began, I also administered the Motivation and Strategy Use Survey. See Appendix C ("Course Syllabus") for study components and schedule.

I then evaluated students' analyses of Case #1 according to the procedure described earlier in this document. Based on the results of this evaluation, six students were selected for the study, as described earlier. Students were not informed about the basis for their

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selection.

All students were told that I was conducting a study regarding use of the instructional technique of case analysis and I invited their participation. Participation in the study was voluntary. Since survey data were collected from all students in the course, they were given the Informed Consent Form (as well as a personal copy) to indicate their voluntary participation in the study (see "Informed Consent Form" in Appendix D).

The Informed Consent Form explained that the purpose of the study was to examine the instructional technique of case analyses. I explained that there were two parts to the study and only a small group would be selected for the second part. Participation in the first part of the study would consist of responding to a set of questionnaire items seeking their attitudes and beliefs about learning. They would also respond to a questionnaire and series of cases concerning the use of media and technology. They would also respond to a survey about the use of cases in the course. Students selected for the second part of the study would "think aloud" while reading and analyzing three cases about media and technology. Responses were taped and took place at their convenience outside of class. They were also asked to write a case analysis. All students were given a copy of the Informed Consent Form to keep.

I then contacted the six students individually

(selected on the basis of their analyses of "Mr. Fishbein")
to ask them to participate in the study. Participants were
given an Informed Consent Form to sign and were also given a
copy of the form to keep (see "Informed Consent Form" in
Appendix D). The week before instruction concerning case
analysis began, the six participants were given an
individual demonstration of the verbal protocol and time to
practice the protocol. This procedure was described earlier
in this document.

Week 1 - Day 1 (Mon)

All students received training in class regarding case
analysis using Case #2 (Vietnam History Lesson). An
independent faculty observer with experience in case-based
instruction was present to verify procedures used in
instruction. After viewing Case #2, I distributed the Case
Analysis Guide and used the Guide to model the process of
case analysis. Students kept their Guides to scaffold their
subsequent case analyses.

Week 1 - Day 2 (Wed)

I distributed Case #3 (Jack) and the six participants
were then excused from class to conduct their first verbal
protocol. While they were analyzing their cases, the
remainder of the students wrote their analysis of the case
in class. All students were reminded to use the Case
Analysis Guides to help during analysis. When participants
had completed their protocols, they returned to class and

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brought their case, audiotapes, and any written comments to me. I then collected the written analyses from the remaining students. I discussed Case #3 with each class, thus providing immediate informative feedback to all students concerning case content as well as reinforcing the processes used to analyze the case. Evaluative feedback was based on the Case Analysis Guide prompt questions. Written feedback concerning individual analysis was given to each student on the subsequent class day.

Week 2 Day 1 (Mon) -

I returned the written feedback for Case #3. Participants were then given Case #4 (Rx for Ailing Instruction) to analyze outside of class. They were informed that they could use the Guide, class notes, and textbook for these out-of-class analyses but could not use them on the subsequent test. We discussed the case in class. I provided written feedback to students based on the Case Analysis Guide.

Week 2 - Day 2 (Wed)

I collected analyses of Case #4 and we discussed the case in class.

Week 3 - Day 1 (Mon)

I returned written feedback regarding Case #4 to students and distributed Case #5 (Long Division Blues) for out-of-class analysis. Students could use the Case Analysis Guide, class notes, and textbook but were reminded they

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could not use the Guides, notes or textbook during the final case analysis later in the course - i.e., on the test.

Week 3 - Day 2 (Wed)

I collected analyses of Case #5 and we discussed the case in class.

Week 4 - Day 1 (Mon)

I return Case #5 with written evaluative feedback to all students.

Week 4 - Day 2 (Wed)

The final case analysis (Case #6- QuickStart) was given during a test situation. All students wrote their analysis without using the Guides, notes, or textbook.

Week 5 - Day 1 (Mon)

I returned Case #6 (the test) which included written evaluative feedback and we discussed the case in class. I then distributed the Case Analysis Survey regarding the use of cases to all students.

CHAPTER III

RESULTS

In this chapter I will report the results of the study. I will begin with a description of the organization of the data. Then I will describe how the data were analyzed. Since I was both the instructor for the course as well as the researcher for the study, my own biases could have influenced my view of the data and will therefore be described next. The remainder of the chapter will focus on the participants, beginning with the verbal protocol participants, continuing with the written protocol participants, and concluding with themes and trends across participants.

Organization of the Data

When considering how to report the results of the study, several key organizational issues surfaced. Which participants should be described first? How should each participant's data be presented? How should their direct quotes be reported? A brief explanation follows of how these issues were resolved.

After consideration of several options, I decided to report the results of the verbal protocol participants first, since they were the main focus of the study, and then

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follow with results of the written protocol participants. To decide the order in which to present each participant's data within those groups, I referred back to the participants' initial selection for the study, based on their analysis of the first case ("Mr. Fishbein"). As a result, the descriptions of each participant follow in sequential order from the student who showed the least initial sophistication in case analysis (relative to other participants) to the student who showed the most initial sophistication. There may have been other ways to choose the order of presentation, but this seemed to be a logical progression and one which would be less confusing to future readers of this dissertation.

Since this study examined the responses of twelve participants, the amount of data reported could easily be overwhelming for prospective readers. Therefore, each participant's data was described using the following category headings: background, analyses of the cases, and summary. The background provides information about each participant's teaching specialty, expected student teaching semester, prior knowledge of course content, and responses on the Motivation and Strategy Use Survey, as well as pertinent personal and anecdotal information. The analyses of cases describes student's analysis of each case and includes illustrative quotes. A summary of each participant's processing of cases concludes each individual

section. Following the reports of all six verbal protocol participants, I summarized themes and trends across participants. I repeated this procedure for the written protocol participants.

Qualitative reports often feature direct quotes from participants and presenting such quotes with clarity and ease of reading was the next important consideration. Where direct quotes were longer than four lines, I blocked the quotes by indenting and single-spacing. Shorter quotes were reported within the narrative, set apart by quotation marks. When a verbal protocol participant voiced a strong emphasis on a particular word or phrase, I capitalized the word or phrase within the block quote. Direct quotes from written protocol participants' analyses as well as all participants' written responses to the Case Analysis Survey were transcribed verbatim. When reporting students' written comments that contained a misspelling or misuse of a word, the error is noted by the use of [sic]. I also bracketed explanatory comments that could help clarify the quote for the reader.

Analysis of the Data

Transcripts of the verbal protocols in the study were analyzed using the constant-comparative method (Denzin and Lincoln, 1994). This method was selected as the most viable way to analyze not only the processes occurring during case

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analysis, but also the changes in those processes over time. Constant comparison of cases with cases for processes, themes, and patterns lead to development of categories. I also compared results from emerging patterns or themes with patterns predicted from theory or the literature. Plausible explanation about an individual's case processing were also considered (and sometimes discarded) as I traced changes in patterns or themes over time. Written comments, underlined points, concept maps, etc. made during the verbal protocol writing phase were also examined.

I used the rubric based on the Case Analysis Guide to further analyze participants' responses to the cases (see Appendix H). Questions 1, 5, and 6 on the Guide covered content in the case; Questions 2, 3, 4 and 7 dealt with students' metacognitive awareness. The students were allowed to refer to their copy of the Case Analysis Guide during their analysis of all cases except the last case ("QuickStart").

To strengthen reliability and internal validity, I used data triangulation and data audit techniques. Triangulation of data was accomplished through several surveys, analyses of cases, class observations, and observations and conversations with individual students. The variety of data sources provided multiple avenues for comparison. Two professors experienced in research, at different universities, reviewed several case analyses using the Case

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Analysis Guide and Scoring Rubrics to provide a data audit. Both researchers saw patterns, themes, and content similar to my own findings.

Additionally, information about each participant gathered at the beginning of the study was examined to determine possible influences on subsequent responses. Such profiles of students' prior experience, teaching specialty, motivational factors, etc., were important to understanding each participant's processing of cases. Students' prior academic, work, or personal experiences were examined for possible influences on their analyses of cases. Students' teaching specialty was also examined to provide some insight into their interpretation of the cases.

Motivational factors regarding goals, perception of ability, and self-regulation were examined to profile students' attitudes and beliefs about learning and studying in general. (During analysis I inadvertantly omitted two items regarding pleasing the teacher from the Motivation and Strategy Use Survey.) Regarding analysis of students' responses to Survey items, the five-point Likert scale was anchored with "strongly disagree" and "strongly agree." For purposes of this study, scores of 1s and 2s were considered "low," 4s and 5s were considered "high," and 3s were considered "medium" or "undecided."

Researcher and Instructor

Although every effort was made to examine the data objectively, my own background and biases toward the course certainly "colored the lens" through which I viewed the data. Accordingly, it may help the reader to consider my personal subjectivities as I reported and interpreted the data.

As the instructor in the media and technology course, I was concerned that my students meet general course objectives: demonstrate the use of media, technology, and instructional design principles that are appropriate for a variety of learners and situations. Another important objective for the course deals mainly with the affective domain. Many media and technology students exhibit anxiety about taking such a course, due to their inexperience with media equipment, computers, and the production requirements of such a course. They are often hesitant, anxious, and unsure of their own abilities to master the technical aspects. Although it is important to learn the declarative and procedural knowledge of the course content, helping students gain confidence in their ability to use media and technology in their future classrooms is also vital. As a result of this motivational stance, the course was designed to encourage learning goals, future consequence goals, and high perception of ability for using media and technology.

From an instructional standpoint, I had a finite time

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limit (one semester) within which to help my students accomplish course objectives. As researcher, I also had a finite time limit (five weeks) in which to gather data. Merging my instructional objectives for the course with the goals for the study, without sacrificing course integrity, interfering with student learning, or undermining the study was quite a challenge. As students analyzed the cases and I provided instructional feedback, I seemed to be constantly switching hats. At times I wore the instructor hat, puzzling over why a particular student hadn't provided deeper analysis and sometimes feeling disappointment, wondering what I might have done to further her understanding and analysis of the case. At the same time, as the researcher, I tried not to unduly influence students' responses in my interactions with them as well as trying to make sense of how students' response patterns were developing over time.

Of the twelve participants in this study, I had taught half of these students in a different course in previous semesters. That course, children's literature, is a non-restricted course taken early in a student's progression through their education course work. The media and technology course is a restricted course, taken after students have been admitted to the Teacher Education Program and often is one of the last courses students take before their student teaching semester. As a result, I had some

prior knowledge about these students' capabilities. However, I recognized that they were now nearing the end of their course work and were likely to show more mature educational perspectives than when I taught them previously.

Verbal Protocol Participants

Brenda

Background

Brenda, an elementary education major in her early 50's, is from a small farming community. She entered college a few years ago after her children had grown and left home. She has a pleasant personality and works well with others in class projects (kind, dependable, does good work), but is somewhat shy and reserved. She seldom initiates in-class questions or out-of-class conversations (chit-chat) with the instructor. However, Brenda will ask the instructor outside of class if she has questions about an assignment.

Brenda's natural reserve did not deter her from participating in the verbal protocol portion of the study, however. She did not hesitate to participate when I told her she had been selected for the oral portion of the study. In fact, she told me she had participated in other studies in the psychology department and always found them interesting.

Brenda will student teach in Fall 1997. She reported

no experience using cases prior to this course. While she had already taken some of the restricted professional education courses, she had not had an educational psychology or tests and measurements course. Brenda also had little experience with the equipment used in the course. She had used a computer mainly for word processing, although she had played a few games on computers.

On the prior knowledge of course concepts survey, Brenda got 15 out of 35 correct. She scored well on items related to selecting media based on content, writing objectives, technology versus humanism, and providing feedback to students. On items that were not correct, her answers to distractors indicated concern for individual students, especially one-on-one interactions.

Brenda's response to the Motivation and Strategy Use Survey indicated that she had a high learning goal orientation and a low performance goal orientation. She reported that she was not too concerned with pleasing the teacher. Brenda indicated that grades were important for her future. She appeared to feel confidant that she could do the work in the course. She was not sure how she compared with others in the class and reported that she felt her skills were not better than others' skills. Brenda appeared to be a strong self-regulator.

Brenda's Analyses of Cases

Brenda forgot to use the verbal protocol for the first

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case analysis ("Jack Writes a Paper"), even after we had practiced the protocol and she could use the verbal protocol prompt sheet. She did the read/think aloud verbally, making comments after each sentence. Then she turned off the recorder and wrote out all of her remarks in an essay form. However, she forgot to turn on the recorder again to explain her remarks. After my feedback to her, she did remember to explain her analysis on tape for subsequent cases.

Her read/think aloud revealed her sympathy for Jack's dilemma - trying to compose a paper on the computer in a limited time.

> I've had that happen...and I get really tense
> and anxious about it 'cause I feel like I can't
> write. Things don't come as soon as they should
> and I just get really anxious about it.

As she continued her reading of the case, she repeated several times that this "sounds like me."

> This really does sound like me. I really
> have problems with this. I know what I want
> to say but it's not always easy to write it down.

Although use of the Case Analysis Guide was part of the procedure for all analyses, Brenda did not speak to all points in her first analysis. She did not try to restate the problem, but immediately related the student's (Jack) situation to her own personal experiences. She had suggestions for how Jack could improve his performance in the course but had no suggestions for ways the teacher could help the situation. Brenda later revealed that this was her favorite case to analyze because "if we've never felt

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frustration or anxiety it's hard to understand how a frustrated person feels. I believe I could help Jack."

During the read/think aloud for the second case analysis ("Rx for Ailing Instruction"), Brenda's comments focused more on the student, Gail, and what she could do to improve the situation.

> I wonder if she does a good job taking notes...
> I wonder what Gail can do to help her[self]
> understand the terms and concepts...Hmm, do we
> always read everything we're supposed to be
> reading?...

She did consider external factors that were complicating the situation (lack of textbooks) but then also suggested that Gail ask her teachers for help with note-taking and study skills.

Brenda wrote her thoughts about the case in an outline form (using the Case Analysis Guide categories) and then wrote some of her analysis in essay form. There is evidence of elaboration of words or phrases, revision as terms and sentences were marked out and others substituted, and comments taken directly from the course textbook. Referring to her textbook was not surprising because students were allowed to consult other resources to aid in their analysis if they wished. Brenda appeared concerned with Gail's lack of a textbook in this case and couldn't understand the reasons for that. "I have to have something that's concrete and visual. I have to have a book to go by."

Although Brenda mentioned the student's perspective

during her read/think aloud, her analysis focused on suggestions for the teacher. She offered advice about structuring of classes (more cooperative groups) and increasing the use of visual aids. She also suggested that maybe the teacher didn't have much equipment or materials to use. Her comments further reflected a developing sense of constraints under which teachers sometimes work as well as ways to circumvent those constraints.

> This analysis gave me a chance to reflect on what I might do if I was in a similar situation in my own classroom. I think what I would do is, I would possibly do some research and try to find ways of getting equipment, like maybe writing grants. I'd even consider going to garage sales or going to or writing to journals or magazines that give away free items for teachers, for teachers or classrooms or whatever.

It should be noted here that during the read/think aloud process with both Jack and Rx, Brenda offered a comment after each sentence. However, in the third case analysis, "Long Division Blues", Brenda offered many more comments during the read/think aloud. In fact, she offered suggestions for what was wrong, as well as what the teacher could do, even as she was reading the case. She even began a kind of transition from her third person analysis to a more personal, second person perspective.

> ...you don't have ALL children in your class miss problems like that. They're not dummies. And I don't even like the idea of thinking about a child being a dummy. That's, if you feel like your children in your class are not capable of doing the work, or if they come up with

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scores like that, then you need to self-evaluate yourself and see what you're doing wrong and what you might be able to do to make it fair for them. There's other types of teaching instruction because it's probably not the child or children.

Brenda appeared very empathetic towards the students and their reasons for not asking any questions when they failed to understand the math. She offered a personal glimpse into her prior experiences in this area.

> I remember when I was a child I was so shy I would not raise my hand or ask questions even if I did not understand. I am sure that there are many children that face the same situations today. There are other reasons children may not ask, may not raise their hand and ask for help. And some of them, one reason may be because someone will think they're dumb or they just don't want to be stand out in some way or other and have people think they were stupid.

> Um, I know that myself, even today, I have a hard time asking questions. I want to still sit back and not say anything and there's times whenever I do, I just go home and try to work it out for myself. But I know that's not the best policy. And children need to be encouraged more and more to ask questions to find out what can help. But teachers also need to be aware that they, that there are children out there that could probably do the work but they just are afraid to ask for help.

This revelation appeared to contradict Brenda's responses to the Motivation and Strategy Use Survey which indicated that she did not have a high performance goal orientation. It may be that she was more concerned with others' opinions of her ability than even she realized. As a future teacher, she may be more sensitive to those quietly

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capable children in her own classroom who also are "afraid to ask for help."

It was interesting that Brenda found this case the least enjoyable to analyze because she never experienced a teacher this boring in grade school or high school, with the exception of a college instructor "who was ill at the time." However, she seemed to be more personally involved with this case as evidenced in her elaborated read/think aloud comments and the more personally revealing nature of her analysis.

The last analysis for "QuickStart" was written in class as part of a test. Brenda did not use the Case Analysis Guide categories she had used in previous analyses but simply summarized the situation, related a similar experience, offered suggestions for improvement and future usefulness for her future teaching.

Summary

Generally, Brenda appeared to grow more comfortable with the verbal protocol, gradually increasing comments with every case. She appeared most comfortable writing out her comments in essay form, then reading and sometimes elaborating on those comments on tape. She dutifully followed the Case Analysis Guide during analysis, yet mainly focused on the facts of the case without revealing much personal information. For the first two cases, suggestions were somewhat tentative (i.e., "the teacher needs to...", or

"maybe she could..."). Yet by "Long Division Blues," Brenda

not only revealed more personal information, she also became

more assertive in her suggestions. This time, she often

prefaced her suggestions with "teachers need to..." or

"teachers should..." In fact, a few times she started to say

"teachers should" but then corrected herself and instead

said "she [the teacher] should".

Brenda also gradually showed more awareness of a

variety of factors which could influence each situation.

She approached the first case from the student's

perspective, and while she kept the students in mind in

subsequent cases, she gradually revealed more awareness of

the teacher's role in facilitating student learning. She

offered more insightful comments about implementation of her

suggestions and offered her rationales for suggestions.

On the Case Analysis Survey Brenda revealed that she

didn't like or dislike the use of cases or even find them

particularly rewarding ("they were part of this course"; "I

really just found them time consuming.") However, she liked

using the tape recorder and the think aloud process and

found this easy. "Rather than just read a case, you reflect

upon your own ideas and experiences in similar situations.

It requires some critical thinking processes." This was a

bit surprising, since she is such a shy person. It may be

that the perceived one-on-one nature of the verbal protocol

was indeed a comfortable way for her to communicate with me

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regarding the cases. One would also hope that any time a student does an assignment, they "reflect" but this may be too optimistic an assumption.

Brenda later revealed that she "found it difficult to determine strategies and methods to use in different situations, because it required critical thinking and reflection." She found cases challenging because "it required you to really think about possible solutions to problems you might face as a teacher."

Although Brenda reported she felt she learned course concepts while using cases, she also "didn't feel sure enough of my knowledge and skills without referring to my textbook for support." This is somewhat understandable since she had not yet had courses which could help her understanding of the cases (especially educational psychology). It was apparent she had referred to the textbook during her analysis of "Rx for Ailing Instruction" and "Long Division Blues". When she briefly mentioned behavioral and cognitive perspectives, as well as certain uses of media, her words were almost verbatim quotes from the textbook. She also reported she felt some anxiety "because I wanted to have all the solutions and right answers. I don't."

When asked if she felt cases should be used in future media and technology courses, her answer was surprising. Based on her other responses to the survey, I expected her

to mention opportunities to think critically about future situations. Instead, she wrote "I believe it doesn't hurt anyone to learn something new or at least have the opportunity to experience new activities. I recommend it." It may be that although her confidence in analyzing cases had increased somewhat, she still was not very confident in her ability to analyze the cases.

Fran

Background

Fran is a secondary education major (math and science) in her mid-twenties. She started her college career at a large research university, majoring in engineering. After three years she decided engineering was not for her (too hard, not enjoying the experience). She came to the present university, took a course for secondary education majors (Reading in the Content Areas), and started thinking seriously about teaching as a profession. She also took some more science courses, thinking she would focus on secondary math and science rather than elementary education because "there's so many elementary ed graduates and not enough jobs to go around." This was the first semester she was able to take restricted education courses and anticipates student teaching in the spring of 1998.

Fran correctly scored 20 out of 35 items on the Prior Knowledge of Course Content Survey. She was very knowledgeable about video and computer use and communication

theory. She was least knowledgeable about learner characteristics, learning theories, and technology v. humanization issues. She could operate most of the equipment used in the course and was confidant of her computer skills.

Fran's responses on the Motivation and Strategy Use Survey indicated that she had a high learning goal orientation and a low performance goal orientation. She didn't mind whether peers or teacher thought she was capable or smart, but wasn't sure whether she liked to perform better than the other students. She also wasn't sure how she felt about pleasing the teacher. She did, however, indicate that she felt grades were very important to her future. Fran indicated that she felt very capable of understanding the course concepts and doing the work, but wasn't sure how her skills and knowledge compared with others in the class. She also appeared to be a strong self-regulator.

Fran's Analysis

After being selected for the verbal protocol, Fran and I met in the university math lab for the demonstration and practice of the protocol. Fran understood the procedure, but expressed concern about the process of talking aloud as she read. "I don't do it that way...I think about each word as I read. I really try to block everything out while reading..." I tried to reassure her that while thinking

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aloud might seem strange at first, many times we "talk to ourselves" as we read, but we are probably just not aware of it. Fran agreed and suggested that it was because we usually try to concentrate while reading and NOT talk.

Fran still seemed unsure about whether she could talk enough to do it right. (pleasing the teacher? getting it right?) "The way I do it is, I read something, then stop and think about it, then I may re-read it again." I assured her that she could still do the thinking, just verbalize what she's thinking. Fran did not seem reluctant to participate in the study; she only expressed concern that she would be able to verbalize, when she's not used to doing it. She even mentioned the selection case done in class ("Mr. Fishbein") and described the way she'd analyzed it. She read the case, then went back and "tried to see all the good stuff he did, wrote that down, then went back and tried to see some negative stuff, and wrote that down." She said she didn't think about each sentence while she was reading it. (This contradicts her earlier statement when she said she thought about each word while reading!) Finally, Fran was ready to practice the protocol and did so within ten minutes.

Later, we talked about her experiences as a math tutor. She told me that she thought some of the professors should not be teaching the introductory math courses. "They may be brilliant in math, but they can't explain it to the

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students. She explained that she felt there is a great need

for teachers at the basic math levels in junior high, ninth

and tenth grades. "I want to help those [students] before

they get turned off to math." She explained that she's been

able to explain math concepts to others since junior high

school, even helping her math teachers with student peers.

"I don't know why I never considered teaching."

Fran's Analyses of Cases

Even though Fran had some initial qualms about the

read/think aloud, she made comments after every sentence or

two on the first case, "Jack Writes a Paper." She appeared

very sympathetic to Jack's dilemma.

> I can understand his situation. That
> would be hard for me to do. Uh, I'm not
> comfortable typing on the computer without
> looking at something I've not [sic] already
> handwritten so I can understand that this
> would probably be hard for him.

Fran wrote a few phrases about the case and then turned

on the tape to explain her analysis. She elaborated her

notes while talking on the tape. She used the Case Analysis

Guide but did not speak to each point. She immediately

began by asking questions about Jack and then offering

suggestions and comments about prior experiences that were

similar. Fran had questions about constraints of the

assignment but also noted that she felt the assignment was a

wonderful idea because "it's bridging two subjects together,

you know, English and computers, so you're not just doing

English." She again expressed concern about Jack and his

frustration.

> Sometimes if the subject is something you
> don't know about, it's extremely hard to
> get started. And he might be feeling a
> little, uh, he might be feeling kinda
> nervous or scared which also might cause
> a block since he knows he's going to have
> to do this and he's not good at it.

Fran offered some suggestions for the teacher (give
kids more time, allow more practice on the computer, let
kids brainstorm ideas before writing). She did not,
however, describe how the insights from this case would be
useful in her future teaching. Later she revealed that this
was her favorite case to analyze because she also had
experienced this situation.

With the next case, "Rx for Ailing Instruction," Fran
continued to make comments after every sentence or two
during the read/think aloud. She again appeared very
sympathetic to the student and questioned the teacher's
methods.

> He's not making science fun to learn. Uh,
> you know, if the subject is just copying down
> notes and reading them and asking questions if
> they have, you know, if they have any questions.
> What do they need a teacher for?

She returned to this theme later in her analysis as she
tried to understand why a teacher would teach this way.

> If the teacher is just writing the notes
> down and reading the notes back to 'em off
> the chalkboard and asking if they have
> questions, uh, I think this is a bad way
> to teach. I have been in many classes where
> the teacher reads the book back to you. It's,
> uh, almost degrading because you can read
> the book yourself. And uh, if all the teacher's

going to do is just read the book back to you
then, uh, you don't really need to have a teacher.
You could do that yourself.

Fran suggested the teacher could incorporate more films, experiments, and projects so the students could understand the concepts. Otherwise, "they're not really going to learn it. Maybe they'll memorize it and regurgitate it back on a test. But other than that, I don't think they really understand what's going on." As with the first case, Fran did not describe how the insights from this case could help her in the future.

Fran's analysis of the "Long Division Blues" was the most personally revealing of her attitudes toward her subject and what she seemed to perceive as her teaching mission. In this case, the students fail to learn long division after one lesson and the teacher is really surprised. Fran's first response to the case established her experience with math.

> Math is a very intimidating subject for
> for most people...From experiences of my
> own and from experiences working in the
> Math Lab, I feel like that teachers
> sometimes just lecture and tell you how to
> do the problems and then throw them at you.
> And it overwhelms people.

She offered suggestions for the teacher and then returned to her explanation of how teachers can be part of the problem.

> Sometimes math teachers, or teachers in general,
> uh, end up skipping steps. They jump one step,
> you know, and they leave it out and the students
> don't understand how they got from one step to
> the other because they left out a step. That
> can cause problems...and sometimes teachers

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tend to talk above students' level. I've had
this happen many times. Many of my teachers
and professors in college speak to you, they
explain to you what's going on but yet, they
don't realize that they're talking, they're
still on the level like they're talking to
another colleague or another professor. And
if you don't talk on the person's level or the
student's level, you're going to lose 'em.
You need to come down a notch, realize that
they don't have all the background information
and background schema that you have. They need
to bring it down and go step by step and explain
it and give reasons and examples and show
everybody how.

Since this case dealt with one of her specialty areas

(math), Fran may have been more comfortable talking about

the problems in the case. For the first time she mentioned

how the information from this case could help in her

teaching.

I hope that I remember to stay on the
students' level. I hope that I can explain
things in more than one way and I hope that
I'm patient and don't get excited if they're
not understanding. I hope I can find a way to
explain it to them so that they can understand
it. I hope that I can work with students one
on one and help each student to understand and
feel good about doing math and not be intimidated
by it.

Some teachers want their students to feel good about

themselves and speak of helping students with their self-

esteem. Fran wants them to feel good about doing math. She

goes on to reveal an understanding, perhaps, of how one's

feelings about their abilities in a subject can affect their

overall self esteem.

It can be frustrating if you don't understand
what's going on as a student or if the teacher
doesn't explain it to you where you understand

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it. You feel intimidated or maybe you feel
like you're not as smart as the other students
because they're understanding it and so you
might get down on yourself or something...

And I have a lot of the students come into the
Lab that just needed somebody to actually sit
down with them and go over the stuff. So there's
a lot of different reasons. Math is an
intimidating subject. A lot of people don't feel
that they can do it.

Although Fran provided evidence of her concern for

students and her earnest desire to help them understand

math, she never actually commented on the teacher's method

of instruction. She did suggest that the teacher use

cooperative groups, pairs, and provide some one-on-one

instruction, but she did not specifically break down the

long division task into smaller components. At first I

found this surprising, since math is Fran's subject area I

expected that she would provide some specific and detailed

suggestions. However, Fran had not yet had some key courses

(educational psychology and math methods) which could help

her in task and learner analysis. So, given that she had

not yet had courses designed to help students teach, she was

making sensible connections.

Fran's last case analysis, "Quickstart," did not seem

to be as well-developed as the previous cases. Fran wrote

her responses to this case during a test situation and, in

fact, was the second student to leave the room, after about

20 minutes. Her answers lacked the depth which appeared to

have been developing in the previous cases. She offered a

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similar experience, requests for more information, and a few suggestions for improvement, but made no efforts (again) to link knowledge in the case with her future teaching. She also admitted later on the Case Analysis Survey that this was her least favorite case because she had the least experience with that kind of example.

Summary

With each of the verbal protocol case analyses, Fran appeared to grow more comfortable with the process. She was able to offer more alternatives and while still sympathizing with the students, was seldom critical of the teacher. Her questions were more information-seeking than critical.

On the Case Analysis Survey Fran indicated that she liked the use of cases because they "make you think about what could happen and gives good examples" and found them easy to analyze and "easy to put yourself into the story." She noted that cases were challenging because "they make you think about how you would handle the situations." Fran reported that she learned course concepts using cases because " the cases make you question what is wrong or right and what could be done better and makes you use the concepts you have learned." She recommended the use of cases in future media and technology classes "because they are good experience for students to question their abilities and how they would handle the situation."

Fran's lack of response on some items of the Case

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Analysis Guide could reflect her lack of prior knowledge of educational psychology and math methods and not a lack of interest in the cases themselves. She may not feel as capable as her initial responses on the Motivation and Strategy Use Survey indicated. She appeared to value her role as someone who could help students understand math. She seemed proud that she could explain concepts in many ways, yet didn't specifically identify the math instruction errors in "Long Division Blues."

In class one day, an instructional laser disc we were watching confused some of the students with an explanation about fractions. I referred the question to Fran, our math "subject specialist" so she could explain the concept and was a little surprised when she spoke in generalities and could not explain the concept. Since she had not appeared to be daydreaming, it was more likely that she typified what sometimes happens to experts in their field. They know how to do something, but have trouble explaining it to others. The irony is that this is something Fran prides herself on being able to do! Again, perhaps it just reflects her lack of pedagogical knowledge in this area, and not an overall lack of mathematical understanding.

Gwen

Background

Gwen is an elementary education major in her mid-twenties, specializing in early childhood education. She is friendly, cheerful, and enthusiastic about her education classes. In informal conversations with classmates before the media and technology class sessions began, she often told of her recent experiences with her students at the Child Development Center on campus. She will student teach in Fall 1997.

On the Prior Knowledge of Course Content Survey Gwen scored 25 out of 35 items. She missed the items about behaviorist theory, the development of listening skills, and attributes of some media. Gwen reported no prior experience with case analyses. While Gwen had used some of the equipment in the course, including computers, she had not yet explored the internet and telecommunications.

Gwen's responses to the Motivation and Strategy Use Survey indicated a high learning goal orientation and a low performance goal orientation. She did not appear too concerned with pleasing the teacher but did think that grades had important consequences for her future. She appeared confident that she could do the work in the course, but was undecided about how she compared with other students. She also appeared to be a good self-regulator.

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Gwen's Analyses of Cases

Gwen appeared to have no trouble following the verbal protocol for the first case, "Jack Writes a Paper." For the read/think aloud, Gwen read most of the case aloud and then made a few comments. She underlined one phrase on the case itself. During her analysis of the case, Gwen was definitely sympathetic to Jack's dilemma. She pointed out the different pressures Jack was facing and had several suggestions for ways the teacher could help. She addressed some points on the Case Analysis Guide (identified the situation, related similarities, and offered suggestions) and most of Gwen's suggestions for the teacher appeared tentative, using "maybe she could" before her suggested actions. Rather than express how she could use the insights from the case in her own future teaching, Gwen described possible consequences for "this little boy" as a result of his experience.

> So all the way around he probably wasn't going to do very good on the paper...which also might lead to him not even wanting to do any of the papers on the computer...He's going to hate doing that and he's going to always write it, you know, now he's going to always do it on paper first when he gets out of her class or whatever.

During the read/think aloud of the second case, "Rx for Ailing Instruction," Gwen offered comments after one or two sentences and then offered many comments after the last sentence in the case. She first wondered if the student was exaggerating about the situation, then rationalized that she

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must not be (50 pages of notes were proof), and finally

commented on her own similar experiences.   During her

analysis of the case, Gwen's comments appeared less

tentative than in the first case. She was still very

sympathetic to the student's situation.

> I know about situations like this 'cause,
> of course, we've probably all been in
> classes where you just had a whole bunch
> of notes and you're kind of bored during
> class and then you have a test over it and
> that's not much fun and plus you don't learn
> very much. Or I don't learn very much
> whenever I have classes like that. I just
> study my notes, memorize it, go take the test,
> and then I forget anything that's even in those
> notes.

Several times Gwen again commented on boring classes as

she suggested that the teacher provide hands-on activities,

models and field trips to make the course more interesting

for the students.

> ...they could do lots of things that
> would maybe make it more interesting
> to her [the student] 'cause she's getting
> bored and she doesn't like it. And then
> when you get bored and don't like it you're
> really never going to get it 'cause you don't
> give it much chance...

> ...I just think especially with science,
> you've gotta do more discovery learning
> and have a more student-centered classroom
> 'cause science is boring for a lot of people.
> And if you're just having straight lecture,
> that's got to, I mean, there's interesting
> people that talk but you're probably not going
> to be that interesting, especially to those of
> us who really don't care for science all that
> much.

> ...I think you should have more activities
> and make it more meaningful to the kids
> 'cause it just sounds like they're not

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> interested at all...It doesn't sound like
> she's interested at all...

All that talk of boring classes triggered a memory from Gwen's high school geometry class.

> We'd go in and sit down and she'd
> get on the overhead projector and
> she'd write out notes, notes, notes,
> notes, notes and we'd do this for,
> you know, about a week, and then we'd
> have an open note test. So let me just
> say that I learned nothing...Classes like
> that with just notes, you're not going to
> learn. You're just, I mean, maybe some
> people will, but he's not reaching all the
> students doing that...

In her analysis of this case, Gwen kept returning to personal experiences as she offered suggestions for the teacher. Rather than offering insights about the future for the characters in this case as she had with "Jack", Gwen described how she could personally use the insights from this case in her future teaching.

> ...hopefully I won't forget this and
> I won't get up and try to lay out a
> bunch of information for my kids without
> remembering that, you know, it's probably
> just going in one ear and out the other.
> And they might catch a little bit of it or
> catch enough just to take the test and pass
> it. Probably not going to catch very much of it.

However, her pessimistic comment "probably not going to catch very much of it" seemed inconsistent with Gwen's advice to the teacher. Gwen had described ways to make science more meaningful, interesting, and fun so class would not be boring and the students could learn. Perhaps she herself was not totally convinced that these efforts would

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really result in more learning.

Gwen evidently could not stop thinking about this case, because she went to a basketball game and thought of additional information she wanted to know about the case. She returned to the tape recorder and discussed her latest musings on the case. Instead of criticizing the teacher's methods, Gwen now wondered about the other students in class and the grades they were making. Was everyone having problems or was it just Gail? Was the teacher just trying to evaluate their prior knowledge before trying something different? It seemed that Gwen was beginning to see events from the teacher's perspective as she considered other factors that could impact the case. In fact, Gwen mentioned later that this was her favorite case to analyze because she saw something new each time she read it.

During the third case, "Long Division Blues," Gwen continued to be very sympathetic to the students and critical of the teacher's actions. However, she also began to look for reasons behind the teacher's behavior. Gwen made fewer comments during the read/think aloud than with the previous two cases, but offered more suggestions than in the other cases for improving the situation. Gwen offered some personal insights into her prior experiences as she empathized with the students' lack of questions for the teacher about the math lesson.

> I'm sure we've all been in situations
> where we're sitting in class and the

> teacher's talking and you don't get it
> but you just sit there anyways 'cause
> you're embarrassed or you think "Well,
> I'll try to figure it out later when I'm
> at home." You don't want anybody to think
> you're stupid 'cause you can't figure it out
> even though, I'm sure, most likely you're not
> the only one that can't figure it out...in that
> sense, I'm familiar with this kind of situation
> because you know, I've been there. Especially
> in math. I don't like math and lots of times
> that I've sat in math not knowing what was going
> on but I didn't say anything. I just tried to
> figure it out later. I'd come home and have
> somebody help me at home where I wasn't, you
> know, so intimidated to ask questions.

She suggested that the teacher should help the students with more practice before giving the students a worksheet assignment and then switched into her personal math experiences.

> For me in math sometimes this stuff
> makes sense when the teacher's doing
> it up on the board. Well, all the time.
> It makes sense when the teacher's doing
> it up on the board but then when I get
> it home and I'm trying to do it, it NEVER
> works out the same way. And it's always
> harder when I get home and I don't know
> why that is. I think I know how to do it
> when I'm sitting in class but I come home
> and I can't figure out how he did it or
> what he was doing.

Even though Gwen was sympathetic to the students' lack of questioning and thinks the teacher should provide guided practice before the students begin an assignment, she did not question the teacher's sequence of math instruction. Again, she returned to her concern for the students' lack of questions.

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> When they weren't asking questions
> that should have been, you know, a
> sign to her that they weren't really
> listening. Because nobody, I mean,
> unless you're just, you know, a genius,
> NOBODY'S going to get that in fourth grade
> without asking a question or two. So maybe
> she should have, I don't know, done something
> that really would get her kids interested in
> or she should have had her lesson at another
> time 'cause they weren't interested. They
> weren't into it. They didn't really care.

Gwen tried to end her analysis of the case several times, but came back on tape twice to add more comments. The additional comments were concerned with distractions during the lesson, reasons for her recommendations, and her own similar experiences.

During her written analysis of "Quickstart", Gwen continued to follow the Case Analysis Guide for her responses. She had recently been observing in an elementary school which had a similar program. Her response to the case was laced with comments about her observations and in a few instances, Gwen began analyzing the situation she had observed, rather than the case itself! She did not mention the three diverse technology views presented in the case nor ask for more information regarding the case situation. She did, however, offer suggestions for improvement of the situation she had observed at the local elementary school! Evidently, her experience at that school had made an impression. Later, Gwen revealed that this was her least favorite case to analyze because she felt it was just about opinions instead of a clear problem needing to be fixed.

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Yet, she rushed in to fix the problem at the observed school. A little inconsistency here!

Summary

Although Gwen was very critical of the teachers in all three cases, she did begin to view the teacher's perspective more with each successive case. She also seemed more comfortable sharing personal experiences as she analyzed each new case and seemed more confidant in her responses to the issues raised in the cases. During classroom discussions about the cases, Gwen was always eager to share her opinions and insights about the case. She also identified more course concepts and offered more practical suggestions with each successive case. Even her perspective changed as she switched from responding using third person in the "Jack" case, using second and third person in "Rx" case, and first, second, and third person in the "Long" case.

On the Motivation and Learning Strategies Survey, Gwen's responses indicated a high learning goal orientation. This orientation appeared to remained high during the use of cases. Gwen wanted to solve what she perceived as "puzzles" and be thorough in her analysis. "I wanted to make sure I got to the bottom of the problem without overlooking any details." She also disliked not knowing the endings to the stories. In fact, Gwen kept coming back to the cases, to add more suggestions or raise questions for more

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information.

Some inconsistencies with her performance goal orientation responses began to appear with each successive case analysis. When asked if she found the use of cases rewarding, Gwen revealed that "I found them rewarding when I found or thought of ideas different than the other classmates. I guess it was like I stumbled on something no one else had thought of."

Even in class discussions of the cases, Gwen would preface her comments with "maybe I'm the only one who saw this, but..." or "I saw it a different way..." She really seemed to enjoy the search for solutions, especially if no one else had mentioned the same solution. "I found it easy to talk about the cases. Especially in class when others would say things, it sparked something for me to say!"

Gwen did not think of herself as someone who worked to please the teacher, yet one of her responses to the Case Analysis Survey contradicts this perception. When asked what she found difficult about case analysis, Gwen wrote "I found it difficult when doing the think aloud to come up with what I thought to be enough information for you! I kept thinking it was too short!"

From her responses to the Motivation and Study Strategy Survey, Gwen appeared to be a strong self-regulator, and this perception was upheld during the study.

> I liked using the case analysis because I
> feel it will be beneficial to me later to

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> learn from the successes and failures of
> others. It also helps me to become reflective.
> That will be essential to my becoming a good
> teacher.
>
> ...I feel it [case analysis] helped
> me with evaluation not only of others
> but myself as well.

This notion of using cases to evaluate herself was evident
in each successive case analysis as Gwen offered more
personal experiences connecting the case situation to her
own learning habits, study patterns, and school experiences.

Mary

Background

Mary is an elementary education major in her mid-
twenties. Her mother was a high school teacher and she
noted she had "grown up around teaching." Prior to
enrolling in school full-time, she worked full-time at a
local day care. She drew on this experience during her case
analyses as well as comments made during class discussions.
She had some experience in case analysis in another
education course. During that course, students read and
discussed the case with each other in class while the
professor facilitated the discussion. She planned to
student teach in Spring 1998.

Mary scored 19 out of 35 items correctly on the Prior
Knowledge of Course Concepts Survey. She did not correctly
answer questions dealing with behaviorist theory or
behavioral objectives, communication and listening skills,

or uses of computer for instruction. She reported that she could use most of the equipment, including computers, in the course but wanted to know how to use computers more effectively for instructional purposes.

Mary's responses on the Motivation and Strategy Use Survey indicate that she had a high learning goal orientation and a weak performance goal orientation. She did not appear concerned with pleasing the teacher. While feeling that good grades could lead to other things she wanted, she was unsure whether her grades had important consequences for her future, a seeming inconsistency. Mary considered herself very capable of understanding course concepts and doing the work required. She was unsure how she compared with others in the class. She also appeared to be a strong self-regulator.

Mary's Analyses of Cases

Mary had no problems doing the read/think aloud in the first case, "Jack Writes a Paper." She made comments after each sentence, generally sympathizing with Jack's dilemma. During her analysis of the case, Mary continued to sympathize with Jack's task of composing on the computer within a time limit. She recognized the difficult cognitive processes involved in the assignment (using the computer and composing a paper), but emphasized the stress that this particular task could cause students who are not yet very skilled in typing.

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> I think a lot of kids, you know, when
> you give them a time limit and they
> haven't had time to really think about
> it, that really kind of stresses them
> out. And when you have a lot of stress
> like that, it keeps coming into the back
> of your mind and you have a harder time
> concentrating, clearing your thoughts
> so you can think on the topic and you
> know, get your mind in any organized,
> set pattern of what you want to say
> and get your thoughts clear ...I'm sure
> that's why he had the unusual amount of
> difficulty.

Mary did not immediately blame the teacher for poor
instructional judgment but tried to understand the teacher's
purpose behind giving the assignment. She even thought that
this assignment could have benefitted her!

> I understand where she's trying to go with it.
> I'm sure that's a really good thing. You know,
> maybe if one of my teachers had, you know, helped
> me learn to compose on the computer when I was,
> you know, back in high school or junior high or
> whatever, it would probably be easier for me now,
> you know, getting a feel for it.

Later Mary offered suggestions to the teacher for ways
to modify the assignment so that other students "in Jenny
and Jack's shoes" would be more comfortable composing at the
keyboard. In addition to specific suggestions such as
allowing more time for typing the assignment and allowing
time for students to brainstorm their ideas before writing,
Mary hoped that the teacher did not dwell on Jack's
shortcomings in this assignment.

> I hope that his teacher didn't come down
> too hard on him in that aspect but that
> she praised him for what he did get and
> try to encourage him, you know, to try
> next time. And saw that he was having

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> a little trouble and try to help, adjust
> her wishes and what she desired for them,
> to do a little bit on Jack's behalf...

All of her later suggestions for improving the situation were prefaced with "maybe she could" or "it might have been better if". She appeared to be sensitive to all parties involved in this case, and tried to be tactful in her suggestions. She also saw implications for her future teaching.

> I think I would try maybe to be a little
> more understanding, a little more aware of
> where my students are in their computer
> literacy maybe...If you know your students
> a little better, then you can be sensitive
> to those aspects of their school and not
> stress them out so much.

For the most part, Mary used the Case Analysis Guide during her analysis of this case. However, she did not ask for additional information to use in analyzing the case. While many of Mary's suggestions were grounded in learning theory, she did not articulate the theories as the basis for her suggestions. She also did not write down any notes or underline any phrases on the case itself. Later Mary revealed that this case was the case she most enjoyed analyzing, presumably because she had also experienced the same stress as Jack.

Mary made fewer comments during her read/think aloud of the second case, "Rx for Ailing Instruction." She made two comments about the teacher's method (covering too much too fast, getting students confused) and then concluded by

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saying "lots of problems there." This time Mary wrote some

notes about the case to help her in the analysis. The notes

consisted of questions, phrases, and sentences.

In contrast to the first case analysis in which Mary

focused on Jack's source of stress, this time Mary focused

on the teacher's problems. In fact, instead of being

tactful in her comments about the teacher, she was quite

critical.

> First of all, the teacher is just boring.
> He is just boring these kids to death. They
> are just really hating this class because,
> I mean, I don't blame them. Who would want
> to go in and just copy notes for an hour,
> you know, every day during the week, and
> then have to cram, cram, cram for a test
> with a bunch of terms in your head that
> you get confused.

She blamed the teacher for not providing visual

reinforcement, hands-on activities, or explanation.

"You know, you don't want to ask questions when he asks for

questions because nobody else is asking questions. You

don't want to look stupid, you know? And you really

don't even know what questions to ask ..."

Mary also had a hard time understanding the teacher's

methods and in fact, projected some perceived motivations to

the teacher.

> I don't know what this teacher's problem is.
> Is he burned out? You know, this is definitely
> a non-student-centered class...Is he just so
> burned out that he doesn't feel like doing any
> major planning? He doesn't want to do any kind of
> hands-on things. Or it's just too much work to
> do any visuals or do any kind of fun activities
> that demonstrate the circulatory system? I mean

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the least he could do is you know, get a little
chart, a poster, or something to show...Is he
just too lazy or burned out to do that? Or maybe
he thinks the students are too lazy and they're
not taking enough initiative. I don't know
where he's coming from.

Mary next commented on the lack of textbooks for the

students' use. She first thought maybe it was the school's

fault that no money was available to purchase books for

every student. But then she considered the possibility that

the teacher had some choice in whether or not the students

had textbooks. "Maybe it's just the teacher's preference.

He preferred that they don't take the books home. He thinks

they're going to get damaged. Maybe they won't bring them

back. I don't know."

Mary then related her own experiences in a high school

biology class which she considered really fun and

interesting. Her experience had included visual aids,

experiments, hands-on activities, and an enthusiastic

teacher. She then started asking more questions concerning

the teacher's background, and while still criticizing his

motives, began to consider other possibilities for

his teaching problems.

I wonder how long Mr. Bray has been teaching?
You know, maybe he's just totally burned out.
You know, maybe he's been teaching 30, 35 years
and he's getting close to retirement and he's
burned out. He doesn't feel like going to a
lot of trouble for these kids and he's just
biding his time 'til retirement, you know.

Or maybe it's just the opposite. Maybe he's
just a first, second year teacher. He really
didn't get a lot of experience in the teaching

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> instruction. Maybe he got a lot, maybe he's
> really intelligent and knows a lot about
> biology...He just doesn't, didn't learn any
> fun ways to teach it. He just knows a lot
> about his discipline but not NEARLY enough
> about teaching strategies and ways of making
> it fun.

She also reconsidered her initial evaluation of the

materials shortage. "Maybe he doesn't have funding for

visual aids or any extra little things that he'd like to use

in class...He's just given this textbook and he's got to

deal with the situation as it is."

Mary's approach to this teacher softened somewhat as

she said "he needs some help..." and then offered

suggestions to the teacher. This time, however, she did not

preface her remarks with "maybe" as she had done in the

first case analysis. She was more much assertive in her

recommendations for the teacher, using such phrases as "he

needs to", "he's got to," "he should be." Her suggestions

then become much more personal as she suggested the teacher

become more student-centered.

> He needs to be trying to figure out, okay,
> what do they know about the circulatory
> system? What do they need to know? What
> are some basic facts? How can I cater to
> my students? He needs to be trying to
> work with them instead of saying "okay,
> I don't feel like doing all this work. I
> don't feel like doing all this extra visual
> aids and doing these extra papers and handouts
> and things."
>
> He needs to start, you know, trying to help the
> student and be there for them. That's the point
> of being a teacher, in my opinion. The reason for
> all this.

Mary reflected on her own experiences both in prior case analyses and in her own schooling as she considered the basis for her recommendations. She reiterated her concern for making school fun and interesting because a boring class was just not productive.

> I had a phenomenal biology teacher but I had
> boring teachers in other aspects that sounded
> a lot like Mr. Bray. All they wanted us to do
> was read a chapter and take a test and just sit
> in their class and listen to them read to us, you
> know, from our textbook. And that's just very
> difficult to learn. You get bored. You don't
> want to listen. You tune those people out and
> you learn to hate that subject.
>
> And I think that's really sad that kids have
> to have those kinds of experiences because
> it's really hard to come back from that once
> you've decided "Oh, I hate English" or "Oh
>
> I hate math," or "Oh, it's so boring, I just
> hate it." You need to look at maybe WHY you
> hate it and it's really hard to come back from
> that and change your thinking. Even though
> maybe later on you say "Oh, this is not so bad.
> You know, maybe it was just that teacher I had
> or maybe it's just the way I learned it was just
> difficult and made me hate it."

Mary's comments toward the end of her analysis revealed much of her personal philosophy of teaching. She expressed concern that her classes be fun and interesting.

> I will try my best when I become a teacher to keep
> it interesting to the students. When it's boring
> to you, you don't want to learn it and it's like
> pulling teeth to make a child do that work...
> You want them to have that love of learning and
> the desire to want to better themselves...
> You know, there's just lots of things you could
> say and lots of things that you can do to keep
> it interesting, help it to be something that the
> child, students would want to learn, want to know,
> want to do...You've got to work at it. It's not
> something that's just going to come...You have to

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WORK at making it interesting. You have to make
an EFFORT to keep your kids learning and
interested.

Mary further explained why the work and effort were needed
to keep students interested.

But you've got to do it for their
sake because that's why you're a teacher. To help
those kids to develop into good citizens, well-
rounded, you know, have a desire to learn.
Want to make their lives better, want to go out
and succeed in life. And if they have a lot of
failures in school and they just hate it and
learning and reading are distasteful to them,
then when, what are they going to do when they
get out of school. Are they going to continue
to try to do those things? No, because they
hate 'em.

And as a teacher, that's your job to foster that
learning, foster their success in future life and
try to help them learn as much as they can so that
they will succeed. And you want them to have
successes, not failure, not bore them to death to
the point where they can't stand being in school
or learning is a bad experience for them.

Again Mary's concerns about "being there" for her students
surfaced.

I hope that as a teacher in the future I will
be able to do those things for my students and
be there for them and want to do the best for
my students. And not worry about myself and
what's easier for me as a teacher. Because it's
work being a teacher, no doubt about it.

Mary appeared to be more personally connected with the
issues in this case than in all the cases analyzed during
the study. She revealed more of her motivations for
becoming a teacher and the impact that she hoped to have on
her future students' lives. Apparently, the issues in this
case struck a nerve and she appeared to be comfortable

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revealing her thoughts in the verbal protocol.

Mary continued to identify and offer practical suggestions to the teacher in the third case analysis, "Long Division Blues". She immediately identified the teacher's methods as the reason the children did not learn their long division after only one lesson. She saw that the lesson itself was flawed, and the teacher's use of media was distracting from, rather than enhancing, the lesson. She continued to use imperative suggestions "she should," "she needs to," but also reverted to her more tactful phrasing "maybe she could." Her suggestions for improving instruction included assessing students' prior math knowledge, breaking the task into more manageable steps, and reduction of distractions.

Several times Mary mentioned the pressure the teacher was facing.

> I think she feels more pressure to conform,
> and feels it necessary that she's got to
> succeed, you know, because she is an
> emergency hire for someone else, an
> emergency hire. She's got all this
> pressure, you know, after the principal
> said to her "since she had an excellent
> education from Great University, she
> would be successful with those students."
> On top of being an emergency replacement
> she feels a lot more pressure to do what
> they've always done and not rock the boat
> and, you know, try to do things the way
> they've always been done.

Even in her request for more information about the case, Mary was concerned with the pressure this teacher must be feeling. Mary wanted to know more about the previous

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teacher, a former college math teacher. "I don't think she's

told enough. It's not enough that he didn't have

a clue about children...I think that's just a little added

pressure..."

During her read/think aloud of the case, Mary had

expressed shock concerning the teacher's use of the term

"dummy class." She said "The dummy class? I can't believe

that even flashed through her mind. She needs to be

thinking about what SHE did. My goodness!" She commented

further during her analysis of the case.

> And then when she says "did she get the
> dummy class or what?" she needs to start
> looking at how she just taught that, not,
> you know, automatically thinking it's the
> students' fault. THEY don't know anything
> about long division. If she sees that, she
> needs to look at her teaching style and see
> what flaws are there, not just obvious first
> thought is to think that the students are
> stupid!

While Mary was still critical of the teacher's methods,

she tried to see that perhaps this teacher walked into a

difficult situation, aside from her own pedagogical

weaknesses. She focused more on the facts of this case, as

opposed to her very personal revelations during "Rx for

Ailing Instruction." On the tape of her comments, Mary

appeared very tired. She had spent the previous week at the

bedside of her young baby in the hospital, and may not have

been as focused on this assignment as in her previous case

analyses. Given those circumstances, it was not surprising,

that Mary considered this case her least enjoyable to

analyze.

Mary's written analysis of the last case, "QuickStart," briefly touched on all seven points of the Case Analysis Guide. She mentioned the teachers' reluctance to use a new computerized reading program but did not differentiate between the three attitudes reflected by the three teachers in the case. She did want to know about the teachers' previous experiences with computers since this might offer clues to their reactions. She recommended the principal should explain the programs to the teachers and answer any and all questions. She also encouraged all teachers to learn about computers because "they are the future and you've got to know how to use them."

Regarding her own future, Mary said "I would hope that as a teacher I would want to use any and all tools at my disposal, no matter how complex, in order to help them have the most rewarding school experience possible." This perhaps reflects Mary's attitude toward technology as useful tools which can help make school rewarding. In previous cases, Mary clearly indicated that instructional tools could make learning more interesting and fun if used effectively. And since students learn more when they are not bored, a teacher who cares about her students will use "any and all" the tools available.

Summary

Mary's motivation for learning through cases did not

appear to vary from her initial responses on the Motivation
and Strategy Use Survey. Her learning goal orientation was
underscored as she repeatedly commented on helping students
want to learn. She reported that it was helpful "to see
what someone else did wrong and learn from their mistakes."
She remained quite confident in her ability to learn course
concepts and did not appear worried about pleasing the
teacher. (She turned in notes for only one of the cases).
She indicated she learned course concepts using cases
because "it gave examples of how to or not to properly use
media and technology in the classroom." She also wrote that
she had appropriate knowledge and skills to analyze the case
because she had been teaching children and taking education
for several years.

Mary didn't find the use of cases challenging since
"all the information is right there - the case and the
analysis guide. You just have to add your opinions of which
I have plenty." This was confirmed by her actions during
analysis since she really did not have too many questions
for additional information. Evidently she appeared
confidant enough to make suggestions based on just what was
revealed in the cases themselves.

Mary did, however, report that she enjoyed the use of
cases and found them interesting, informative, and "a
pleasant change from research and composition." She also
found the use of cases rewarding because "it let you use the

upper levels of Bloom's taxonomy." Since she always suggested practical application in the situations analyzed, it is consistent that she would also value the use of cases as a practical application of course concepts in her own learning. Mary also said she found the use of cases "enlightening" and helped her "see real life applications and problems encountered in the classroom." She also mentioned that using cases was a good way to develop reflective teaching skills.

Wanda

Background

Wanda is an elementary education major in her early twenties. She transferred to this university from a junior college in state. She lives in a small town and commutes about an hour to the university. She has had many education courses already, including educational psychology and developmental psychology. She had used case analysis in another college course. She anticipated student teaching in Spring 1998.

Wanda scored 21 out of 35 on the Prior Knowledge of Course Concepts Survey. Items missed were those concerning behavioral and cognitive principles, video attributes, and computers used for instruction. She indicated she had not used most of the equipment in the course, and had only used a computer for word processing.

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Wanda's responses to the Motivation and Strategy Use Survey indicated she had a high learning goal orientation. She also had a somewhat ambivalent performance goal orientation. She revealed that while she liked to perform better than other students, look capable to her peers and friends, and didn't want to look foolish or stupid to her instructor, she also didn't want others to think she's smart. She also had a high goal of pleasing the teacher and was very concerned about the future consequences of good grades for her future and for leading to money, graduation, good job, and certification.

Wanda had a high perception of ability, but here, too, there was some discrepancy. She indicated she felt she was doing well in the course compared to others yet was unsure whether her knowledge and skills were better than those of her peers. She also wasn't sure if she understood the ideas being taught in the course. However, she indicated that she felt she would do well in a future course in this subject. Wanda also appeared to be a strong self-regulator.

Wanda's Analyses of Cases

Wanda had no problems with the read/think aloud of the first case, "Jack Writes a Paper." She read several sentences before commenting on the case, usually just paraphrasing the previous sentences. She made a few notes on paper and underlined a few phrases on the case.

During her analysis, Wanda followed the Case Analysis

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Guide, trying to address each question. She did not, however, ask for additional information about Jack, the assignment, or the teacher. She empathized with Jack's dilemma of having to type a paper when he was accustomed to writing it by hand first, but did not comment on the dual nature of the task or the time limit involved. However, her suggestions for improving the situation were all for Jack: ask the teacher to allow a re-write and practice writing a paper on the computer at home. She did not see anything particularly wrong with the assignment.

> This isn't really, I don't think, an awful assignment. I don't think the teacher is making any bad mistakes for having them do this because a lot of people use this method. I know in college a lot of the people I talk to that write articles sit down and can write an article just doing it. Just looking off the paper and typing it, looking at the paper. They're reading and type some more and I'm unable to do that. I don't focus...

Wanda noted that she felt the only way she could use the insights from this case was to remember not to make all the assignments have to be typed. She then went on to mention cooperative groups as a way the teacher could structure the assignment in the future.

> Maybe they could work in cooperative groups, like take turns at the computer...Yeah, that might help with. Let's see, I just had a brainstorm. Maybe the kids could all get in groups of maybe four or five. She could use cooperative groups which works well in a lot of classrooms for many teachers.

Wanda's responses to this case were brief and

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tentative. She later revealed that this was her least favorite case "because it was one of the first ones. I also had the most difficulty finding a variety of solutions to the problems." She also had a little trouble at first interpreting the case because she thought Jack was going to a music class when she first read of the keyboard instruction. She said " I was picturing he was going to music, music keyboarding instruction, so that was funny how it changed as I read the paper."

Wanda's read/think aloud for the next case, "Rx for Ailing Instruction," was also very brief. She read several sentences, then made nondescript comments ("ok", "oh, my goodness,"). She underlined phrases on the case and wrote two pages of notes, focusing on each item in the Case Analysis Guide. Her analysis was based on these notes, however, with much elaboration.

Wanda began her analysis with much sympathy for the student. Copying so many notes, no books, no hands-on activities! She compared the case to a history class she once had where everything was boring. "And everything was from memory, rote memory...so basically I didn't retain any of that because it was pretty boring."

However, Wanda had a science teacher who became her favorite teacher because of the hands-on activities he used in class.

> ...he made everything fun. It wasn't an
> easy class and it wasn't an easy A at all

but you remembered things from that class.
I still to this day have the confidence
in science classes that I take because
I'm usually pretty well prepared for my
college classes I've had and things such
as this...We used hands-on, he was funny,
he used humor in his classroom a lot.
And I just remember a lot from those classes
and learned a lot from those classes.

As Wanda began to offer her suggestions for improving

the situation, she became critical of the teacher's methods

and simply restated the different problems. One of her

biggest complaints was that the class appeared so

repetitious and boring.

Everything was just stuck in the cognitive...
let's see, cognitive to me is just like the
knowledge level maybe...He didn't ever use
the affective. He didn't ever use any of
their opinions or their feelings on what
they wanted to learn or what they had been
learning. No psychomotor. There was nothing,
you never moved. You sat in your desk and took
notes straight from the board every day. So
that seems really, really boring and against
everything I've learned in school. Some people
learn that way but not everybody does.

Wanda then launched into a description of different types of

learners - visual, hands-on, auditory - and commented that

there was no variety in instruction, "nothing exciting, no

motivation."

These kids probably dread coming to class
because they already know every day their
routine. They don't even have to think twice
about what they're doing. It's probably more
like zombies than actual students in there
because they're just going through the motions
so ugh.

Wanda continued to question the teacher's boring

methods, writing notes on the board, not answering

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questions, not making students "think" through use of
inductive learning. She suggested use of a variety of media
to make the class more exciting. However, Wanda then began
to question possible reasons for the teacher's lack of
teaching skill.

> Maybe the teacher doesn't enjoy the subject.
> Maybe this guy doesn't really like science.
> That was one of his weak areas and somehow
> he got stuck there and that's where he happened
> to be put. And he doesn't enjoy it so his
> students definitely can see that this guy
> probably doesn't enjoy the subject.
> Or maybe this is how he was taught.
> Maybe his teacher in science was like
> this and this is all he knows and so he
> thinks this is correct form and correct
> way to teach the class. So, major, major
> problems there.

Wanda continued wondering about this teacher and why he
taught in such a boring manner. She questioned whether he
knew he was having problems. She assumed he must have been
teaching a long time because if he had just graduated
"surely he'd be a little more excited about getting the
children to learn." She even tried to justify his actions
if he had been teaching a long time. "The problem might be
that he isn't aware of the new types of methods that have
been introduced or different things that we know now that we
may not have known when he did graduate about learners."
She also suggested that he needed to take some courses or go
to some seminars so he could learn different ways to put
hands-on in his classroom. Wanda expressed further sympathy
for the teacher because "if he is a first year teacher, I do

feel sorry for him because that would be a tough situation to walk into."

As Wanda continued her analysis, she moved from the third person perspective to the more personal second person "you". She also continued to make connections between the problems the student was experiencing to similar problems that would affect ANY student.

> You can't expect a child or ANYBODY for that matter to read something aloud, get everything out of it that one time they heard it, and have that knowledge by the time the test comes around. I just don't think that's very logical.

Wanda later discussed what she felt were the implications from the case for her future teaching. She mentioned the real possibility that she could walk into classrooms that lack textbooks and other teaching materials. She also commented on the possibility that she would be teaching with colleagues like the teacher in the case. She mentioned she might be able to offer suggestions to help them, but she would have to do it tactfully.

> I know, as a first year teacher, I wouldn't want to go make suggestions to a teacher and just run up and tell him what I think about everything because of my lack of experience. I wouldn't have that right.

She clearly did not want to be one of those boring teachers "no matter how many years I've been teaching." She wanted to have an exciting, fun and interesting classroom, and reading these cases helped her to see the consequences if she didn't.

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"Long Division Blues" was the next case Wanda analyzed,
and she reported that she really enjoyed analyzing this one
because it dealt with "a new teacher that was excited, and
perhaps overloaded her students." Although this time Wanda
did not make many comments on the read/think aloud, she did
write two pages of notes (with asterisks on important
points) and underlined phrases on the case. She then
analyzed the case in what would turn out to be her longest
and most revealing analysis of all.

Wanda was much less cautious in her approach to this
case than she was in previous cases. She immediately began
enumerating the problems she saw, along with the reasons why
they were problems. She used the second person perspective
for most of her suggestions, almost as if she was talking to
the teacher. "And for future reference, if you do notice
that your kids are paying attention to the overhead
projector, you could have a little mini-lesson..."

Wanda evidently related to the students in this case
who could not do their math after the teacher's lesson. The
scene was similar to her high school math experience in
which her teacher also played music while the students
worked. She loved music so much that even though she didn't
like the math class, she enjoyed the music. But she still
doesn't feel very confident in math.

Her emphasis on confidence surfaced several times in
this case. She worried that the children's lack of

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understanding the lesson would undermine their confidence. She stated that the teacher was trying to do a good job, but was just throwing too much too soon to the students. She didn't criticize the teacher for being bad, lazy or burned out, but suggested she slow down a little and get to know her students' abilities first. "You know, she's a new teacher. She seems like she has a lot of energy and some neat ideas, but she's combined everything into one class period and it's not working, obviously."

As Wanda continued offering suggestions for improvement, it became obvious that she really wanted to help the students feel connected and interested in the class.

> ...get their interest and what they want to do. Give them things on their own that you think would benefit the student and then let them choose what they want to do. And a lot of times, I know this even works with us, as older students, if you give THEM the choice, then a lot of the time, they're more interested and will pay more attention because they feel like they had a part in deciding what they're going to do. And they felt some authority there maybe. So that makes them feel important so they will pay attention more readily.

Wanda based her recommendations on her personal experiences as well as what she learned in college, "things that I've been taught that I wasn't necessarily aware of before I came to college." Several times during her analysis, Wanda referred to other courses and professors who had made an impression on her learning. One of those concepts was the importance of being a "self-evaluator."

That comes up a lot in some of our classes on
teaching. That's one of the characteristics
of a good teacher is to be a self-evaluator
and know when YOU'RE the problem. And be
able to evaluate yourself critically without,
you know, some people I think have a hard time
saying, "well, you know, maybe I'm not doing
something right." So I think that's important.

Wanda offered several insights from the case that would

help her in future teaching: remember the struggling kids,

don't throw all your ideas at the students at once, ask for

help from colleagues when needed. She then switched to more

self-evaluative comments about her own math ability. She

stated that she should learn more math and stop avoiding it

as she had been doing in her college courses.

So one thing that is smart to do but
a lot of things we don't choose to do,
is to immerse ourself [sic] in whatever
it is we're weak in because that way we'll at
least go in with confidence in that area...
And so I hope MY past experience with math
and stuff will not rub off on my students.
I hope I can go in and be excited about it
and motivate my students to learn in math
class even though it's not necessarily my
favorite subject. 'cause I don't think
I'll have a problem with things such as
language arts and stuff that I really enjoy.
But I hope that my weaker area, that the
students don't see right through that.

During the analysis of these three cases, Wanda's

attention to relevant factors and possible consequences

increased in breadth and depth. Her suggestions for

improvement became less tentative and more confidant, a

theme that often emerged in her analysis. In the beginning,

Wanda often sympathized with the student's situation, while

tentatively criticizing the teacher. Later she started to

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see both perspectives in the situation, gradually increasing her empathy with the teacher. And even when she did not agree with the teacher's methods, she tried to offer some plausible reason for the teacher's behavior, along with some suggestions for improvement.

The last case, "QuickStart," was analyzed and written in class. As with most students on this case, Wanda did not address all the questions on the Case Analysis Guide, but reverted back to the typical "problem identification plus solutions" pattern. Again, it may be that analyzing a case in a testing situation, as was the case here, simply does not allow students enough time to process the cases very deeply.

Summary

In some instances, Wanda's motivation patterns remained consistent with her responses on the Motivation and Strategies Use Survey. She was concerned that students not see her weaknesses, especially in math, which was consistent with her ambivalent performance goal orientation. She consistently revealed her high regard for the consequences of good grades. Her perception of her ability to do the work in the course changed, however, from uncertainty about whether she was understanding the concepts to more confidence in her ability to solve problems.

On the Case Analysis Survey administered at the end of the study, Wanda mentioned the sense of confidence and

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accomplishment she felt using cases.

> I liked analyzing these cases because it
> helped me gain confidence in my ability to
> find solutions to problems in the classroom.
>
> ...If I had not seen or experienced a certain
> situation it was a little difficult for me to
> have complete confidence in my possible
> solutions...
>
> I feel that there is a lot of knowledge and
> confidence to be gained from the use of these
> cases.

Wanda also found the uses of cases pleasant "because many of these things really do occur in the classroom, and it is nice to be exposed to them before I actually have my own students." She noticed while she was analyzing the cases that she had been well-prepared in many of her classes to deal with these problems and apply research and theories to them. She also reported that she felt "as though I had accomplished something without actually being in the classroom." Wanda appeared to feel more confident about her ability to solve problems in the classroom, because she had vicariously solved problems during the use of cases.

On the Case Analysis Survey, Wanda revealed that she found the use of cases challenging because they made her "think and apply previous knowledge and experience in order to really see the problems and try to fix them." She found the use of cases interesting, fun, and pleasant. She didn't think the use of cases affected the way she studied for a test "however, these cases do teach you to focus on your work better." She recommended that "every student in

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education should be exposed to these [case analyses] at some point in their instruction."

Harry

Background

Harry is a secondary education major (natural sciences) in his middle forties. He retired from the military a few years ago and began working on his teaching degree. He served as a military instructor for part of his military experience. Harry had taken a few education courses prior to this semester (Introduction to Teaching, Developmental Psychology, and Exceptional Child). He anticipated student teaching in Fall 1997.

In a conversation outside of class he revealed that he really liked the atmosphere at this university, compared with the larger, research universities he had attended. I asked him what he thought was the difference between the two types of institutions. Was there a difference in difficulty? He said, no, there was a difference in how they treated people. He said the larger universities didn't care about the students as people, you were just one of many. He preferred the smaller classes where you felt you could know the professors and they could know you.

Harry scored 23 out of 35 items correctly on the Prior Knowledge of Course Concepts Survey. The items he missed dealt with communication theory, development of listening

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skills, and video attributes. He indicated he could use all of the equipment, including computers. He had prior experience designing instruction for learners in the military: entry level lesson plans, writing and editing technical manuals, and course production and validation. He wanted to learn more about the use of the civilian internet and explore the use of computers in science labs.

Harry's responses on the Motivation and Strategy Use Survey indicated a high learning goal orientation and a low performance goal orientation. He was not concerned about what others thought about his capabilities and was not too interested in pleasing the teacher. He disagreed that he felt good grades would lead to other things he wanted, but indicated his grades would have important consequences for his future.

Harry indicated on the survey that he didn't feel he knew as much about the course content as others in the class but felt he was doing okay. This surprised me, since he indicated he knew how to operate all the equipment, was very proficient on computer, etc. Perhaps because the first few weeks of the course focused on discussion of learning theories, the instructional design process, etc. he felt unfamiliar with those concepts since he had not had educational psychology or methods courses yet. However, he did feel like he could do the work, understand course concepts, and do well in future classes. He appeared to be

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a strong self-regulator. However, he was not sure about course goals and whether or not he understood the material, but he tried to understand the material that he studied.

Harry's Analyses of Cases

Harry had no problems with the read/think aloud process for "Jack Writes a Paper." He made comments after each sentence or two while reading the case. He underlined or bracketed significant phrases on the case and then wrote a few comments. He referred to these comments during his analysis of the case.

During analysis, Harry immediately commented on the dual nature of the task (composing a paper, using the computer) and the complicating factor of the time limit. He decided on his approach to the analysis by referring to the statement that "Jack's paper was atypically poor," thus indicating that Jack could write his papers well, but was just having trouble using the computer for writing papers. Harry then focused his analysis on the problem of using the computer. He questioned Jack's prior use of computers, typing ability, and familiarity with the computer program being used. He wanted to determine Jack's entry abilities so he would know how to best advise him regarding the typing. Harry drew on his experience training others in military computer use as he tried to understand Jack.

> This may just be a case of technofright, and
> that's just a term we kind of keyed up that
> people have difficulty approaching a computer
> because they think it's beyond their means.

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> And basically the way they get beyond that
> is just teach them that it's just nothing
> but a tool, just like a hammer's a tool.

Harry tried to diagnose Jack's problem at the keyboard and offered his thoughts about performing a task "instinctively" and having to learn a task.

> It was an organizational problem...You have to
> be taught how to organize at the keyboard and
> that's something that a lot of people just do
> instinctively and sometimes it's a whole new
> learned task, okay?...There are some people that
> can sit down and just write volumes at the
> keyboard and never miss a lick and there's others
> that just cannot compose at the keyboard. I
> firmly believe that composing at the keyboard is a
> learned task, can be a learned task like all
> tasks. Some people you get are better at it than
> not.

Harry then described the importance of knowing the particular word processing program in use. He indicated this was important because "it depends on how you think."

> If you think in reverse order, you may
> write the ending first (chuckle), then
> write the middle, then write the beginning.
> Well, if you don't know that, know how to
> use the word processing program to cut and
> paste or dot move or whatever the program
> does, then you may have to try to think
> your whole paper through and type it down
> when that's not true.

Harry's analysis of this case was detailed and focused on the facts of the case. He paid careful attention to words, discriminating between the use of the term "keyboarding" to refer to regular typewriter instruction or using the term to refer computer keyboard instruction. He recalled his previous experience teaching use of military computers to offer suggestions for improving Jack's

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performance. He used the objective, third person

perspective for most of his analysis, but did switch to the

more personal "you" and "we" as he offered suggestions

("You've got to," and "we need to find out").

Harry's suggestions for the teacher included being

consistent with her objectives and the desired outcomes,

then making sure the evaluation matched the objectives. He

also advised a closer look at the task she was asking the

students to perform. Harry's comments about future

usefulness were directed at the teacher in the case, not to

his own future usefulness in teaching. This indicated that

perhaps he misunderstood the question on the Case Analysis

Guide which prompted future usefulness for his own teaching.

Harry's read/think aloud for the second case, "Rx for

Ailing Instruction," was longer than the first as he added

more comments, often pointing out the problem and asking for

more information, before continuing his reading. Harry

continued to be very precise in his reading of the case,

choosing his approach to analysis based on the title of the

case.

> Okay, the title indicates that we're
> looking at the method of instruction and
> not the method of study. Okay. Let's
> key in on that. Rx for ailing instruction.
> Okay, so we'll key in on the instruction
> portion of it and not worry about Gail's
> study habits or frustration or any of this
> other stuff.

Harry wrote a few notes about the case and underlined

some phrases on the case. He referred to these during his

analysis. Harry offered very specific suggestions for ways

the teacher could improve instruction as well as the reasons

why his suggestions would work. He considered possible

constraints that the teacher might be working under, but

didn't accept those as excuses. "He may be frustrated

because not enough textbooks for each child to take home.

But that's a limitation a good instructor would work

around."

Harry continued to reveal his fascination with words as

he distinguished between facilitating and instructing.

> He's not instructing. He's facilitating...
> The difference between instruction and
> facilitating is that a facilitator just makes
> sure that the student, the learner, has the
> materials necessary, but it's totally up to
> the student to learn it. It's totally up to
> the student to figure out what's needed where,
> when, everything. And that's all Mr. Bray is
> doing is facilitating, that's it.

Harry then offered suggestions for ways Mr. Bray could

begin instructing. However, this explanation lead him to

explain the differences between "taking notes" and just

"copying material."

> It says Gail copied notes. Well, that's not
> copying notes...that's 50 pages of material.
> The difference between material and notes is
> notes you write down YOUR meaning of it, okay?
> College students don't even have good note-taking
> habits, okay? Most of them if they do take notes
> at all in class, they don't go back and re-read
> 'em, re-write 'em, re-think 'em, okay?

Harry described his own note-taking strategies.

> I hear something, I absorb it, and then
> incorporate it into existing schema, and then
> write down something that means something to

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me. That's why people don't borrow my notes,
you know. They say "what does this mean? Did
the instructor say this?" No, that's not what
the instructor said. This is what it means to
me.

Harry revealed an understanding of the cognitive tasks

required to learn about the circulatory system and then

began a detailed task analysis and offered some strategies

the teacher could use to help students make sense of all the

terms and concepts. He indicated it was very important to

help students be able to use facts to understand higher

level concepts.

> The goal of instruction is to get to the
> evaluation-synthesis level...Now, is it a
> realistic goal? Some people make it, some
> people won't but just because some people
> won't make it doesn't mean you don't strive
> for it. You still have to strive to get
> ALL the learners to that evaluation-synthesis
> level, okay?

In his analysis, Harry discussed how he could use

insights from the case in his future teaching. He

specifically commented on the use of cases.

> Case analysis is an excellent training
> tool, okay? The reason I feel this is
> that case analysis allows you to look
> at a situation, think about the situations,
> make suggestions, and then if you get to
> have group discussion about what you came
> up with, you may learn a lot...I think
> group discussion is vital for case analysis,
> [because] what I come up with is A method
> that I would use, but it's not the only
> method. It may not even work. IF I hear
> what other people come up with, the reason
> WHY they come up with it, then I learn from
> that.
>
> The other thing that case analysis, um, there
> are not a lot of casualties. When I say

casualties, you know, one of the things we
have to realize in a classroom is that
everything that an instructor does teaches.
Now the question is, are we teaching properly,
correctly, or incorrectly, improperly? There
are things today that I was either taught
improperly or learned improperly that still
cause me problems. So you know we HAVE, as
instructors we HAVE to understand that
we've GOT to be prepared when we go in that
classroom.

Harry then described some specifics of the case that he
could use in the future, such as being flexible, looking for
alternative ways to solve problems, being more resourceful.
He also launched into his opinion of what makes a good
instructor.

You know, this right here shows me a lot of
things that I have to be on the guard for
whenever I go into teaching. It's easy to
get into a rut when you're stuck. I'm not
trying to bad-mouth anybody but you may have
a love for the subject that you're instructing.
That's not going to carry you very far because
you're going to be instructing at a lower level
in that subject than what you want to work at.

I think the most effective instructors are the
instructors that have a love of instructing.
In other words, yea, they like the subjects
they're teaching. But I have seen good teachers
that can't teach ANYTHING no matter what their
area of discipline is in.

I have seen some very good instructors that
you can slap a brand new subject in their hands
and say "Hey, in 3 weeks you have to teach this
course" and they will spend 3 weeks learning
everything they possibly can about that course.
They're good instructors because they have the
love of instructing. They love to see that light
bulb come on in their students. Those are the
ones that make the most effective instructors in
my experience.

Harry took several breaks during the analysis of this

case.   In one instance he referred to his need to check with his developmental psychology textbook concerning stages of development.   He returned to his analysis and spoke at length about students' movement from concrete to formal operations and how that would affect teaching the human anatomy vocabulary.   He then returned to the "lightbulb" analogy.

> If you know how to decode vocabulary,
> when you step over into that abstract
> area, the light bulb just automatically
> comes on.   You know, if it doesn't come
> on full brightness, at least it'll start
> flickering.   And the flickering indicates
> that you have current and the decoding skills
> that you teach 'em will allow them to draw
> more and more and more and more in and pretty
> soon they've got that file drawer.   And then
> you start opening that sucker up and stuffing
> it full. [file drawer here refers to an earlier
> schema analogy of building a file drawer]

Harry's analysis continued with more philosophical statements and comments about the current high school curricula with which he was familiar.   He wondered if students these days were being "stretched" enough and then asked questions. "Do we teach at the level that they're at or do we teach at the level that they should be at?   Good question, I don't have the answer to that."   It should be noted here that Harry had not taken educational psychology but clearly, he is struggling to make sense of this zone of proximal development idea, even though he hasn't studied it yet.   During his comments, Harry also showed signs of self-evaluation, thinking back to his military instructor days.

> Would this case help me in there? Yeah,
> basically it shows me what NOT to do. And
> it's good, it's good. Because in the military
> I have a lot of instructing experience and I've
> DONE exactly this type of thing. And it was
> wrong. This case study helps me to see where it's
> wrong AND it helps me to figure out how I could
> get around it. You know, if we could just throw
> written material at people and expect them to be
> educated, we wouldn't need a school. We have to
> have child development, educational psych,
> developmental psych. All those are necessary
> classes for us to learn how to become effective
> instructors.

Harry's final comments on the analysis were concerning

the procedure itself and how different it was from the way

he usually writes a paper.

> This is a lot different than normally. The
> thinking out loud's not different but normally
> what I do is I'll read, jot a few things down.
> I'll sit down at the computer, bust out a paper,
> print it, let it ferment, come back, read it,
> make notes on it, retype it, and you know, I
> might write something three or four times.
> Because I may have a first inclination but I
> have a tendency to go back and double-check
> to make sure that what I read way back when is
> still valid or with what I read. But uh, well,
> that's neither here nor there.

Actually, Harry's comments were very revealing about

his thinking/writing/reflecting processes during this case

analysis. He DID stop the tape several times, once to check

on additional information from another resource, and when he

turned to the analysis, he did in fact, add to his previous

answers. In some cases, there were signs that his analysis

had "fermented," as when he revealed that he thought some of

his previous instructing experience had been wrong. In any

event, this particular case analysis seemed to really

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inspire Harry to look not only at the ways media could be

better used in the classroom, but also to examine the role

of instructors, the expectations teachers can reasonably

have for their students, and the use of cases as an

instructional tool.

With each successive case, Harry revealed more personal

experiences similar or different to the case and shared more

philosophical statements. Evidently he grew very

comfortable expounding on a variety of topics which might

not typically appear in a written case analysis.

In "Long Division Blues," Harry again saw several

problems with the teacher's approach and offered

suggestions, with examples from his past experiences, as

well as his rationales for the suggestions. In this case,

more of Harry's suggestions were from the personal

perspectives "you've got to" and "we need to" and "I need

to", indicating that he was really personalizing the

insights and suggestions in this case. From my instructor's

standpoint, this was a good sign that at least this student

was making some connections between the course concepts

illustrated in the use of these cases to his own past and

future teaching experience.

> One of the things that I used to ALWAYS
> tell my [military] instructors is to
> reflect and judge your instructing ability
> by HOW WELL you're getting the message
> across to your students. I used to be a
> real stickler with plotting all test grades,
> to make sure you got that good solid bell
> curve. A lot of my men didn't like it but

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it was A method to see that you were getting
the message across.

You always have to look at where the
students were and where they ended up.
As the instructor or teacher, you're
responsible for taking them between the
two. And if you're on the rocky path,
they're going to get not very far. If
you're on a nice smooth path, they're
going to get there.

...EVERY CLASS that you have is going to
be different. Every LESSON that you
teach, to that same class, is different.
You have to KNOW the students, know your
subject, and then search out however many
paths or methods that's necessary so your
student can learn the lesson. And, you
know, your first day, it may fall flat
on its face. And if it does, not a
problem. Go at it another route. But
bottom line is that the student has to
get to the objective.

Harry provided detailed task analysis of the math

lesson and offered suggestions for ways the teacher should

have proceeded. He had some understanding of how teachers

had to simplify when teaching new concepts to novice

learners.

When she demonstrated the really big
numbers, what she was doing was, she
was demonstrating what SHE could do.
And that may have frightened them some
a little. Probably they were just
totally lost. You know, all they saw
was her writing up there.   You demonstrate,
you model, what THEY should do, not what you
can do but what THEY should be doing. And a
lot of times we have a tendency to forget that
that means modeling in a very, when we're first
teaching folks, modeling at the very lowest level.

As Harry continued his analysis of this case, he

continued to talk to an audience, using "you" and "you've

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got to", and only occasionally referred back to what the teacher could have done. He cautioned that new teachers should not become frustrated if students don't understand a new concept.

> ...then you have to look at it and say "Well, maybe I didn't teach it properly. Maybe I confused them." I don't care how well you know your subject, sometimes you can say the wrong things or do the wrong things or you might take a shortcut that you don't even realize you're taking. And it just totally confuses everybody because they don't know that shortcut.
>
> [sometimes] "They're wandering around out in the ether, trying to determine the speed of light."
>
> ...but if they're lost, don't become frustrated. Just like anytime, if you're on a trip and get lost, what's the first thing you do? Stop and see where you are!

Harry later revealed that he had most enjoyed analyzing this case because "this case dealt with a classroom subject that demonstrated the need to know your students' history." Through his comments, he expressed concern that an instructor must find out where the students are at the beginning of the instruction so he could help them get to the objective. And to do that, one had to know the "three knowledges of teaching: students, materials, and methods. Got to have all three."

Harry's analysis of the last case, "QuickStart," was clear and succinct. He summarized three attitudes toward technology evidenced by the teachers in the case, asked insightful questions about the computer program being

implemented, and offered suggestions - for the principal. He saw this as a problem for the supervisor to resolve through positive leadership during a time of change. His suggestions were for providing staff training and effectiveness studies so the staff could become more comfortable with computers as tools.

Harry later revealed that "QuickStart" was his least favorite case to analyze because "this dealt with a supervisory level and not a classroom/learner level problem."

Summary

Harry's motivation patterns while using cases appeared in some cases to contradict his responses on the Motivation and Strategy Use Survey administered early in the study. Although his responses on the survey indicated a low performance goal orientation, Harry's comments during analysis and on the Case Analysis Survey (given at the end of the study) revealed more performance goal orientation than he might have thought. He wanted to know if his answers were "right," and "normal," and he reported that he felt the class discussions that followed the analyses of the cases were important. He liked hearing how other students viewed each case. He also indicated he wanted to do a good job on the analyses, and think of how each subject affected the particular case. He preferred a lot of feedback regarding his analysis of the cases, whether from the

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instructor or from students during class discussions.

Harry also indicated that he felt each case was easier than the one before, perhaps reflecting his growing confidence in his ability to offer "normal" or "right" suggestions. He indicated that he felt the use of cases was a "safe, hands-on method" because there was no clear right or wrong answer and so there were apt to be few "casualties."

Harry found cases challenging ("because you have to think, not just regurgitate"), pleasant ("cases gave you the opportunity to 'fix' the world without having to face the people problems"), and rewarding ("lets you fix the problem and that is always rewarding"). Harry reported that his involvement with the course changed while using cases because "the use of cases made me feel more a part of the class, not just a spectator."

This may be an important benefit of the use of cases for instruction, especially in classes where there is a wide variation in age and experience among the students. Discussions of cases in this course were very lively and students seemed to be genuinely engaged as they offered alternative perspectives and suggestions. Non-traditional students as well as more traditional students seemed to feel they all had something to offer during the discussion.

Harry was a definite proponent of the use of case analysis for instruction. He had prior experience with

cases, and repeated several times that if one could not be in an actual classroom, analyzing cases was the next best thing. He also reiterated his belief that when using cases "you have to think, not just regurgitate" and that these cases "made me think more." He also said "you can study situations that are relevant to what you're studying in the classroom and textbook." However, he did find the use of cases "time consuming and unless you receive a lot of feedback you do not know if you were 'right' or not".

Themes and Trends Across Verbal Protocol Participants

Each student participating in the verbal protocols gradually increased the depth and quality of their responses to the case situations. The first case, "Jack Writes a Paper," was analyzed in class within a thirty minute limit and was relatively brief. Analyses were somewhat tentative. However, students' analyses of the next two cases were much more thorough and revealing. Of course, these subsequent cases were analyzed at home, where there was not a time limit and they had access to additional resources if needed. And too, by this time they may have grown more comfortable with the verbal protocol analysis procedure. So these conditions certainly could have influenced their responses. However, whatever the underlying influences, significant patterns in the processing of cases appeared with these six participants.

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These students all began their analyses with more sympathy for the student(s) in the case than for the teacher. With each successive case, students evidenced sympathy for the students yet also showed more awareness of the teacher's possible constraints. Over time, students changed from highly critical of the teacher to more considerate of external factors that could have influenced the teacher's actions.

Suggestions for improving case situations also changed with each progressive analysis. While students initially charged in to point out a few problems and offer a few solutions, later analyses indicated that they were trying to see below the surface problems to the underlying causes of the problems. In other words, they did not rush for the "quick fix" but considered the students' prior knowledge, the context and the constraints of the situation, and the task demands. Students' comments became less tentative, and indicated a growing confidence that their suggestions were sound. Although much of their advice was based on personal experiences, with successive cases students also based their suggestions on what they had learned in college about research and theory. Even if students did not always mention theoretical foundations specifically, they were, in fact, using the theories to explain their answers.

It also appeared that students became more assertive in their suggestions, not only for the teacher in the case, but

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also for teachers in general. With each successive case, all students began moving from a third-person perspective ("he did this", "she could") to more imperative suggestions ("he's got to", "she needs to", "teachers have to"). In addition, students revealed a more personal, imperative, second-person perspective as their analyses became focused on advice to the teacher in the case personally and to all teachers generally, ("You've got to", "You can't just", "You can..."). By the last case, most of these students appeared to have adopted a more professional ownership of the issues involved as their advice was often laced with "We must..." or "I've got to".

With each successive case, students appeared more comfortable talking about personal experiences and philosophies that were relevant to the case, although this appeared relative to different personalities. Often personal opinions were expressed that were very revealing about the student's own attitudes toward learning, the relationship between students and teachers, and the role of teachers. Fran began and remained the most conservative in her personal revelations and Harry began and continued to offer the most personal disclosures.

Among these six participants, some differences emerged. Although all had indicated they were good self-regulators on the Motivation and Strategy Use Survey, Brenda and Fran had problems monitoring their performance on the case tasks.

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Each appeared to have difficulty following task directions
and settling into a comfortable routine for the protocol.
Gwen and Harry gradually revealed a high performance goal
orientation that contradicted their reports on the same
survey. Gwen wanted to make sure she said enough on the
tape for me and Harry expressed his desire for more feedback
to know if his answers were correct and "normal."

On the final case analysis, "QuickStart," only two
students (Gwen and Mary) addressed all the points on the
Case Analysis Guide during their analysis. Brenda addressed
four of the Guide items, and the remaining three students
only addressed three items.

Written Protocol Participants

Lori

Background

Lori is an elementary education major in her mid-
thirties, specializing in early childhood education. She is
from a small rural community. She is friendly, enthusiastic
about her classes, and has a good sense of humor. This was
her last semester of coursework before student teaching in
Fall Semester 1997.

Lori answered 10 out of 35 items correctly on the Prior
Knowledge of Course Concepts Survey. She did, however,
correctly answer questions that dealt with schemata,
technology v. humanism, and uses of video. She had used

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most of the equipment, including computers, and had some prior experience using cases in previous education courses.

Lori's responses on the Motivation and Strategy Use Survey indicated a high learning goal orientation. She also revealed a high performance goal orientation since she liked to perform better than other students, and didn't want to look foolish to her peers or instructor. However, she didn't seem to care if others thought she was smart. Her responses regarding pleasing the teacher were contradictory. She disagreed that she wanted the instructor to be happy with her yet also agreed that she didn't want the instructor to be unhappy with her. Lori didn't appear too concerned with the consequences of good grades.

Lori's perceptions of her ability in this class were mixed. She indicated she didn't know much about the subject compared to other students and didn't think her knowledge and skills were better than other students. While she indicated she understood the concepts in the course, she also indicated she felt she couldn't do the work. She was undecided whether she was doing well compared to other students. She also indicated she was a strong self-regulator.

Lori's Analyses of Cases

Lori's first analysis of the case, "Jack Writes a Paper," consisted of short answers, based on the facts of the case. Although she followed the Case Analysis Guide,

she omitted her rationale for recommendations and comments about future usefulness. She did not criticize either the teacher or the student. She offered suggestions for the teacher and remained very matter-of-fact in her choice of words, using a third-person perspective throughout her analysis. Since this analysis was written in class in a thirty minute time period, Lori may have just not had enough time to answer completely.

In "Rx for Ailing Instruction," Lori again used the Case Analysis Guide and this time answered all questions; however, her answers were vague and shallow. ("If I am ever in this situation I hope I can reflect on my learnings and my experiences throughout my MANY years of education.") She made suggestions for the teacher, sometimes inserting a second person perspective, but never really elaborated on the reason for her suggestions or the consequences if her suggestions were followed. A few comments which reflected her own opinions and beliefs appeared. "Gail's father should approach the teacher and ask if there is anything he as a parent could do. Good parents are those who are involved in the schools."

After my written feedback prompting her to be more specific in her answers, Lori's analysis of the third case, "Long Division Blues" was much more thorough. She again addressed the prompts on the Case Analysis Guide, but this time more personal feelings were also revealed.

Lori described the similarity between the case's situation and one she had observed during her field experiences. Her questions for more information focused on the teacher, rather than the students. She suggested the teacher should learn more about each student's prior knowledge of math skills, and try math manipulatives and cooperative learning. During her advice to the teacher, she alternated between the third and second person perspectives.

Lori mentioned media use but didn't elaborate on issues involved nor did she notice the math errors in the instruction. Since Lori was such a vocal advocate for children's rights, I was also surprised that she did not mention the "dummy class" remark by the teacher in the case. However, she appeared eager to demonstrate her knowledge of theory, perhaps as a result of my feedback to her regarding vagueness on the previous case. "I base my theories expressed in this case from three gentlemen I have studied about for the past six years of my education. They are Piaget, Erickson [sic] and Vygotsky." She then proceeded to briefly summarize Piaget's concrete operations stage, Vygotsky's zone of proximal development, and Erikson's industry vs. inferiority stage.

Regarding future consequences, Lori wrote

> If I ever experience this situation,
> I hope I will have the power to reflect
> on the theories of Piaget, Vygotsky, and
> Erickson [sic]. I believe my experience at the
> Child Development Center at this university
> has helped me actually visualize these

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men's theories. I worked with four year olds
and was able to learn that developmentally
appropriate practices are important when preparing
lessons for ALL children. I know that concrete
teaching and presenting lessons with enthusiasm
increase learners' effort and ability, self-
confidence and achievement.

Lori continued to describe what she had learned from
the theorists and her experiences as a practicing teacher at
the Child Development Center. She then wrote that "a good
teacher should never assume that the children are going to
grasp the concept in a single day. Some students may, but
others may not." Lori later revealed that "Long Division
Blues" was the case she most enjoyed analyzing.

...I could relate. Many teachers experience
what Mary did. While preparing lesson plans
for my methods courses, I sometimes think I
can't fail with my lesson. Then my peers
show me it wasn't as great as I thought.

For the last case, "QuickStart," Lori again tried to
follow the Case Analysis Guide, but did not address
implications for her future teaching. She mentioned the
three different views of technology which were at the core
of the case, but then digressed into an analysis of a
similar case she had observed in a local school! It was
during this digression that Lori continued to address
questions from the Case Analysis Guide. She did not ask
for additional information about the case, but instead
described what she would do if she was in this local school
situation. Evidently her observation in the local school
had made quite an impression on her. "My beliefs come from

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experience at Central Elementary. I watched the students

and I saw how the computer-based program affected the

students."

<u>Summary</u>

Lori's performance goal orientation did not appear to

vary from her initial responses on the Motivation and

Strategy Use Survey. In fact her desire to look capable to

students and instructor were substantiated by the reasons

she offered for the quality of her analyses. She explained

that the time limits, her asthma and allergies, and projects

in other classes kept her from providing a more detailed

analysis. It appeared that these external factors were

often her justification for a less-than-stellar analysis.

Lori mentioned later that she was glad there wasn't any

pressure in the use of these cases "and we could pull out

any time." She enjoyed the use of cases.

> The opportunity to reflect on my learnings
> and use my knowledge was pleasing. I didn't
> realize I had retained so much of the theories
> of teaching and actually apply them.

> ...cases such as these are real. They stimulate
> thinking and also a form of understanding
> how to solve real classroom situations.

Lori also noted that her involvement with the course

changed while using cases. "I tried to put myself in the

position of each person and wondered what I would do

different." With each successive case, Lori had more

questions regarding the case and offered more suggestions

for the teacher. She did not criticize the teacher in a

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condescending or negative way, but merely suggested what the teacher could or should have done.

Ellen

Background

Ellen is a secondary education major (English and journalism) in her mid-twenties. She anticipated student teaching in Fall 1997. She was generally reserved in class, seldom initiating questions in class, yet she did participate in discussions when the topics were about English, writing or videos. During the semester she was contacted by a literary agent who wanted to begin representing her in negotiations with a publisher concerning one of her romance novels. This was a thrilling step for Ellen and she quickly shared her good news with me after class one day.

Ellen scored 19 of 35 items correctly on the Prior Knowledge of Course Concepts Survey. She did not correctly answer questions about behavioral and cognitive psychology, technology v. humanism, and communication/listening skills. She considered herself a proficient computer user but did not feel sure of her ability to use computers for instructional purposes. She had used some of the other equipment. Ellen had not used case analysis prior to this course.

Ellen's responses on the Motivation and Strategy Use

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Survey revealed a high learning goal orientation. Her performance goal orientation responses were somewhat ambiguous. While she indicated that she liked to perform better than other students and wanted others to think she was smart and capable, Ellen wasn't sure if she cared whether peers or instructor thought she was stupid or foolish. The same ambivalence was reflected in her responses concerning pleasing the teacher and future consequences of good grades.

Ellen's perception of her ability was high. She indicated she felt she could understand the course concepts and do the work. She also indicated that she felt that her knowledge and skills were better than her peers, yet she was undecided whether her knowledge about the course subjects was comparable to her peers. Ellen appeared to be a strong self-regulator. She indicated that she did not always notice material she had not understood.

Ellen's Analyses of Cases

In the first case, "Jack Writes a Paper," Ellen described the dual nature of the student's task and focused on the student's weaknesses (in writing and typing). She did not describe any similar or different situations from her own prior knowledge or experience. Her questions centered on the student's weaknesses.

> I suggest isolating the weaknesses and working on them separately before putting them together again. The factual basis for this is that Jack is having problems in both areas

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[typing proficiency and organization]...
In the future, it might be useful to see Jack
try to complete similar assignments after
instructors have worked on both areas.

Ellen had further questions regarding the student's
prior knowledge of the computer, the particular computer
program, and his prior experience organizing his thoughts
for papers. She did not offer her rationale for her
suggestions. Her suggestions for future use were for the
student, not her own future teaching. She later revealed
that this was the case she most enjoyed analyzing because it
was her content specialty.

Ellen's focus on the second case, "Rx for Ailing
Instruction," was on the student's problem in studying for a
science test. Ellen's comments and her suggestions for
improvement were all directed at the student. She wondered
about Gail's study habits and strategies. She also wanted
to know "what type of teaching strategy works best with
Gail. Does a hands-on approach or a visual approach work
better in other classes?"

Ellen indicated it was the student's responsibility to
use better study habits. In so doing, Ellen revealed some
understanding of cognitive processes.

Perhaps using different study strategies,
such as notecards, might help her retain
the information better. The reason I think
the notecards might work better is because
it would isolate concepts and Gail might be
able to organize the information better in
memory. Breaking down the study session into
several sessions instead of one would also be
helpful because cramming at the last minute is

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counter-productive. Gail will remember the first
and last thing she studies, and she will forget
everything else in-between.

Ellen did not mention any improvements that the teacher
could have made to prevent the situation. She did not
mention using media. As with the first case, her comments
regarding future usefulness were focused on the student in
this case.

> The information in this case would be
> useful to compare to another classroom
> which employs strategies for encorporating
> [sic] all of the multiple intelligences in
> the learning structure to see if that may
> be what is causing Gail to have some of her
> problems in this science class.

In my feedback to her concerning her analysis, I reminded
Ellen to describe personal situations that were somehow
similar or slightly different from the case to be analyzed.
I also urged her to describe how the insights from each case
could help in HER future teaching.

Ellen's analysis of the third case, "Long Division
Blues," was a little more revealing of her attitudes towards
learners and their abilities. She showed evidence of her
knowledge of "learning styles" (visual, auditory, hands-on,
etc.) and in this case she continued to base recommendations
on this perspective. As she finally mentioned a relevant
personal experience, her understanding of learning styles
was apparent.

> The biggest problem I have is that this lesson
> seems crammed into a selected amount of time,
> regardless if the learners have understood it
> or not...

When I was in Tests and Measurements [class],
I had a similar problem because I'm not as
proficient with calculators as most people,
and using the special function keys were [sic]
difficult to me because of it. Also,
as someone who is weaker in math than
most subjects, I think the fact that the
task just seemed to fill the time structure
rather than address the student's needs would
have caused problems. I am not a learner who
deals well with numbers and I don't think I would
have done well under those circumstances.

Ellen's view of herself as a learner who doesn't deal well

with numbers may indicate an evolving philosophy of learning

that will color her future teaching. In addition, she

seemed to have a basic understanding of cognition, memory

processes, and schemata and based her suggestions for the

teacher on these concepts. Ellen suggested breaking the

task into smaller components, activating student schemata

for division using simple division problems, using directed

practice and feedback, and omitting the use of calculators

until students had mastered the concept.

During her analysis Ellen finally addressed all of the

prompt questions on the Case Analysis Guide.   However, her

future recommendations were AGAIN for some one else.

This information might be useful if working
with math students at a higher grade level
because if these skills have not been
adequately learned, the result will manifest
itself later on. Also, a student who has
been confused by these concepts might show
a negative attitude toward the subject, and
using this premise of having a bad problem in
early math, such as long division, might be
useful to understanding the students' problems
with current skills being taught.

With each successive case, Ellen's suggestions became

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less student-directed and more teacher-directed.
Apparently, her prior course in educational psychology had
made an impression since her suggestions were grounded in
learning theories, even if she did not articulate them
specifically. She approached each case matter-of-factly,
and did not appear too personally involved in the case.   In
fact, the only unprompted personal opinion expressed was
concerning the use of calculators in "Long Division Blues."

> I would not have allowed the students to
> work on calculators, either...The reason
> I wouldn't have used calculators is that
> the teacher cannot see where the students
> are having problems. Only the calculator
> knows for sure.

Ellen finally addressed all questions on the Case Analysis
Guide, but never applied the insights from the cases to HER
future teaching.

The last case, "QuickStart," was written in class
during a testing situation. Ellen later revealed that she
least enjoyed analyzing this case because "I wasn't sure
what to focus on...I wasn't sure what I was supposed to be
analyzing." This case dealt with three teachers' attitudes
towards a new computerized reading program that the district
was adopting. Ellen's concern in this case was how the
teachers would cope with change. She compared it to her own
experiences when learning a new word processing program and
her initial resistance to change.

While Ellen questioned the teachers' prior experience
with this new program and their history of dealing with

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change, most of her questions were concerning the program

itself. She wondered if it had been tested, if the program

had increased reading motivation, if it had saved time, and

if other teachers liked the program. She recommended that

the teachers try the program on selected classes to test its

effectiveness. As with the other three cases, Ellen

considered implications from this case for other situations,

but not to her own future.

> If this program is successful, I think
> it would be helpful to know because other
> schools could use this. Reading motivation
> is really important. This knowledge could
> be used in the future to apply to other
> learners, especially those struggling with
> required reading, let alone extra curricular
> reading.

Summary

Ellen's motivational patterns appeared to remain

consistent with her responses on the Motivation and Strategy

Use Survey. Her perception of ability related to knowledge

and skills was underscored, perhaps, by her grasp of

learning theories and principles. Her indecision about her

comparison with peers relevant to media course concepts may

have been supported by her lack of many suggestions related

to media use. Even though the cases were analyzed fairly

early in the semester, Ellen should have been able to

identify more media issues and offer more suggestions based

on media use.

On the Case Analysis Survey, Ellen wrote that she liked

the use of cases because she "had to examine them from all

angles and consider factors not directly expressed." While she found it easy to relate to the students in the cases, she found it difficult to relate to the teachers. "I haven't had the teaching experience so relating to the instructors was based on assumptions." She found the cases challenging "because there are so many variables" and pleasant "because I enjoy analyzing human behavior." Perhaps the detached, "objective" perspective Ellen used to approach the cases is consistent with her writer's habit of observing people "so I can write about real situations."

Ellen also indicated that she found case analysis rewarding "because I will reflect on why they didn't work (the teacher's effort) while I'm teaching." It may be that she really DID think about implications for her future teaching, but during her written analysis, she addressed the case situation. Ellen also revealed that she felt more involved in the course while using cases and really enjoyed using them. Ellen's natural reserve was lessened somewhat in class as she began to offer her insights during class discussions of the cases. She wasn't the first student to comment on the case situations, but she usually contributed to the discussions.

Paula

Background

Paula is an elementary education major in her late

thirties from a small rural community. She was friendly and actively participated in class discussions. She also described herself as a perfectionist "but I know I need to lighten up sometimes." While raising her family, she had been a 4-H leader and often discussed the group's latest projects with me. Paula anticipated student teaching in Fall 1997.

Paula scored 27 out of 35 items correctly on the Prior Knowledge of Course Concepts Survey. The items she missed dealt with cognitive psychology, abstract learning, development of listening skills, and uses of the computer for instruction. She had used some of the equipment in the course (overhead projector, laminator) and had only used a computer for word processing.

Paula's responses to the Motivation and Strategy Use Survey indicated that she had a very high learning goal orientation. She appeared to have a low performance goal orientation, with one exception: she did want to appear capable to her peers and friends. She had a strong desire to please the teacher and considered good grades very important to her future.

Paula had a high perception of ability to understand course concepts and do the work in this and future media and technology courses. She was not sure how she compared to other students in the course. She appeared to be a strong self-regulator.

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Paula's Analyses of Cases

In the first case, "Jack Writes a Paper," Paula
followed the Case Analysis Guide, used the third person
perspective, and addressed all but one point. She did not
ask for additional information that would help her analyze
the case. Instead of specifying the problem in the case,
Paula merely summarized the situation. She also showed
sympathy for the student, Jack, because "I become flustered
under pressure and loose [sic] my creativity." Her
suggestions for the teacher focused on the writing process.
She recognized that part of the task in this case was
computer literacy when she wrote "Most students are
overwhelmed by combining several tasks. Becoming
comfortable with a computer takes time and attention."

Paula's concern for the students' level of comfort was
further revealed as she wrote about implications for her
future teaching. Her comments revealed a nurturing
inclination

> ...I shouldn't assume a child knows something
> or is comfortable doing it. I should be careful
> in overloading a student and making them feel
> uncomfortable or miserable. My students should
> feel like they can talk to me about any situation.

In the second case, "Rx for Ailing Instruction," Paula
continued to stick to the facts of the case and asked for
only one additional piece of information: how much time was
allowed for questions and answers during the class period.
Her recommendations for the teacher were still somewhat

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vague. She suggested the teacher evaluate his teaching and student learning, but didn't indicate why or how. She suggested the teacher use different methods of teaching, but didn't offer specific methods. She did mention that using videos, pictures, models, and overheads of the circulatory system would be helpful.

However, when Paula explained her rationale for her suggestions, she began to incorporate theories and principles. She continued to write using the third person perspective. Again, she expressed a desire to be open to her students. "...I want to teach with an open mind and ear and be ready to change to meet the needs of the students. I want to make learning meaningful and fun."

On the Case Analysis Survey most of the participants responded that they had enjoyed analyzing a particular case because they, too, had experienced something in the case. If they did not enjoy a particular case, it was usually because they had not experienced anything similar or were too disgusted with some event in the case. However, Paula revealed that this was her least favorite case for a more personal reason. "Rx for Failing Instruction" [sic] flustrated [sic] me. I had experienced the same situation in a class and wanted to do something about it and couldn't." That was an unexpected response about the use of cases that I had not considered. Students often indicate that they like using cases either because they have

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experienced similar events or because they have not yet

experienced the events and case analysis helps them

anticipate situations. Rarely does one find this particular

facet of case analysis expressed. And, in fact, it may be

that some students, like Paula, do not choose to analyze

such cases as deeply as they do with cases which do not

conjure up unpleasant memories.

In the third case, "Long Division Blues," Paula again

provided a lengthy summary of the situation, but did not

pinpoint a particular problem or dilemma. However, she was

able to identify with the situation from both the student's

and the teacher's perspectives.

> Through a class situation, I experienced what the
> children experienced. I was totally lost and
> didn't know enough information to ask questions.
> I needed to begin at the very beginning in a step
> by step process. The whole picture didn't make
> sense.

> Through a teaching experience, I made the
> same mistake with children. I was wanting the
> students to combine steps in their head. In
> the middle of the lesson a light bulb flashed:
> they can't do this yet! I had to start over.

Paula also asked for a little more information to help

her analyze the case but as before, did not elaborate as to

why this information would be helpful. During her

recommendations, Paula switched from the third person

perspective which she had been using for all the cases to

the first person perspective.

> ...After going through each step on
> the board several times, I would ask
> the children to work problems on the

board...I would give the children 5
seatwork problems to do and monitor
the work. Next I would have them do
five more problems on their own to check
for understanding...

Paula turned to communication theory which we had discussed in class in the weeks prior to this analysis. She restated the goals of communication (apparently after consulting her textbook because the words were almost verbatim) and then wrote that the teacher's "use of media equipment impeded the line of communication." She did not elaborate and explain her answer. Interestingly, Paula wrote that this was the case she most enjoyed analyzing. "Everything in the case felt [sic] together and I could make connections with many things I had previously been taught."

Paula's analysis of the last case, "QuickStart," revealed more of her personal opinions than the previous cases. She immediately got to the heart of the situation: three teachers' attitudes toward implementation of a computer reading program. Contrary to her previous analyses in which Paula had focused only on the facts of the case, this time she made inferences about factors underlying the teachers' views. " ...Maybe she feels it is a waste of time to try to increase reading motivation. Maybe Ann is fearful of the computers and isn't comfortable using it..."

Paula also revealed more personal reflection regarding similar situations in her own life, quite surprising since she had been reluctant to do so in the previous cases.

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> I have had a negative attitude when someone
> suggested something new I am unfamiliar with.
> I think my insecurities were surfacing, but I
> am learning my way isn't the only way. I can
> still learn new ways.

This revelation from a self-described perfectionist was quite an admission. In a later class session, we discussed the limitations of being a perfectionist as it related to professional and personal events.

Although Paula asked for little additional information to help her analyze the case, the quality of her questions this time indicated more thoughtfulness.

> Does the district suggest use of
> QuickStart as a supplement to reading
> instruction or as the reading instruction?
> How much access to computers do the students
> have? Did the teachers select the books
> and write the questions or select questions
> from a book?

In the previous cases, Paula did not stray from the facts of the case. She mentioned a problem and offered a solution, usually without elaborating on her suggestion. In this case, however, Paula offered more of a glimpse into her "soapbox" opinions about reading.

> Reading is the basis for everything a student
> learns and time with reading is very, very
> important...Children do need motivation to
> read. Reading can open up new worlds and
> QuickStart would provide some incentive to
> read.

This last case was written in class as part of a test. It was apparent Paula tried harder to analyze this case, by the quality of her responses and the attention to the Case Analysis Guide prompts. This extra effort during this case

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seemed to be consistent with Paula's high emphasis on the importance of getting good grades. It may be that since the test was worth more points than the case analyses (10 and 5, respectively) and since she reported that she felt no pressure regarding the use of cases (and could withdraw from the study at any time), she simply did not put forth as much effort as she did at test time. Perhaps she really did need a little more pressure to more deeply analyze the earlier cases.

Summary

In class Paula was always eager to discuss course concepts and the cases. She shared experiences from her observations in the public schools, questioned educational practices that she felt were unfair or unkind to students, brought up current educational issues in the local media, and shared examples of effective lessons from teachers she had experienced. As class discussions unfolded, Paula was always able to offer relevant links to learning theory and principles. In fact, Paula had a fairly high GPA (3.5). It was, therefore, surprising to me that her responses on the case analyses, with the exception of the case on the test, were so shallow. While she followed the Case Analysis Guide to the letter, the depth of her responses was not as thorough as I would have expected from her. It was an apparent contradiction to her open and insightful sharing in class of her thoughts about the cases. By the last case,

however, Paula did seem to be moving from the stance of third party observer ("she should," "she needs to") to more involvement with the cases ("I would,") and trying to make more connections.

Paula's responses on the Case Analysis Survey revealed that she liked the use of cases and found the technique helpful.

> Using cases puts you into a situation you probably will encounter in the classroom. A case helps you to think through how you would handle the situation and how you might improve it. Cases develop reflective attitudes toward situations...
>
> Discussion brought out different views and solutions. I found it helpful. Many of these things, I hadn't even thought about!

Paula wrote that she learned using cases because "you have to have a working knowledge of course concepts to apply them to cases." She also found the cases challenging. "I really like trying to figure out what is wrong and developing a plan to improve the lesson." The only anxiety or frustration she reported was with the case, "Rx for Ailing Instruction," the same case she had not enjoyed analyzing because of a prior similar experience. She said "but it's very healthy to develop a solution to a problem." Perhaps she was trying to deal with her unresolved feelings about her previous experiences and saw analysis of that case as a positive step.

Several times Paula mentioned that she felt cases had helped her pull education courses "together." She seemed a

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little relieved and pleased that she could make suggestions

that really might improve educational situations and wrote

that she considered case analysis rewarding.

> I feel like at this time in education I've
> received at the University, all of it is
> coming together. I have learned and am
> semi-prepared for the classroom. Case analysis
> brought the different avenues of learning
> together to draw from.

This feeling of being "semi-prepared" for the classroom

surfaced again as Paula recommended the use of cases in

future media and technology courses.

> The cases give classroom situations that you
> can think through and develop a solution to
> the situation. The cases will help in the
> future as a classroom teacher. You will be
> more prepared and refer to a case when a
> situation arises.

Olivia

Background

Olivia is an elementary education major in her mid-

twenties. She originally pursued a pharmacy degree but

later switched to elementary education after working part-

time at a child care center. She told me that "that was it.

I knew where I had to be." She was taking a very heavy

course load during the semester (21 hours) and I asked her

why she was taking so many. "Because I've got to hurry up

and get through - I've been going to school a long time."

She was scheduled to student teach in Fall 1997.

Olivia scored 22 out of 35 items correctly on the Prior

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Knowledge of Course Concepts Survey. The items she missed were concerning behaviorism, writing objectives, video attributes and uses, and technology v. humanism issues. She had some experience with most of the equipment, and had used a computer for word processing, spreadsheets and databases. She had not used computer multimedia nor the internet.

Based on her responses to the Motivation and Strategy Use Survey, Olivia appeared to have a high learning goal orientation. She was undecided about how she compared to others, whether she liked to perform better than others, wanting to look capable to friends and peers and thus indicated a low performance goal orientation. She was not too concerned with pleasing the teacher but considered good grades important for her future.

Olivia was again not sure of her comparison with others regarding prior knowledge and skills as well as course concepts. However, she indicated she felt she understood the ideas being taught in the course and could do the work in this course. She was undecided about her success in a future course. She appeared to be a strong self-regulator.

Olivia's Analyses of Cases

In the first case, "Jack Writes a Paper," Olivia gave brief answers to the Case Analysis Guide prompts. She identified the time limit given to the student as the major problem with his poor performance. She related similar experiences she had involving time limits and how stressful

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they were for her. I later reviewed her course schedule during the semester and found that she was enrolled in twenty-one hours, four of which were methods classes. Considering her heavy schedule, it was not surprising that she kept mentioning the stress caused by lack of time.

Olivia suggested that the teacher allow students to bring an outline of their ideas to class so they would be able to complete the assignment within the allotted time. Implications for her future teaching involved future assignments. "This could be useful when giving a class writing assignments and the students don't turn in work that they typically would. Shows that teachers need to reflect on the teaching style."

During this first case, Olivia used the third person perspective and while making a few suggestions, she never explained the reasons for her suggestions or broad statements.

The second case analysis, "Rx for Ailing Instruction," was completed outside of class. With this analysis, Olivia offered a little more elaboration of her responses than in the first case, and she did ask for more information to help her analyze the case. However, her answers seemed perfunctory, and she again did not support her general statements with supporting rationales. Olivia showed concern for the lack of enthusiasm exhibited by the teacher and the reticence of students to ask questions.

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> I had a teacher like Mr. Bray.
> My tenth grade algebra teacher
> taught the exact same way. He
> wrote notes on the board the entire
> period, and at the end he asked if
> there were any questions. Most of the
> time we were so confused and flustered,
> we didn't know where to begin asking a
> question. The class was so boring and
> hard because the teacher had absolutely
> no enthusiasm about the subject.

Later she returned to the lack of enthusiasm and

questioning.

> ...neither of us were taught in an
> enthusiastic manner nor did we enjoy
> being there. Both teachers lectured
> straight through until the end of class,
> then asked if there were any questions.
> Gail doesn't understand the material for
> the test, and I didn't understand it either.

Olivia's suggestions for the teacher indicated that she

was trying to connect her previous knowledge to the

situation. She suggested handouts with the notes already

copied and hands-on examples. She also mentioned "building

on schemata" and "letting students take the book home every

other day". She did not elaborate these answers, however.

Her rationale for her suggestions, while not explicitly

stating theory, was certainly consistent with theory.

> Kids learn when they can see and understand
> the material up front. Sometimes teachers
> lecture above the students' knowledge level.
> Students need concrete reasoning for things
> to be learned and to stick in their head.

The main lesson Olivia learned from this case was that she

needed to "be aware that teaching is not just straight

lecture. Each student learns differently..."

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During the next case, "Long Division Blues," Olivia began to reveal more personal history which seemed to affect her analysis of this and previous cases. She addressed each point of the Case Analysis Guide with more specific detail and personal revelations. She also incorporated more theoretical bases for her answers. Since she was concurrently enrolled in an educational psychology course, her answers seemed to reflect her growing awareness of learning principles.

Olivia revealed much empathy for the students in the case situation who did not understand the teacher's lesson and didn't ask any questions. She, too, had experienced this, with lasting consequences.

> I experienced this same situation when I
> was in pharmacy school. Sometimes teachers
> expected me to know what they were talking
> about or to have some previous knowledge on
> a subject, but really I wouldn't have a clue.
> When I asked a question, they weren't able to
> explain the subject at a level that was
> comprehensible, so I naturally developed a
> low self-esteem, and stopped asking questions.
> I think a lot of students experience this,
> but many professors don't pick up on the
> signals that the students actually need help
> understanding. It felt as if I was drowning
> and no one could throw me a lifesaver. It's
> an awful feeling to encounter as a student.

She later returned to this lack of understanding on the part of teachers.

> ...questions that should be asked by me and
> Mary's students are avoided because of
> intimidation. I think previous knowledge or
> schemata is something teachers sometimes take
> for granted. Teachers unintentionally assume
> students are further along or know a particular

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subject because it's usually something second nature to the teacher.

Olivia's suggestions to the teacher focused on getting to know her students, giving a pretest of prior math skills, spending less time on the particular lesson, and scheduling math for some other time besides right before lunch. She seemed much more confidant in her answers as she returned to the issue of questions.

> If the students are scared to ask questions, then the teacher needs to reshape the students to ensure they are comprehending and participating. It's obvious some kind of conditioning has occurred with the previous teacher. Mary is going to have to change her students' inhibitions of asking questions...Mary needs to turn this class around, and quick.

Olivia's discussion of implications for her future teaching was the first time she actually used imperative statements (i.e., "probe the students with questions. Keep lectures down to a minimum...Be aware of students' needs...Remember nods and eye contact doesn't mean students understand the concepts.")

The last case, "QuickStart," was written in class as part of a test. Olivia addressed each of the Case Analysis Guide prompts except the basis for her suggestions. She later wrote that this was the case she most enjoyed analyzing because it reflected three teachers' viewpoints. She could relate to the anxiety the teachers were feeling concerning the implementation of a new computer program.

> I think we are all faced with new challenges that intimidate and possibly overwhelm us,

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> but how do we learn if we never try. Going
> into the internet terrifies me, but I know
> it's the wave of the future so I'm wanting
> to give it a try. After I try, then I can
> pass judgment.

Olivia's fear of the internet was apparent as she approached a course assignment with some apprehension. She mentioned to me after class that she was a little nervous about the internet and asked if she could do it from our classroom "in case I need help." I assured her that she could access the internet from our classroom and I would be glad to be there for support. She seemed relieved and did come to the media lab to access the internet. Once she saw sites dealing with teacher lesson plans, she was hooked. I was glad to see that although she expressed some concern about trying new technologies, she was reserving judgment until she had some experience. Consideration of new technology before "rushing to judgment" was an attitude that I hoped to encourage throughout the course, and I was glad to see that, at least in Olivia's case, she seemed to be doing just that.

Olivia suggested that the reluctant teacher should "get with the times and stop worrying about herself." She suggested several ways the principal could have been more supportive and comforted his teachers' fears. She seemed to feel the principal could allay any fears and suggested that if she was unfamiliar with something in the future, she would go to her supervisor and express her concerns. Olivia

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still seemed tentative and needing that extra bit of
encouragement in her professional judgment.

Summary

While the Motivation and Strategy Use Survey indicated
that Olivia was not concerned with pleasing the teacher, her
behavior during the course of the study was inconsistent.
As she turned in her analysis of "Rx for Ailing
Instruction," Olivia apologized for the quality of her
analysis. She had experienced an allergic reaction to
medicine the night before and her attention was not focused
on her work as she dealt with the problem. Her analysis of
that case had seemed perfunctory and shallow. After my
feedback to her regarding the case, in which I wrote that
she should be less vague and give specific examples to
support her responses, her next case, "Long Division Blues,"
was much more thorough and complete.

Olivia expressed some ambivalence about the use of
cases. She liked the way they made her think of previous
experiences and apply them to her future teaching. However,
she thought the cases were too long. She thought it was
easy to find "likes and dislikes with other teaching
behaviors" but found theoretical reasoning difficult. She
wrote that the use of cases was challenging because "it was
sometimes hard to express what I was thinking or think back
to previous experiences" but also found the cases rewarding
because "hopefully, I won't make the mistakes I observed."

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Cathy

Background

Cathy is an elementary education major in her mid-twenties, specializing in early childhood education. She always appeared reserved and serious, but worked well with classmates in class activities and projects. Her assignments were always meticulous and top quality. Cathy was just beginning to take the restricted teacher education courses, and was concurrently enrolled in a developmental psychology course. She had not yet had educational psychology. Cathy planned to student teach in Spring 1998.

Cathy scored 21 out of 35 items correctly on the Prior Knowledge of Course Concepts Survey. The items she missed pertained to behaviorism, writing objectives, development of listening skills, and instructional uses of computers. She was familiar with most of the equipment but had only used the computer for word processing functions. She mentioned on the computer survey that she was concurrently enrolled in an introductory computer systems course and hoped she could overcome her fear of computers.

Cathy's responses on the Motivation and Strategy Use Survey indicated that she had a high learning goal orientation. Her performance goal orientation appeared somewhat mixed. While she wanted to appear smart and capable in front of her friends and peers, she wasn't sure if she liked to perform better than her peers. She also

expressed ambivalence toward the teacher's role. She did not appear to care about the teachers' opinion of her performance, yet she scored high in wanting to please the teacher. Cathy also indicated that good grades had important consequences for her future.

Cathy appeared to have a strong perception of her ability to do the work in this and future media and technology courses. She was unsure about her knowledge and skills in comparison with her classmates. She was also undecided about whether she was doing well in the course. Cathy appeared to be a strong self-regulator.

Cathy's Analyses of Cases

For the first case, "Jack Writes a Paper," Cathy addressed each issue on the Case Analysis Guide in a very straightforward manner. She wrote that Jack's biggest problem was writing in a time limit. She questioned the students' prior knowledge of the paper's theme and then suggested that students be given time to brainstorm ideas and bring an outline to the computer lab. She also thought some practice papers in the computer lab would be helpful as well as allowing more time to finish the papers. Cathy did not question the teacher or the assignment but offered alternatives to "get the job done."

Cathy's comments centered on tasks related to the writing process, but she did not address the cognitive demands needed by Jack to use the computer for his

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composition. Perhaps this is understandable, given that she

herself did not feel comfortable composing at a computer

and, in fact, was taking another course to help overcome her

fear of computers.

Cathy suggested that the situation could have

implications for the student's future, as well as a reminder

to herself concerning her own teaching objectives.

> It is obvious that under these circumstances,
> a good writer will produce a poor paper. This
> could discourage students from wanting to write
> for enjoyment...
>
> I think this example will help me to remember
> that we are looking for product, not procedure
> in this particular instance.

In the second case, "Rx for Ailing Instruction," Cathy

again addressed every prompt on the Case Analysis Guide,

using the third person perspective, and offering more

elaboration of her comments. She didn't mention that she

sympathized with Gail, but matter-of-factly stated that she

too had experienced a biology class like the one described

in the case. Cathy suggested that Gail should study her

notes, jot down questions she might have, and consult

outside resources for information. She suggested that the

teacher should give hand-outs with the notes already

written, and conduct a review the day before the test. Her

past experience in biology may have had an effect here since

in her class "it was the student's responsibility to read

and understand the material/concepts covered in the text."

She did not explain why her suggestions would improve the

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situation.

Cathy cited a model of instructional design used in the course as the basis for her recommendations, but spoke in generalities. She again returned to her concern with the product versus process issue.

> I think that sometimes we get too
> wrapped up in the product that we
> are wanting. This causes us to lose
> sight of the importance of the thought
> process that is involved. The main
> goal is to stay focused on what you
> are wanting the student to learn.

Cathy later indicated that this was the case she most enjoyed analyzing because "we have all experienced a teacher who simply pushes papers. I enjoyed giving ideas to fix this problem."

In the third case, "Long Division Blues," Cathy offered her most complete and insightful comments about each prompt on the Case Analysis Guide. The biggest problem she identified was that the teacher blamed the students when the lesson failed. As she described her prior experiences, she immediately offered suggestions to the teacher, using imperatives such as "she should." She made suggestions regarding use of the overhead and calculators, use of music as distracting, and giving more attention to whether the students were understanding the lesson.

> ...by eliminating distractions such as the
> background noise of the music, the fascination
> of the overhead projector, and the feeling of
> being overwhelmed by being able to "divide the
> really big numbers," she had these children
> lost, scared, and looking for something fun to

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occupy their time. I believe she could have helped the children develop a positive attitude toward math by allowing them the opportunity to succeed at long division...

Cathy expressed concern that if the teacher had followed basic principles of instructional design, the lessons would have been more effective. "By making it more effective, I believe it would have been much more interesting and successful for both Mary and her students." She thought this case would help her in the future and revealed more personal philosophy than in previous cases.

> I think it is very important to keep in mind that when students do not understand one way of doing something, it is my responsibility as a teacher to find a way to teach a child. No two children learn exactly the same. This will be a challenge, but it is very important to meet this challenge. Our children's futures depend on teachers who are willing to go that extra mile.

In the last case, "QuickStart," Cathy continued to address the prompts from the Case Analysis Guide. She briefly summarized the three teachers' attitudes toward the new program and then described the importance of teacher attitudes toward a subject.

> Children pick up on whether or not the teacher likes something. Mrs. Blevin's kids will know that she does not like the program and will not become motivated. This happened to my daughter in the second grade. She had a teacher who didn't like math. Therefore, she did nothing fun with the children in this area. They did only the drill and practice worksheets. My daughter also developed the attitude that she did not like math. It was then my responsibility to show her that math could be fun.

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Cathy asked insightful questions about the program and
implementation: Were questions only factual? How much
access to computers would students have? How much training
will teachers have before implementing? She also encouraged
the teachers to continue to do the other reading activities
and group discussions. "It is very important for the
teacher to be an active participator in activities. Just
using the computer only would not allow the teacher to do
this."

Cathy mentioned the instructional design model used in
the course as well as Dale's Cone of Experience to support
her recommendations. She tried to make the connections
between theory and practice, and although her understandings
were not yet complete, it was clear she was moving in the
right direction.

Summary

With each successive case, Cathy continued to analyze
the case based on its facts, and gradually asked more
questions for additional information. She also made more
explicit and implicit connections to theory. Her analysis
remained somewhat detached, however, and not once did she
attribute unkind motives to any of the teachers. Her
suggestions were practical and unemotional, yet she did
express personal beliefs in a very objective manner.

Cathy's strong sense of pleasing the teacher was
consistent throughout the analysis. Both of her out-of-

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class analyses were typed on pastel paper and when I commented on this she answered, "I thought you might appreciate a break from all those white papers you must be reading." Later on the "QuickStart" case, Cathy apologized for the analysis but indicated she felt she hadn't had enough time to analyze the case properly. In fact, her analysis was thorough and thoughtful.

Cathy's learning goal orientation remained high during the use of cases. Several times on the Case Analysis Survey she mentioned her preference for case analysis because it was application of knowledge, not just rote learning. When asked if she found the cases challenging, Cathy said no, because she had used cases in other courses. However, when asked if she found case analysis difficult, Cathy did mention the challenge. "There were no areas that were terribly difficult; however, the longest and most challenging was to give advice on what would make it better." In contrast, she found that "the easiest thing about case analysis is to find the dilemma. It is always easy to find fault with someone else's work."

Cathy also found cases rewarding "because they helped me to set goals for what I want to accomplish," a definite learning goal perspective. Cathy was not frustrated or anxious using cases because she had finished them early "and they cause no stress because there is no definite answer."

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Don

Background

Don retired from the military a few years ago and began working on a degree in elementary education. He was just beginning to take the restricted professional education courses. He was concurrently enrolled in several methods courses and developmental psychology. He anticipated student teaching in Spring 1998.

On the Prior Knowledge of Course Concepts Survey Don scored 24 of 35 items correctly. He missed items pertaining to behaviorism, video attributes, and computer-assisted instruction. He indicated he that he could use most of the equipment in the course, but had not used multimedia or the internet. He indicated that in the military he had used several instructional training aids, written "military style" lesson plans, and executed long and short term training objectives.

Don's responses on the Motivation and Strategy Use Survey indicated that he had a very high learning goal orientation. His performance goal orientation was also very high. Although he wanted to look capable to peers and friends, he didn't appear concerned that he perform better then his peers. He also didn't appear concerned that the teacher would think he was foolish or stupid. Don did, however, express a desire to please the teacher and also indicated that he felt good grades had important

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consequences for his future.

Don had a high perception of his ability to understand the course concepts and do the work in this and future media and technology courses. He was undecided about how well he was doing in the course compared with others and unsure about whether his knowledge and skills were better than other students. He appeared to be a strong self-regulator.

Don's Analyses of Cases

Don provided a concise analysis of the first case, "Jack Writes a Paper," and addressed all the points on the Case Analysis Guide. He immediately recognized that Jack's inability to use the editing functions of the computer program were probably compounding his problem in composition at the computer. He compared Jack's situations to some of his classmates who also experience this problem. He asked if Jack could outline (the writing process) and if he knew how to edit on the computer. Don then used the second person imperative to make suggestions to improve the situation ("Teach him...Encourage him..."). He then changed back to the third person perspective to discuss Jack's lack of cognitive skills and uneasiness with the computer. For his own future teaching Don wrote that he needed to be more aware of his students' skill levels before requiring performance on a task.

The second case, "Rx for Ailing Instruction," was written outside of class. Although he later indicated this

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was the case he least enjoyed analyzing ("not nearly enough info to conclude what was happening"), Don provided a very thorough and reflective analysis. He saw the main problem as the school's lack of books for each student. The teacher was coping with the situation by writing notes on the board for students to copy. His solution then created a new problem: not enough time to clarify the notes and provide hands-on exercises.

Don then went on to explain why this was not acceptable. Students' schemata were not being developed, and no allowances were being made for differences in maturity, cognitive development or physical limitations. He then explained the problem further by referring to learning styles.

> It [copying notes] addresses only one
> primary domain, the visual, with perhaps
> some minor attention to the audio, but
> none to the kinesthetic (unless you count
> the act of copying notes, a no-brainer
> activity, if there ever was one), nor to the
> interpersonal (you don't copy notes in
> cooperative learning groups).

He went on to mention Bloom's Taxonomy and paraphrase how learning occurs.

> A curriculum of science will only achieve
> its goals if the students' thinking processes
> at least reach the application or analysis
> levels, if not even synthesis or evaluation
> of their materials. With this instruction,
> it is not going to happen, though my under-
> standing is that this is not an unusual situation.

Don then asked for more information about Gail, the

teacher, the curriculum, and the lack of materials. He even

questioned whether the teacher should be employed. "Why is

this teacher still in the classroom? Has the principal and

all of his peer teachers been on vacation the entire term?"

He later revealed that he had found this case somewhat

annoying. "I cannot comprehend a principal who would allow

a class to get so far out of hand."

As Don offered suggestions for improving the situation,

he switched from the third person perspective ("the teacher

needs to...") to the more personal first person ("I would

...", "I'd have to..."). He explained why it was so

important to target higher level cognitive development.

> The students must maintain interest in the
> subject in order to continue an attitude
> of healthy curiosity. This will only happen
> when the students have at least partial
> ownership in their learning and instruction
> occurs that bombards all the senses. This
> self-motivating attitude snowballs as learning
> means something to them in the context of their
> experience and their reality.

Don saw some important lessons for his future teaching

in this case and seemed to feel he could approach future

challenges with confidence.

> I have no doubt in my mind that I will
> encounter this situation. I don't plan
> to teach in some sterile Waspish school.
> My resumes will show up at those schools
> where I perceive the greatest challenges
> (within a reasonable commute of my home).
> It seems I have always selected to work
> for organizations that are broke, often
> seem without direction, and use crisis
> management as the norm for daily operations.
> This case has provided me with insight to
> this very real situation and forced me to

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reflect on my beliefs and philosophy to
                    search for compatible solutions, and to
                    reflect on whether I can cope. I can.

In the third case, "Long Division Blues," Don moved

from confidence in his ability to cope with future

challenges to preparation for "survival."   He also revealed

more of his personal philosophy and experiences than in

either of the previous cases. Don focused on the situation

surrounding the teacher's inheritance of a classroom from a

predecessor who "either discouraged questions, did not allow

time for them, did not care, or a combination of the above."

He had recently experienced similar problems while tutoring

remedial math and reading students. He was working with

second graders who were way behind their peers in basic math

facts. He appeared to empathize with the teacher because

"like Mary, the Title I teacher and I face an impossible

task to meet the curriculum expectations."

Many of his requests for more information dealt with

the students' level of math skills. He was concerned that

slower as well as brighter students receive challenging and

supporting instruction. He wanted to know about the former

teachers' methods "which obviously didn't work", and

suggested ways the teacher could begin to get her class on

track (cooperative grouping, peer tutoring, advice from

colleagues, etc.). As thorough as Don was in the previous

case in explaining the cognitive demands of the task, it was

somewhat surprising that he focused so exclusively on this

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"crisis situation" which the teacher had inherited. However, considering his earlier comments about always working under difficult conditions, and with his concurrent tutoring of remedial students, it appeared that he had already entered "survival mode" with his tutees and could thus empathize completely with the teacher in the case.

As for future implications for his own teaching, Don was very much concerned about what he would find when he finally got his own classroom.

> I could very well walk into someone else's disaster area. As a new teacher, my experience in the classroom is obviously limited and my anxiety level will already be pushing hard into the "survival mode." In this scenario, however, for the children's sake, I will not have the luxury to panic myself into another heart attack.

It was interesting to note that this military veteran of unusual hardships was so concerned about the conditions in his future school. However, he did not seem to feel that he was going into battle unprepared.

> This case study has shown me that, on reflection, there are resources and assistance out there. My education has provided me with many of the basic tools to at least partially recover the lost learning. My years of life experience can be utilized to make the best of this temporary situation. Regardless, my next school year will seem like a walk in the park...but then again, maybe not.

The last case, "QuickStart," was written in class and Don later reported that he really enjoyed analyzing this case. He ran out of time to finish addressing all prompts on the Case Analysis Guide, but the answers he completed

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were thorough. He focused on the three teachers' views of the new computer program. He offered suggestions to each, as well as personal comments about their willingness or reluctance to try the new program.

Don used several colorful expressions as he discussed each teacher's viewpoints. He thought Anne "doth protest too much" about having to use the program, but realized it was probably because she was anxious about change. He wrote "hard-headed Annie had better start high-stepping and get with the program." He thought Kay was too willing to

> jump into the deep end without checking
> to see if there's water in the pool. We
> must take some risks, yes, but those with
> some hope of success. If QuickStart sinks,
> bubbly Kay's class drowns as well.

He agreed most with Terry's "whatever works, pragmatic approach" which appeared to be "a healthy, caring, flexible attitude."

Don wrote that while he had no direct experience with this type of program, he had seen teachers who had to use mandated programs but continued to use supplemental materials and thus find a reasonable balance that more accurately reflected their philosophies. His recommendations were for the principal. He suggested frequent meetings about the new program so teachers could share their successes and help each other with solutions to problems. He used vivid language to describe that Ann "may need a compassionate kick in the pants about being a team

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player," and that Kay would have to be watched "a little more closely in case she starts to crash and burn." Above all, he encouraged flexibility and open minds.

As time ran out on the test, Don took another minute to conclude his analysis.

> This situation could jump up and bite
> me in the toe! This case study has me
> reflecting on my position, my philosophy.
> I actually line up most with Terry. (Nah,
> you couldn't tell, right?)

Summary

Don revealed more of his personal philosophy as he grappled with each successive case. He answered the prompts on the Case Analysis Guide for each case except the last case (time limit). Once an issue was selected, Don analyzed it thoroughly and tried to make connections to prior learning and theory, with the exception of the last case, "QuickStart." Evidence of his personal experiences surfaced during each case and he clearly recognized this influence on his thinking about the cases.

Don really liked the use of cases.

> I liked the way case analysis makes me
> think of practical solutions to real
> problems. Our heads are filled with
> ideas, methods, and materials. With
> case analysis, short of the real
> classroom, this is as close to reality
> as we get.

He also reported that he learned course concepts using cases because "I felt I was able to better verbalize my understanding of a concept by writing it down." He found

cases challenging in their own way. "Different situation, subjects, students...sort of like real life, huh?" He also found the cases rewarding and "was using it while tutoring even now." Presumably, he meant the lessons he was deriving from the cases.

Don also found cases easy. "I'm old enough to know my own mind and to have had many more life experiences than most of my peers. I felt comfortable drawing on both experience and knowledge in these cases." He also wrote that his study habits for the course had changed somewhat in that he felt more reflective in some respects. Don reported that he felt he had appropriate knowledge and skills to analyze the cases for the most part but "I also know there is a whole lot more to know that can only come with experience." He highly recommended the use of cases in future media and technology courses ("we can't be exposed to too many tools") but suggested that next time there be even more in-class group discussion of the cases. "We didn't do enough of it in cooperative groups. By sharing our ideas and cognitive processes, we might have gotten even more from it."

Themes and Trends Across Written Protocol Participants

While I don't have the full picture of their mental processes during case analysis, the analyses of the six written protocol participants reveal patterns similar to the

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verbal protocol participants. The written protocol participants also showed some changes from writing in the third person to comments in the first person, but not as frequently as for the verbal protocol participants. They also became somewhat more assertive in their recommendations and explanations, but again, not as frequently as the verbal protocol participants. This may be because the verbal protocols functioned on some level as almost a "conversation" with me. Such informal "conversations" may have seemed more personal and so students' reserves were lessened.

The written protocol participants' analyses revealed some personal philosophies and deeply held beliefs, but not as many or as elaborately explained as the verbal participants' analyses. There were also fewer expressions of sympathy, disgust, annoyance or surprise in the written analyses when compared to the verbal protocol participants.

Among the written protocol participants there were some differences in depth of processing. Don offered the most elaborate and insightful analyses of this group. Paula's analyses were comparatively shallow except for the case analyzed during a testing situation. In that case, she conducted a much more thorough analysis. Ellen never made any connections between case issues and her own future teaching.

The written protocol participants appeared to be more

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variable than the verbal protocol group in terms of depth of processing. Although differences between the two groups were subtle, the difference in variability may have been an accident of sampling, despite my attempts at matching verbal and written protocol participants based on initial analysis of the selection case.

It is also possible that the wide variety in depth of processing among the written protocol participants may have resulted as a function of the differences in protocols between the two groups. During class discussions of the cases, Lori, Ellen, Paula, and Olivia offered insightful comments that were not reflected in their written analyses. Perhaps written protocol participants merely edited out portions of their analysis that they deemed too revealing and only included their more "objective" analysis during their final draft submitted to me.

Themes and Trends Across All Participants

This study focused on the processes students use to analyze information during case analyses. The verbal protocols conducted with six participants provided an in-depth look at their processes during case analysis. The written protocols conducted with the six matched participants also provided a snapshot of their processing. Regardless of whether participants analyzed the cases in oral or written formats, several interesting trends emerged.

Secondary and Elementary Perspectives

Participants revealed their beliefs about teaching and learning in surprisingly similar ways, depending on their teaching specialty. Three differences emerged between secondary and elementary education majors' perspectives: their goals for teaching and fostering learning, their analysis of learners' entry skills and knowledge, and the application of case principles to their own future teaching.

Students majoring in secondary education (Harry, Fran, and Ellen) indicated that one of their major goals in fostering learning was to make learning interesting and understandable. They placed a high priority on making sure their future students would understand the course content and hoped to deliver it in an interesting way, using lectures, visual aids, written activities, or hands-on experiments. They indicated that through these methods, students would find the course content more understandable.

The elementary education students also expressed their goal of making learning interesting, but also wanted to make learning fun. In fact, the phrase "fun and interesting" was often repeated during an individual's analysis of a case. Even when describing model teachers they had experienced in high school, several elementary education students mentioned that the teachers had made the class "fun and interesting," usually through the use of lectures, visual aids, and hands-on activities and experiments.

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The three secondary education majors also saw their role as a teacher in very subject-specific ways. All three indicated that they wanted to help their future students learn math, science, or English, respectively. In contrast, the elementary education majors saw their role as a teacher in more general terms. They wanted to help kids love learning, feel good about themselves, and become good citizens.

Students also varied in their approach to assessment of the learners' prior skills and knowledge. Two of the three secondary education majors (Fran and Ellen) indicated that when assessing students' entry knowledge and skills, the teacher should isolate their weaknesses. They wanted to find out students' weaknesses so they could be remedied. In contrast, the elementary education majors (and one secondary major, Harry) took a more positive stance and recommended finding out the students' strengths and then building on that foundation. Lest one think that the elementary education majors did not address weak skills, they also mentioned that if there was a deficit in prior knowledge or skills, the teacher would have to go back and re-teach so the students could move forward and succeed.

The last difference that emerged between the secondary and elementary perspectives was the ability to bridge case concepts to their own future teaching. All of the elementary and one of the secondary majors were able to

provide several ways the principles in the cases could help them in the future. Two of the secondary majors consistently did not see such personal connections. While one (Ellen) did offer implications for future teaching, her comments were for some other teacher, or the teacher and students in the case. Perhaps this inability or reluctance to consider applicable principles to their own futures is not really so surprising. Secondary education students are trained to be subject specialists in their respective areas, with very little integration across the curriculum as is the case with elementary majors who must adopt a more generalist outlook. Even when the case was set in a secondary classroom in their teaching specialties ("Jack Writes a Paper" and "Rx for Ailing Instruction"), the two secondary students failed to see implications for their own future teaching.

Proximity to Student Teaching

Whether secondary or elementary majors, students who were approaching their student teaching semester in Fall 1997 tended to be more understanding of the teacher's faults as well as the situation constraints than students who would student teach in Spring 1998. Whether this is because they were soon to be "on the other side of the desk" or whether completion of most of their course work gave them additional information with which to make judgements was unclear.

Overall, the 1997 student teachers expressed their

growing sense of confidence that they were almost ready to face the challenges. Several spoke of being "semi-prepared" or "well-prepared" through their courses and experiences at the university although they realized that there were some things one could only learn by experience. The 1998 student teachers expressed hope that they would be ready when their time came and, in fact, used the word "hope" often in their implications for their future teaching.

Prior Knowledge

It was no real surprise that the depth of analysis involved seemed related to the extent of the students' prior course work and experience. At first reading, several of the case analyses were a bit disappointing because their responses were shallow and vague. Students without educational psychology or subject area methods courses did not specifically address case issues one would expect, based on their subject specialty. For example, in "Long Division Blues," I expected that the math major (Fran) would immediately mention the flaws in the teacher's instruction. However, Fran did not address such flaws at all, but focused her analysis on helping the teacher make math "understandable," without ever offering specific hints on how to do this. When I reviewed her transcript for prior courses already completed, her lack of specific knowledge in certain areas was understandable. Students who had already completed their developmental and educational psychology

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courses as well as some of their methods courses had a clear
advantage in the depth and breadth of responses they made.
Elementary education majors who had already completed their
math methods courses did notice and address the flaws in
instruction. And, like Fran, those elementary majors who
had not completed such courses also did not break down the
instruction into specific remedies. However, it was also
gratifying that even students who were concurrently enrolled
in the developmental psychology, educational psychology, and
methods courses began to infuse principles from these
courses into the cases with increasing frequency as the
course progressed. As a teacher, this realization that they
were making connections (even though prompted by the Case
Analysis Guide) was very satisfying.

Students' Perceptions about Case Analyses

All students in this study reported that case analysis
was a useful instructional technique. Their responses
indicated that they generally liked using cases, and for a
variety of reasons. They liked applying their knowledge to
realistic situations. Time and again students mentioned
that the use of cases helped them think critically and
become more reflective about themselves and others. They
also liked finding practical solutions to problems they may
face someday in a real classroom.

Several students spoke of being surprised and pleased
at how the cases allowed them to pull together everything

they had learned in college. All found the cases

interesting, and some thought the cases made the course

"interesting and fun," "interesting and informative", and

"interesting and enlightening."

CHAPTER IV

DISCUSSION

The first section of this chapter will include an interpretation of the processes used by participants during case analysis. The second section will focus on interpretation of motivation patterns exhibited during case analysis. A discussion of students' perceptions of the usefulness of cases follows. In the next section implications for instructional practice will be discussed. The fifth section will be concerned with a discussion of methodological limitations of the study. A discussion of directions for future research follows. The chapter will conclude with some final comments.

Interpretation of Processes

In light of the data presented in this research, it appeared that several processes were occurring during students' analyses of the cases. The amount and depth of these processes varied by participants across time. I have categorized these processes as restating, reflecting, questioning, and perspective-taking.

Restating

Although the Case Analysis Guide prompted students to describe the situations, problems, or dilemmas they saw in

each case, their statements were indicative of their processing of the case. Some students merely summarized the case and didn't really target specific problems until later in their analysis. They appeared to have some difficulty deciding on the main issues of the case. Other students quickly identified specific areas of concern and focused their analysis accordingly. These differences are consistent with expert-novice problem solving literature (Anderson, 1990; Chi, Feltovich & Glaser, 1981; Priest & Lindsay, 1992).

With successive cases, students identified more issues and offered more elaboration of those issues. They became more reflective about possible causal factors for a particular behavior, situation, and expected outcome of the situation as well as their proposed solution. This gradual increase in depth of analysis could be expected as the students progressed in the course and grew more comfortable with the case analysis process. Even though not all students began or ended the study with the same depth of analysis, all students showed movement toward greater depth and breadth of analysis. Such movement supports current literature on the development of expertise which reports the tendency of novices to analyze at a more superficial level while experts hone in on the main issues (Chase & Ericsson, 1982; Chi, Feltovich & Glaser, 1981; Glaser & Chi, 1988).

Reflecting

Students were prompted by the Case Analysis Guide to consider their prior knowledge or experience about a similar situation as they analyzed the cases. Such prior knowledge was often actively brought to bear on the interpretation of the cases, regardless of the nature of that knowledge. Such processing appeared to make the case analysis task more meaningful than other types of knowledge learning tasks (such as memorization and rote recitation).

Although students were prompted by the Case Analysis Guide to relate theory and research to their suggestions for improvement, most still seemed to base their suggestions on their own experiences, whether good or bad. This tendency was not surprising for students who were just beginning their professional education courses and had not yet been exposed to learning principles and theories. Students who were closer to completion of their college course work were more likely to mention specific theories and learning principles. However, even though it seemed difficult for students to articulate the links between their suggestions and theoretical constructs, most showed evidence of some application of the concepts. This is consistent with current literature regarding the importance of prior knowledge and how prior knowledge is sometimes more compelling than new information (Anderson & Pearson, 1984; Pearson, Hanson & Gordon, 1979; Phye, 1989, 1990, 1991).

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Prior knowledge was used in various ways as students referred to prior academic knowledge to analyze the cases as the following examples illustrate. Brenda referred verbatim to ideas expressed in her textbook. In her subsequent analyses she also referred to more personal experiences, but still remained dependent on her textbook for support. Wanda, on the other hand, several times referred to ideas from her education courses and even mentioned specific professors who had made an impression on her learning. Finally, Harry demonstrated his integration of schema theory into his discussion of how he takes notes in class. Clearly, he was able to apply the theory to his own experience.

The following examples illustrate how some students focused more on their own educational experiences rather than their academic knowledge to make sense of the cases. Fran based much of her analyses on her experiences as a math tutor as she tried to help students reach a better understanding of math concepts. Mary had such a positive experience with her high school biology teacher that her analysis of one case was based on her comparisons with that outstanding teacher. Olivia had experienced much frustration in pharmacy school with professors who were hard to understand. Her perception of that experience clearly entered into her interpretation of the case.

In addition, students gradually revealed more personal

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explanations of their experiences and philosophies, in some
cases launching into private "speeches" about the role of
teachers or the qualities of a good teacher. This
inclination supports research by Kagan (1991) concerning
such reflectivity during use of cases and was more apparent
with the students using the verbal protocol, perhaps because
they felt they were "talking" with me via the tape recorder.
In any case, these private reflections provide evidence that
perhaps students were finding cases more meaningful than
more traditional academic tasks.

The written protocol participants provided fewer and
less elaborated private reflections. This was somewhat
surprising since some of the written protocol students were
most vocal during class discussions of the case and even
lingered after class to tell me something else they thought
about a particular case. Perhaps such musings were edited
out during the writing process and not included in the final
product which was turned in for evaluation. In some ways,
it was unfortunate that such private musings were edited
out, because they offered valuable insights into students'
developing perspectives.

In both processes of restating and reflecting, there
were signs that some students were mainly at a declarative
level. They could not recognize problems in the cases they
read since they had no procedural experience with those
types of problems and little procedural experience with the

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process of analyzing cases. The differences in the reflecting process indicate that students were relatively inexperienced in applying theoretical principles, i.e., in developing and using procedural knowledge of the theories.

Questioning

The Case Analysis Guide prompted students to raise questions about additional information they wanted to know to fully analyze the case. With successive cases, the nature of their questions changed. Questions became more specific, whether asking for more information about the student, the teacher, or the situational constraints. Later in their analyses, some students began to question their own experiences, attitudes, or conceptions of themselves as learners and future teachers. They often raised a question about their own experience or previously held opinion and then responded to their own question, in light of their newfound insights through working on the cases.

For example, Wanda described her insights regarding a teacher's ability to self-evaluate. She stated she needed to immerse herself in her weak area (math) so she could gain confidence in that area. Paula also questioned personal attributes when she revealed that she often reacted negatively to new suggestions and thought this was due to her insecurities. However, she also indicated she was becoming more open to new ideas. Harry questioned his former experience as a military instructor. He realized

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some of his instructional practices had been wrong and analyzing the case had helped him see how he could have improved the situation. These findings are consistent with the literature regarding restructuring of schema during problem-solving (Bielaczyc, Pirolli, and Brown, 1991; Chi, Bassok, Lewis, Reimann, and Glaser, 1989; Van Lehn, 1989), and cognitive flexibility in solving problems in complex domains (Spiro & Jehng, 1990).

Perspective-Taking

Students gradually shifted from sympathy for the student in the situation to more awareness of the teacher's perspective. Although many were highly critical of the teacher in the first cases, they gradually showed more empathy for the teacher.

Additionally, suggestions for improvement gradually became less tentative and grew more confidant and assertive. With each successive case, evidence emerged of more personal involvement with the analysis, including use of more imperative suggestions ("should," "needs to," "must") and a shift from third person to first person perspectives. Rather than viewing the case from a safe distance and using the third person perspective, most students' apparent involvement with the case lead them to use the first person perspective. Only one student did not appear to reach the personal perspective level. Thus, most students appeared to be making personal connections between knowledge bases and

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personal applications. In addition, students seemed to be reconsidering their views of themselves as teachers and showing indications of beginning to "think like teachers," a finding consistent with previous research on cases (Kleinfeld, 1991b). In many instances, students' personal beliefs about teaching and learning surfaced as they offered solutions and in some cases made "soapbox speeches" about their beliefs. This tendency supports early research by Kagan (1991) concerning the reflectivity often engendered through case use. Through interaction with the cases, students were able to examine their beliefs and feelings before they assume teaching responsibilities in a classroom. Clearly, these are signs that transfer was occurring with these students.

Interpretation of Motivation Patterns

I had expected that students' responses on the Motivation and Strategy Use Survey would be fairly accurate indicators of their motivational patterns for the remainder of the study. However, process evidence from the protocols instead showed mismatches with the survey data and process evidence in motivation and self-regulation. It should be noted, however, that the survey was measuring attitudes and beliefs about learning and studying in the course generally, and not about analyzing cases. Therefore, responses to survey items regarding goals, perception of ability, and

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self-regulation were for the class, not about analyzing cases. This difference in level of analysis may be a plausible explanation for the mismatch. Nonetheless, self-reports of high learning goals did not always result in greater depth of processing and self-reports of low performance goals were sometimes contradicted by process evidence. It is possible that students considered it more socially desirable to profess higher learning goals and lower performance goals and so answered the Survey accordingly.

Although most students considered themselves good self-regulators, some students did not monitor their own learning and adjust as one would have expected from their survey responses. This seems to indicate a problem with self-report measures of motivation and self-regulation and perhaps should serve as a reminder to teacher educators to approach such self-reports with a healthy skepticism. As these findings demonstrate, reporting and demonstrating are often vastly different activities!

Interpretation of Students' Perception of
the Usefulness of Cases

Before the study began, I had predicted that students for whom student teaching was imminent might demonstrate more involvement with the cases and perhaps find the cases more useful. This prediction was not supported by the data.

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All students reported that they found the cases useful.
However, more students who were scheduled to student teach
in Fall 1997 indicated on the Case Analysis Survey that they
found the cases both challenging and rewarding than those
students scheduled to student teach in Spring 1998. Perhaps
they could relate more to the simulation aspect of the case
situations and gained more satisfaction and confidence (the
"reward") when their analysis was adequate.

In addition, I had thought that students closer to
student teaching might exhibit higher future consequences
goals than students who still had course work to complete.
Again, this prediction was not supported by the data.
Students with both high and low future consequences goals
reported that they thought cases were useful. They also
processed cases in varying degrees of depth.

Overall, the data in this study appear consistent with
previous studies which support the benefits of case-based
instruction. In addition to the previous discussions in
this section, students were generally enthusiastic about the
use of cases. On the Case Analysis Survey students wrote
that cases made them think, made them use prior learning,
helped them learn from others' mistakes, and helped them
think of previous experiences and apply to their future as
teachers. All recommended the use of cases in future media
and technology courses. Their comments support previous
findings concerning students' enthusiasm for the case method

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(Ertmer, et al, 1995; Kleinfeld, 1991a) as well as anecdotal reports regarding such enthusiasm (Barnette, 1991; Shulman, 1992b).

Influence of Feedback and Course Content

Since the study took place in an actual course, it was important from an instructional standpoint to make sure the students received feedback about their analyses of the cases. Feedback was provided through both class discussions and individual written evaluations so that students could continue learning course concepts and become more proficient in case analysis. As explained earlier, the nature of my written feedback was to encourage students to answer the questions on the Case Analysis Guide and to be specific about their answers. I sometimes included general statements of agreement. Occasionally, I redirected their attention to a concept if the student showed a misunderstanding of a particular concept. During class discussions of the cases, I saw my role as mainly a facilitator. I opened discussions of the case by saying, "Well, what did you think about the case?" Students did not hesitate to begin offering their views about the cases, and often responded to each other's comments. At times, I prompted students to consider other factors that could be affecting the students' or teacher's actions in the cases.

The effects of such feedback on the students'

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subsequent written analysis were evident in a few ways. First, most students answered more questions from the Case Analysis Guide with their successive case analyses. Second, most students' answers grew more specific as they gave examples or further elaborated their remarks. Third, some comments were prefaced with comments such as "Others may see this differently, but I see.." or "I haven't seen this, but some of my classmates have..." which may have been the result of class (or private) discussions about the case events. Certainly one could argue that any feedback from the instructor could taint the data. Although my feedback likely changed some students' processing, that is an expected change given that the study was done in the context of a classroom. As the course instructor, I wanted to encourage students, with my feedback, to process the cases more completely.

Students' integration of course content also appeared throughout their case analyses. It should be noted that this study was undertaken relatively early in the semester and continued for five weeks. During this part of the course, special emphasis was placed on principles and theories that are fundamental in an introductory media and technology class. The following instructional design principles received heavy emphasis: learner and task analysis; importance of congruent objectives, instruction, and evaluation; selection and use of media, methods, and

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materials; active learner participation; and evaluation and revision. Other topics covered during this time included: Dale's Cone of Experience, Vygotsky's Zone of Proximal Development, communication theory, computer applications in education, visual design elements, technology versus humanism issues, and differences between experts and novices.

The above-mentioned topics surfaced during students' analyses of cases, with some variety in the quantity and quality of elaboration. Students mentioned the importance of understanding learners' entry skills before teaching a new concept, helping learners progress in their attainment of new skills or knowledge, congruence between lesson objectives and instruction, the importance of feedback, the importance of active learner participation to make learning meaningful (also "fun" and "interesting"), and guided practice before formal evaluation. Students also mentioned the importance of appropriate use of media used for a particular learning task, the folly in presenting too much media too fast for novices, and different approaches to using media for instruction. Although sometimes the students' explanations of the concepts were incomplete, they showed progress in understanding the concepts as the course progressed, an authentic learning pattern in the course of an actual class.

Implications for Instruction

The data in this study revealed a movement toward identification with the teacher. This was a serendipitous finding in that it was not predicted, but rather, emerged from the data. Although use of cases cannot be assumed to have caused such development, their use was able to chronicle such development.

Eight out of the twelve students in this study reported prior use of some variation of case analysis in other courses. These variations included teacher-led class discussions, cooperative group discussions followed by teacher-led discussions, and writing an essay response to a scenario on a test. Few students had been asked to write (or verbalize) individual analyses as an out-of-class assignment. Although some students reported prior use of cases, their analyses were not necessarily superior to those students who did not report such experience. Providing instruction in how to analyze cases guided the students' thinking about each case and seemed to promote deeper processing of case concepts, as one would expect based on previous findings regarding strategy use instruction (Garcia & Pintrich, 1992; Phye & Sanders, 1992).

Additionally, providing individual interpretations of each case encouraged students to think about and research their answers to the case and also appeared to foster deeper processing of the case concepts. This finding is consistent

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with previous research in which individual processing of
cases resulted in greater individual performance (Jackson &
Greene, 1996). As Don explained, "I felt I was able to
better verbalize my understanding of a concept by writing it
down." Even students whose analyses were not the most
thorough indicated that the use of cases had forced them to
"really think" about the issues.

Written feedback as well as participation in class
discussions of their analyses also appeared to bolster
students' confidence in their ability to find solutions to
classroom problems. Hearing others' insights and sharing
their own thoughts regarding case events seemed to validate
their own thoughts or stimulate consideration of additional
perspectives. Students wanted to know they were "on the
right track" and seemed more emboldened to consider more
variables affecting instruction with each successive case.

When students in this study lacked sufficient academic
prior knowledge with which to evaluate a case, they tended
to rely heavily on their own personal experiences and
observations. Such reliance underscores the necessity to
continue exposing teacher education students to the
practices of model teachers. When students do observe
negative teaching situations, it is vital that students have
opportunities to evaluate the situation and discuss the
implications. It is during such reflection and discussion
that misrepresentations and inaccurate speculation can be

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addressed and channeled into more productive solutions.

These prospective student teachers often expressed concern about their ability to handle classroom situations. They worried about classroom management, instructional techniques, and doing "right" by their students. Students' comments on the Case Analysis Survey indicated that using cases appeared to engender confidence in their abilities to assess situations and offer acceptable solutions. Through class discussions of the cases, articulating their own thoughts during individual analyses, and receiving feedback concerning their analyses, students appeared to develop more confidence that they could meet future challenges in the classroom.

This apparent increase in self-efficacy towards their future teaching may have been facilitated through the use of cases. In this study, case use included several attempts at the task, use of social models, persuasion, and feedback from students' efforts at learning and performance, all of which have been found to be determinants of self-efficacy (Schunk, 1991). Teacher educators who hope to launch effective and confidant student teachers should perhaps consider use of cases as a vehicle for building students' self-efficacy for teaching.

Methodological Limitations

Although this study provided an informative snapshot of

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students' mental processing during case analyses, there were some limitations that may have affected the data and the interpretation of those data.

Students' analyses of their last case in a testing situation, without the use of the Case Analysis Guide, may have affected students' analyses, due to cognitive overload and the time constraint. Several of the students did not address each aspect of the Case Analysis Guide or complete their analysis. Some students who had been showing increasing depth of analysis in previous cases provided unexpectedly shallow analysis on the last case. It may be that this procedure placed an undue burden on students who were concerned with remembering information from four chapters, the fifteen multiple choice items that preceded the case, and analysis of a page-length, concept-dense case. Students may have been able to do a more thorough analysis if the case had not been paired with multiple choice items, if the case itself had been shorter, or if a longer time was allowed for analysis. Changing these situational variables might have influenced students' processing so that the analyses would have been more indicative of their abilities to analyze cases.

Another limitation that may have affected students' analyses was a perceived lack of pressure regarding the assignments. The case analyses were included as a normal part of course activities and therefore, students received

evaluation for each case. The two out-of-class assignments were each worth five percent of the student's total course grade. The case analysis that was part of the test was worth 3.5 percent of the student's total course grade. I thought these numerical weights were low enough to be non-threatening, but still provide some incentive to do a good job.

As the instructor, I wanted the case analyses to help students begin to apply course concepts to practical situations they would face in the classroom. As the researcher, I wanted to encourage students to do their best, and so removed the pressure of getting everything "right" by assuring students that there was no one right answer and that there were several ways to approach each case. I thought that by removing some of the pressure I might get a more accurate portrait of their thought processes as they analyzed the cases.

However, an unexpected variation in student motivation occurred. It appeared some students may have needed a little more incentive to do their best work. Some students who normally excelled on other course assignments and "went the extra mile" did not seem to exert themselves on the cases as I would have expected. The relatively shallow performances on the last case may have been caused by pairing it with items as part of a test. Given the points for the multiple choice items (7) and the case (3), students

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may have opted to invest most of their time and energy on the multiple choice items, and little on the relatively low payoff case analysis. On the other hand, many students did appear to put forth a lot of thought and effort in their analyses, so perhaps this was a minor rather than major limitation.

A third limitation that should be considered for future replication of this study is the use of the Motivation and Strategy Use Survey. The survey used in this study measured students' attitudes and beliefs toward learning and studying for the course in general. It did not measure students' attitudes and beliefs about learning and studying for the course using cases. It might be the case that items specific to analyzing cases would show profiles that more closely match the processes shown in the case analyses.

A fourth limitation that might have affected the data was the five-week time frame for the study. This study might have produced richer data if it had been conducted over a whole semester. It takes repeated practice with feedback for novices to develop a level of expertise with any procedure, and it may be that five weeks was just too short a time to get the full picture of students' processing of the cases. Also, asking students to do out-of-class case analyses in two successive weeks, then come in and do an analysis on a test during the third week, may not have given them enough time to internalize the course concepts or the

case analysis process.

Finally, rather than relying so heavily on individual processing of each case, followed by teacher-led class discussions of their analyses, more time could have been allowed for small group discussions of the cases. On the one hand, I thought that the individual processing of the cases would provide a clearer picture of each individual's thought processes. However, perhaps I underestimated the importance of these novices' dependence on peer validation of their suggestions as well as receptiveness to peers' alternate perspectives. Such diversity in perspectives that would result could also be another catalyst to help these novices make more connections from theory to practice and consider a wider variety of issues, implications, and solutions and support deeper analyses.

Directions for Future Research

Although we have known for some time students generally report that they like the use of cases, little empirical evidence existed concerning exactly what occurs as a student analyzes a case. The findings in this study provided evidence that perhaps more processes are occurring during students' analyses of cases than have previously been suspected.

The brief snapshots of the participants' processes during analysis in this study's five-week duration indicate

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that significant incremental changes occur over time in students' processing of cases. A more complete picture of how students' processes develop over time seems warranted. Future studies regarding processes used during analysis should be conducted over a longer period, perhaps a semester. Extending the time within which students deal with cases, providing more opportunities for small group interaction as well as large group discussion, and continuing the individual analysis would provide more interactions with the cases. Under those conditions, students who tend to be "slow-starters" with this method might then reveal more insights than was evident in this brief study.

A second area which needs further exploration is students' reported increase in confidence in their abilities to solve future classroom problems after using cases. Students' self-efficacy about their own learning may be high, but clearly, participants in this study revealed that their self-efficacy about future teaching ability was tentative at best. It would be instructive to look more closely at the effects of case analysis on their perception of ability to successfully cope with classroom conditions.

Another question that bears investigating is what factors influence students' ability to project case principles to their own future teaching? As revealed in this study, some students did not connect case principles to

their own future teaching, even when prompted to do so. Why are those connections not being made?

It might also be instructive to look at other course products to determine if students' general depth of processing and application of course concepts are consistent with their performance on case analyses. This might provide a richer profile of their learning goal orientation, motivation for learning course concepts, and perceived value of the case analyses.

A final question that should be addressed in future studies is whether the patterns which emerged with these twelve participants would also occur in larger samples.

It may be that the themes and trends reported in this study were simply unique to the twelve students in this media and technology course.

Final Comments

This study demonstrated the potential of case analysis to help students transfer previously learned information to new situations. Analysis of the cases required the integration of both declarative and procedural knowledge as students used principles of learning, development, instructional design, media, and communication and applied those principles to new situations. Students were guided to integrate new information with prior academic and personal knowledge in order to analyze case situations (Anderson &

Pearson, 1984; Phye, 1989, 1990, 1991). As students added

new information to their schemata, they also showed evidence

of restructuring their schemata to accomodate the new

information (Bielaczyc, Pirolli & Brown, 1991; Van Lehn,

1989). This, in turn, affected their abilities to analyze

complex case situations (Spiro & Jehng, 1990), offer

plausible suggestions for improvement, and articulate valid

rationales for their analyses.

This study also contributes to the evidence that cases

may be a valuable instructional technique for helping

students prepare for the rigors of "teacherhood." Just as

prospective parents often express joy about their decision

to have a child, spend required time in preparation for the

new arrival, visit with the children of friends and

relatives, and gather supplies for the new arrival, there is

still apprehension about whether or not they are ready for

parenthood and can handle the job.

Likewise, education students have also expressed

satisfaction with their chosen career and spent years in

preparation. They have visited classrooms, talked with

practicing teachers, studied the latest educational

practices and theories, and gathered materials in

preparation for the big event. The student teaching

experience, while eagerly anticipated, looms large in their

eyes as the final "proving ground." They may make top

grades in college and get along with their friends'

children, but they still wonder if they can handle their own classroom. An unexpected benefit of using case analyses may be that this is a viable method to help students gain a measure of confidence in their ability to cope and to succeed. While experience may be the best teacher, cases may be the next best thing.

REFERENCES

Albanese, M. A., & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. <u>Academic Medicine</u>, <u>68</u>(1), 52-81.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. <u>Journal of Educational Psychology, 80</u>, 260-270.

Anderson, J. R. (1983). <u>The architecture of cognition</u>. Cambridge: Harvard University Press.

Anderson, J. R. (1990). <u>Cognitive psychology and its implications</u>. (3rd ed.). New York: W.H. Freeman and Company.

Anderson, R. C. and Pearson, P. D. (1984). A schema-theoretic view of basic processing in reading comprehension. In P.D. Pearson (Ed.), <u>Handbook of reading research</u> (pp. 255-292). New York: Longman.

Anderson, R. C., Reynolds, R. E., & Schallert, D. L. (1977). Frameworks for comprehending discourse. <u>American Educational Research Journal, 14</u>(4), pp. 367-381.

Anderson, R. C., Spiro, R. J., & Anderson, M. C. (1978). Schemata as scaffolding for the representation of information in connected discourse. <u>American Educational Research Journal, 15</u>, 433-440.

Bandura, A. (1986). <u>Social foundations of thought and action: A social cognitive theory</u>. Englewood Cliffs, NJ: Prentice-Hall.

Barnett, C. (1991). Building a case-based curriculum to enhance the pedagogical content knowledge of mathematics teachers. <u>Journal of Teacher Education, 42</u>(4), 263-272.

Beal, C. R. (1990). The development of text evaluation and revision skills. <u>Child Development, 61</u>, 247-258.

Beck, I. L., Omanson, R. C., & McKeown, M. G. (1982). An instructional redesign of reading lessons: Effects on comprehension. <u>Reading Research Quarterly, 4</u>, 462-481.

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Bielaczyc, K., Pirolli, P. L., & Brown, A. L. (1995). Training in self-regulation and self-regulation strategies: Investigating the effects of knowledge acquisition activities on problem-solving. Cognition and Instruction, 13(2), 221-252.

Borkowski, J. G., Carr, M., Rellinger, E., & Pressley, M. (1990). Self-regulated cognition: Interdependence of metacognition, attributions, and self-esteem. In B. Jones & L.Idol (Eds.), Dimensions of thinking and cognitive instruction (pp. 53-92). Hillsdale, NJ: Erlbaum.

Brown, A. L., & Kane, M. J. (1988). Preschool children can learn to transfer: Learning to learn and learning from example. Cognitive Psychology, 20, 493-523.

Carr, M., & Schneider, W. (1991). Long-term maintenance of organizational strategies in kindergarten children. Contemporary Educational Psychology, 16, 61-72.

Chase, W. G., & Ericsson, K. A. (1982). Skill and working memory. In G. H. Bower (Ed.), The psychology of learning and motivation, Vol. 16, New York: Academic Press.

Chi, M. T. H., Bassok, M., Lewis, M., Reiimann, M., & Glaser, R. (1989). Self-explanations: How students study and use examples in learning to solve problems. Cognitive Science, 13, 145-182.

Chi, M. T. H., Feltovich, P. J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. Cognitive Science, 5, 121-152.

Cooper, J. M. (Ed.).(1995). Teachers' problem solving: A casebook of award-winning teaching cases. Boston: Allyn & Bacon.

Grossman, P. L. (1992). Teaching and learning with cases. In J. H. Shulman (Ed.) Case methods in teacher education. New York: Teachers College Press.

Corno, L. (1986). The metacognitive control components of self-regulated learning. Contemporary Educational Psychology, 11, 333-346.

Delclos, V. R., & Harrington, C. (1991). Effects of strategy monitoring and proactive instruction on children's problem-solving performance. Journal of Educational Psychology, 83, 35-42.

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

Dolmans, D. H. J. M., Schmidt, H. G., & Gijselaers, W. A. (1995). The relationship between student-generated learning issues and self-study in problem-based learning. Instructional Science, 22, 251-267.

Dweck, C. S. (1986). Motivational processes affecting learning. American Psychologist, 41, 1040-1048.

Ertmer, P. A., Newby, T. J., & MacDougall, M. (1996). Students' responses and approaches to case-based instruction: The role of reflective self-regulation. American Educational Research Journal, 33(3), 719-752.

Flavell, H. J. (1985). Cognitive development. Englewood Cliffs, NJ: Prentice-Hall.

Garcia, T., & Pintrich, P. R. (1992, August). Critical thinking and its relationship to motivation, learning strategies and classroom experience. Paper presented at the Annual Meeting of the American Psychological Association, Washington, D.C.

Ghatala, E. W. (1986). Strategy-monitoring training enables young learners to select effecive strategies. Educational Psychologist, 21, 43-54.

Glaser, R., & Chi, M. T. H. (1988). Introduction: What is it to be an expert? In M. T. H. Chi, R. Glaser, & M. J. Farr (Eds.), The nature of expertise (pp. xv-xxiix). Hillsdale, NJ: Lawrence Erlbaum & Associates.

Grabe, M., & Grabe, C. (1996). Integrating technology for meaningful learning. Boston: Houghton Mifflin Company.

Greene, B. A., & Miller, R. B. (1996). Influences on achievement: Goals, perceived ability, and cognitive engagement. Contemporary Educational Psychology, 21, 181- 192.

Harrington, H. (1991). The case as method. Action in Teacher Education, 12(4), 1-10.

Harrington, H. L., & Garrison, J. W. (1992). Cases as shared inquiry: a dialogical model of teacher preparation. American Educational Research Journal, 29(4), 715-735.

Holyoak, K. J., & Koh, K. (1987). Surface and structural similarity in analogical transfer. Memory & Cognition, 15(4), 332-340.

Hutchings, P. (1993). Using cases to improve college teaching: A guide to more reflective practice. Washington, D.C.: American Association for Higher Education.

Jackson, D. H., & Greene, B. A. (1996, April). Effects of three methods of case-based instruction on transfer of learning and motivation in a pre-service teacher education program. Poster presented at the National Consortium for Instruction and Cognition, New York, NY.

Jacobson, M. J., & Spiro, R. J. (1993). Hypertext learning environments, cognitive flexibility, and transfer of complex knowledge: An empirical investigation. (Report No. CSR-TR- 573). Urbana, IL: Center for the Study of Reading. (ERIC Document Reproduction Service No. ED 355 508.

Jacobson, M. J. & Spiro, R. J. (1995). Hypertext learning environments, cognitive flexibility, and the transfer of complex knowledge: An empirical investigation. Journal of Educational Computing Research, 12(4), 301-333.

Jelsma, O., Van Merrienboer, J. J. G., & Bijlstra, J. P. (1990). The ADAPT design model: towards instructional control of transfer. Instructional Science, 19, 89-120.

Kagan, D. M. (1991). How teachers' classroom cases express their pedagogical beliefs. Journal of Teacher Education, 42(4), 281-291.

Klein, D. C. D. (1994, April). Transferring critical thinking skills across content areas: The effect of multiple content areas and summary generation on the analogical problem-solving of regular and honors students. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.

Kleinfeld, J. (1991a). Changes in problem solving abilities of students taught through case methods. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April 1991.

Kleinfeld, J. (1991b). Wrestling with the angels: What student teachers learn from writing cases. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April 1991.

Kreutzer, M. A., Leonard, C., & Flavell, J. H. (1975). An interview study of children's knowledge about memory. Monographs of the Society for Research in Child Development, 40 (1, Serial No. 159).

Lehrer, R., & Littlefield, J. (1993). Relationships among cognitive components in Logo learning and transfer. Journal of Educational Psychology, 85(2), 317-330.

Lin, X., Newby, T. J., Glenn, N. G., & Foster, W. T. (1994, February). Embedding metacognitive cues into hypermedia systems to promote far transfer problem solving. In Proceedings of Selected Research and Development Presentations at the 1994 National Convention of the Association for Educational Communications and Technology, Nashville, TN.

Maehr, M. L., & Midgley, C. (1991) Enhancing student motivation: A schoolwide approach. Educational Psychologist, 26, 399-427.

McDey, M. D. (1993, April). Analogous transfer: Are there performance differences among high-ability students? Paper presented at the Annual Meeting of the American Educational Research Association, Atlanta, GA.

McKeachie, M. J. (1987). Cognitive skills and their transfer: Discussion. International Journal of Educational Psychology, 707-712.

McKeown, M., Beck, I., Sinatra, G. M., & Loxterman, J. A. (1992). The contributions of prior knowledge and coherent text to comprehension. Reading Research Quarterly, 27(2), 78-93.

Means, M., & Voss, J. (1985). Star Wars: A developmental study of expert and novie knowledge structures. Journal of Memory and Language, 24, 746-757.

Merseth, K. K. (1991). The early history of case-based instruction: Insights for teacher education today. Journal of Teacher Education, 42(4), 243-249.

Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nichols, J. D. (1996). Engagement in academic work: The role of learning goals, future consequences, pleasing others, and perceived ability. Contemporary Educational Psychology, 21, 388-422.

Miller, R. B., Behrens, J. T., Greene, B. A., & Newman, D. (1993). Goals and perceived ability: Impact on student valuing, self-regulation and persistence. Contemporary Educational Psychology, 18, 2-14.

Needham, D. R., & Begg, I. M. (1991). Problem-oriented training promotes spontaneous analogical transfer: Memory-oriented training promotes memory for training. Memory & Cognition, 19(6), 543-557.

Newell, A. (1980). Reasoning, problem solving, and decision processes: The problem space as a fundamental category. In R.S. Nickerson (Ed.), Attention and performance VIII (pp693- 718). Hillsdale, NJ: Lawrence Erlbaum.

Newell, A., & Simon, H. A. (1972). Human problem solving. Englewood Cliffs, NJ: Prentice-Hall.

Nicholls, J. G. (1989). The competition ethos. Cambridge, MA: Harvard University Press.

Norman, G. R., & Schmidt, H. G. (1992). The psychological basis of problem-based learning: A review of the evidence. Academic Medicine, 67(9), 557-565.

Ormrod, J. E. (1995). Educational psychology: Principles and practices. Englewood Cliffs, NJ: Merrill.

O'Sullivan, J. T., & Pressley, M. (1984). Completeness of instruction and strategy transfer. Journal of Experimental Child Psychology, 38, 275-288.

Paas, F. G. W. C. (1992). Training strategies for attaining transfer of problem-solving skills in statistics: A cognitive-load approach. Journal of Educational Psychology, 84(4), 429-434.

Patterson, C. (1994). Portraits of teaching: Using Work-based vignettes. Paper presented at the annual meeting of the Austrialian Teacher Education Association (Brisbane, Queensland, Australia, July 1994).

Pea, R. D. (1987). Socializing the knowledge transfer problem. <u>International Journal of Educational Research, 11</u>, 639-663.

Pearson, P. D., Hansen, J., & Gordon, C. (1979). The effect of background knowledge on young children's comprehension of explicit and implicit information. <u>Journal of Reading Behavior, 11</u>, 201-209.

Phye, G. D. (1989). Schemata training and transfer of an intellectual skills. <u>Journal of Educational Psychology, 81</u>(3), 347-352.

Phye, G. D. (1990). Inductive problem-solving: Schema inducement and memory-based transfer. <u>Journal of Educational Psychology, 82</u>(4), 826-831.

Phye, G. D. (1991). Advice and feedback during cognitive training: Effects at acquisition and delayed transfer. <u>Contemporary Educational Psychology, 16</u>, 87-94.

Phye, G. D. (1992). Strategic transfer: A tool for academic problem solving. <u>Educational Psychology Review, 4</u>(4), 1992.

Phye, G. D., & Sanders, C. E. (1992). Accessing strategic knowledge: Individual differences in procedural and strategy transfer. <u>Contemporary Educational Psychology, 17</u>, 211-223.

Pierce, K., Duncan, M., Gholson, B., Ray, G., & Kamhi, A. (1993). Cognitive load, schema acquisition, and procedural adaptation in nonisomorphic analogical transfer. <u>Journal of Educational Psychology, 85</u>(1), 65-76.

Pintrich, P. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. <u>Journal of Educational Research, 82</u>(1), 33-40.

Pirolli, P., & Recker, M. (1994). Learning strategies and transfer in the domain of programming. <u>Cognition and Instruction, 12</u>(3), 235-275.

Prawat, R. S. (1989). Promoting access to knowledge, strategy, and disposition in students: A research synthesis. <u>Review of Educational Research, 59</u>(1), 1-41.

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Pressley, M., Borkowski, J. G., & O'Sullivan, J. T. (1985). Children's metamemory and the teaching of memory strategies. In D. L. Forrest-Pressley, G. E. MacKinnon, & T. G. Waller (Eds.), Metacognition, cognition, and human performance (pp.111-153), New York: Academic Press.

Priest, A. G., & Lindsay, R. O. (1992). New light on novice-expert differences in physics problem solving. British Journal of Psychology, 83, 389-405.

Proctor, R. W., & Dutta, A. (1995). Skill acquisition and human performance. Thousand Oaks, CA: Sage.

Rabinowit, M., Freeman K., & Cohen, S. (1992). Use and maintenance of strategies: The influence of accessibility on knowledge. Journal of Educational Psychology, 84, 211-218.

Rao, N., & Moely, B. E. (1989). Producing memory strategy maintenance and generalization by explicit or implicit training of memory knowledge. Journal of Experimental Child Psychology, 48, 335-352.

Robins, S., & Mayer, R. E. (1993). Schema training in analogical reasoning. Journal of Educational Psychology, 85(3), 529-538.

Salomon, G., & Globerson, T. (1987). Skill may not be enough: The role of mindfulness in learning and transfer. International Journal of Educational Research, 623-637.

Salomon, G., & Perkins, D. N. (1989). Rocky roads to transfer: rethinking mechanisms of a neglected phenomenon. Educational Psychologist 24(2), 113-142.

Schunk, D. H. (1991). Self-efficacy and academic motivation. Educational Psychologist, 26, 207-232.

Shulman, J. (1992a). Toward a pedagogy of cases. In J. H. Shulman (ed.), Case methods in teacher education. New York: Teachers College Press.

Shulman, J. (1992b). Tender feelings, hidden thoughts: Confronting bias, innocence, and racism through case discussion. Office of Educational Research and Improvement, Washington, D.C.

Silverman, R. & Welty, W. (1992). The case of Edwina Armstrong. To Improve the Academy, 11, 265-270.

Silverman, R., Welty, W., & Lyon, S. (1991). Case studies for teacher problem solving. New York: McGraw-Hill, Inc.

Speer, J. R., & Flavell, J. H. (1979). Young children's knowledge of the relative difficulty of recognition and recall memory tasks. Developmental Psychology, 15, 214-217.

Spilich, G. J., Vesonder, G. T., Chiesi, H. L., & Voss, J. F. (1979). Text-processing of domain-related information for individuals with high and low domain knowledge. Journal of Verbal Learning and Verbal Behavior, 18, 275-290.

Spiro, R. J., Coulson, R. L., Feltovich, P. & Anderson, D. K. (1988). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. In Tenth annual conference of the cognitive science society, 375-383. Hillsdale, NJ: Erlbaum.

Spiro, R. J., & Jehng, J. C. (1990). Cognitive flexibility, random access instruction and hypertext: Theory and technology for the nonlinear and multidimensional traversal of complex subject matter. In D. Nix & R.J. Spiro (Eds.), Cognition education and multimedia. Hillsdale, NJ: Erlbaum.

Stake, R. E. (1987). Case study methods in educational research: Seeking sweet water. In R.M. Jaeger (ed.) Complementary methods for research in education. Washington, DC: American Educational Research Association.

Stein, B. S., & Bransford, J. D. (1979). Constraints of effective elaboration: Effects on precision and subject generation. Journal of Verbal Learning and Verbal Behavior, 18, 769-777.

Sykes, G., & Bird, T. (1992). Teacher education and the case idea. Review of Research in Education, 18, 457-521.

Van Lehn, K. (1989). Problem solving and cognitive skill acquisition. In M.I. Posner (Ed.), Foundations of cognitive science (pp. 527-579). Cambridge: MIT Press.

Vernon, D. T. A., & Blake, R. L. (1993). Does problem-based learning work? A meta-analysis of evaluative research. Academic Medicine, 68(7), 550-563.

Voss, J. F., & Post, T. A. (1988). On the solving of ill-structured problems. In M.T.H. Chi, R. Glaser, & M.J. Farr (Eds.), The nature of expertise (pp. 261-285). Hillsdale, NJ: Lawrence Erlbaum.

Wasserman, S. (1993). Getting down to cases. New York: Teachers College Press.

Wasserman, S. (1994). Using cases to study teaching. Phi Delta Kappan, April, 602-611.

Weaver, C. A, III, & Kintsch, W. (1992). Enhancing students' comprehension of the conceptual structure of algebra word problems. Journal of Educational Psychology, 84, 419-428.

Wellman, H. M. (1985). The child's theory of mind: The development of conceptions of cognition. In S.R. Yussen (Ed.), The growth of reflection in children (pp. 169-206). Orlando, FL: Academic Press.

Welty, W. M. (July/August, 1989). Discussion method teaching: How to make it work. Change, 40-49.

Williams, S. M. (1992). Putting case-based instruction into context: Examples from legal and medical education. Journal of the Learning Sciences, 2(4), 367-427.

Wineburg, S. S. (1991). A case of pedagogical failure -- my own. Journal of Teacher Education, 42(4), 273-280.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. Journal of Educational Psychology, 81, 329-339.

Zimmerman, B. J. (1990). Self-regulation learning and academic achievement: An overview. Educational Psychologist, 25, 3-18.

APPENDICES

APPENDIX A

<u>DEFINITION OF TERMS</u>

<u>Case-based instruction, teaching with cases, or case method</u>
all refer to instruction using case analysis
(Harrington, 1992; Schulman, 1992).

<u>Cases</u> depict incidents or events in a domain in order to
raise issues for consideration and discussion.

<u>Memory-oriented processes</u> require the learner to study
something for subsequent recall (i.e., a recall task)
(Needham & Begg, 1991).

<u>Metacognition</u> is knowledge about one's own thinking
(Flavell, 1985). Metacognition consists of both
declarative and procedural knowledge about thinking and
learning.

<u>Problem-oriented processes</u> require the learner to try to
explain or solve a problem (i.e, a solution task)
(Needham & Begg, 1991).

<u>Schema induction</u> occurs when hints given to learners before
training help them access their existing schemata
related to the analogy.

<u>Schemata</u> are the mental structures in long-term memory used
to identify, process and store incoming information.

<u>Schematization</u> is the process responsible for the changes in
schema due to changes in skill levels or background
experiences (Jelsma et al., 1990).

<u>Self-regulation</u> is the process of setting goals and
standards for oneself and then making necessary
adjustments to achieve those goals and standards
(Ormrod, 1995).

<u>Transfer</u> is the application of knowledge acquired in one
situation to another (new) situation and could be
considered the goal of education.

APPENDIX B

CASE ANALYSIS GUIDE

Case Analysis Guide

These guidelines will help you analyze cases in a thoughtful
and systematic way. Refer to these when doing your case
analysis assignments for this course.

1.   Describe the case's situation, problem, dilemma, or
     issue.

2.   What do you already know about a similar situation from
     prior knowledge or experience?

3.   How is the situation in the case similar to or
     different from your prior knowledge or experience?

4.   Is there additional information about the case you need
     or would like to know to analyze the case more fully?

5.   What are your recommendations for possible
     alternatives, consequences, solutions, or outcomes?

6.   What is/are the factual, theoretical, experiential
     and/or empirical basis/bases for your recommendations?

7.   Under what other or future conditions might the
     information, insights, and analyses of this situation
     be useful to you?

SCORING RUBRIC FOR CASES

Content	no mention	mention	mention+elab

Situation/Issue

Recommendations

Rationale for
Recommendations

Comments of Evaluator:

Metacog Awareness

Prior Knowledge

Case Sim/Diff
from Prior Know

Additional Info
Needed

Future Usefulness

Comments of Evaluator:

APPENDIX C

COURSE SYLLABUS

1996-1997
EDUC 3632 - Part II

SCHOOL OF GRADUATE AND PROEFSSIONAL STUDIES

DEPARTMENT OF EDUCATION

MEDIA AND TECHNOLOGY IN TEACHING
SYLLABUS - PART II

I. **INTRODUCTION**
    This course is designed to introduce you to
instructional technology which includes: systematic
planning and selection of media; use of media to further
educational objectives; hands-on use of some equipment; and
limited production of instructional media. During this
course, students will be exposed to a variety of experiences
in choosing, evaluating, and using media for instructional
enhancement.

II. **SPECIFIC LEARNING OBJECTIVES**
    After completing this course, students will be able to:
    1.   describe a wide variety of instructional
         learning tools available for use in
         instructional settings.
    2.   explain how instructional design impacts
         media choices.
    3.   demonstrate and explain how to use a variety
         of equipment and some types of
         telecommunication.
    4.   use systematic methods to select and evaluate
         appropriate media for instructional use with
         diverse learners.
    5.   explain how use of specific media will help
         or hinder instruction
    6.   discuss ways parents may help in the
         gathering and use of media.
    7.   discuss how to legally obtain and use media.

III. **TEXTBOOK**
     Heinich, R., Molenda, M., Russell, J., and Smaldino, S.
(1996). Instructional media and technologies for learning
(5th ed). Englewood Cliffs, NJ: Prentice-Hall, Inc.

IV. **ACTIVITIES, REQUIREMENTS, AND ASSIGNMENTS**
    This course requires active participation by all
students. Class sessions will include individual learning
tasks, group learning tasks, demonstrations, hands-on

activities, and lecture. I do not lecture "page by page" during class. The discussions and activities in class are based on the assigned readings for that day. It is to your advantage to complete all readings so you can maximize the class experiences. If you do not understand a portion of the reading, do not hesitate to ask for clarification. It is ALWAYS better to ask the question early, rather than regret not asking it (during testing or application time! In fact, other students often have the same question!)

A.   Class Activities - In-class activities and assignments are designed to help you practice concepts and skills. Students are expected to come to class ready to participate in exercises based on the assigned reading for that day. (Individual; 10% of your total grade)

B.   Case Analyses - Students will analyze 2 cases involving media & technology to apply concepts and skills covered in class and in your textbook. You will receive feedback about your analysis. (Individual assignment; 10% of your total grade.)

C.   Handdrawn Transparency - Students will prepare one handdrawn transparency on clear acetate with handmade visuals, lettering, and effective use of color. Students must also submit an instructional objective that the transparency addresses and a complete explanation of how it will be used in a lesson. (Individual assignment; 5% of your total grade.)

OR

Flip Transparency - Students will prepare one flip transparency which includes appropriate use of clip art, color adhesive film or color pens, and primary type print. The transparency will be mounted and taped properly. Students must also submit an instructional objective that the transparency addresses and a complete explanation of how it will be used in a lesson. (Individual assignment; 5% of your total course grade.)

D.   Bulletin Board - Students will work in pairs to prepare an instructional bulletin board, using principles of effective visual design and bulletin board construction. You and your partner will choose a week during the semester to arrange your display on one of the bulletin boards in the media lab.   Content of the board should be based on a unit plan you would actually use in your teaching specialty. If you are currently enrolled in

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another education course which requires you to prepare a bulletin board, you will have to do this assignment individually, without a partner. See me and we will make appropriate arrangements regarding board space. These bulletin boards should be original this semester: RETREADS FROM OTHER COURSES IN PREVIOUS SEMESTERS ARE STRONGLY DISCOURAGED! Partnership evaluation: BOTH partners will evaluate each other's contribution to the board. I will examine your recommendations when evaluating the board. BOTH partners will receive the board's grade. Individual evaluation: individual will receive the board's grade. (10% of your total course grade.)

E.   Telecommunications Assignment - Students will work in pairs and individually to gain exposure to resources available via telecommunications. Partners will submit an annotated address list of telecommunications sites. Individuals will send me at least two e-mail messages during the semester and respond to at least one message from me. (5% of your total course grade)

F.   Final Project - Students will prepare and present to the class an original media project chosen from the following list of suggested projects:

1.   Integrate **three** of the following into a unit you have created in another course: transparencies (different from above assignments), computer software, audio tape, video tape, filmstrip, non-projected visuals, computer multimedia, or internet use.
2.   Create an instructional video.
3.   Create a slide-audiotape presentation.
4.   Storyboard one of the following:
      a.   a series of at least six overhead transparencies along with the lesson plan in which they would be used;
      b.   a filmstrip with audio script that explains at least one concept;
      c.   a computer program that explains at least one concept.
5.   Create an instructional game, providing instructions and demonstrating the game in class.
6.   Other project approved by the instructor.

Ideally, you will choose to work in teams of 3 to plan, prepare, and present this project. Working as a team, your experience will more closely

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simulate those you will face as a member of a school faculty. Benefits of working in teams include help with "brainstorming," lightened task, and you usually have more fun doing the project. If you choose to work in a team, team members will evaluate each member's contribution to the project and receive both team and individual grades for the final team project. If you choose to work as an individual, you will receive an individual grade for the project.

Beginning March 1, you will be asked to describe your plans for the project. It may be that I can offer suggestions about logistical considerations, equipment, and the like. Periodically I will ask for brief progress reports to encourage you toward timely completion of the project.

NOTE WELL: Professional behavior and courtesies are expected and are crucial to the successful completion of the project. Enjoy your collaboration... and prepare a project worthy of admiration and future use!

G.   Equipment Proficiency - Students will be required to demonstrate proficiency in operating the following equipment: overhead projector, opaque projector, slide-tape projector, laminating, dry mount press, thermal copier, videocassette projector, laserdisc, slide projector, tape recorder. Equipment will be demonstrated in class and students will be given some practice time. Additional practice is the responsibility of the students. (The Media Lab will be open during specific Lab Hours for student convenience.) I recommend that students work with each other to practice operation of the equipment. Each student must show proficiency on each item in order to pass this course. (Individual; 5% of grade)

V.   EVALUATION

All assignments are due on the due dates. As junior and senior education students, I expect you to begin practicing your professionalism, and this includes accurate and timely assignments. Out-of-class assignments handed in at least one class before the due date may be revised.

Grades are earned on the basis of **total possible points**. Points are earned through class activities, transparencies, bulletin board, telecommunications assignment, team or individual project, tests and exam. In addition, you must demonstrate equipment proficiency to pass this course.

Exams - There will be a two tests and a final exam in this course.

Points earned reflect percentages of your grade in this course. For example, an assigment worth 5 points reflects 5% of your total course grade. I suggest you keep a running total of the points you earn as assignments are returned to you so you can keep track of your progress in this course. Remember, you will have opportunities to practice course concepts and procedures before your projects are due and you can always ask questions!

Class Activities	10	(total)
Case Analyses (2)	5	(each)
Transparency (Hand-drawn or Flip)	5	
Telecommunications	10	
Bulletin Board	10	
Final Project	15	
Tests (2)	10	(each)
Final Exam	15	
Equipment Proficiency	5	
TOTAL:	100	

Totals for Final Grade:

93 - 100 = A		65 - 72 = D
83 - 92 = B		Below 65 = F
73 - 82 = C		

College work is expected and should reflect your increasing professionalism. Each assignment submitted should represent the original work of the student whose name is on the assignment. Test and exam answers are also expected to be the work of only the student whose name is on the paper. Submitting assignments or test/exam answers that are not your own is totally unacceptable and the student will receive ZERO points for the assignment or test/exam and will not be permitted to complete either the assignment or the test/exam. Further, your future professional credibility will be seriously jeopardized.

If you must be absent on a test day, make-up tests will be given <u>only once</u> on **Thursday, May 1, 1997, at 2 p.m.** Since it is in your best interests to be evaluated over material recently studied, please make every effort to be present on scheduled test days. There will be no make-up final exam.

VI. ATTENDANCE/WITHDRAWAL/ADA

Class attendance is important. Students who aer absent will not benefit from the class activities which allow you

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to practice the concepts and technical proficiencies
required in this course.

**This course is designed to help you learn your craft as
a teacher. It is unprofessional and unethical not to
do the best you can when teaching your students. If
you do not have enough time to attend and prepare for
class because of an extra heavy class load or other
responsibilities, think seriously about taking this
course some semester when you can attend and prepare.**

Students who cease to attend class and who do not bring
an official University drop form for my signature will
receive an "F" in the course regardless of their grade at
the time they cease to attend class. Current University
policy prohibits giving a "W" in such a circumstance.
Students receiving a final grade of "D" or "F" in this
course will be required to repeat the course.

**Any student in this course who has a disability that
may prevent him or her from fully demonstrating his or
her abilities should contact me personally as soon as
possible so we can discuss accommodations necessary to
ensure full participation and fcilitation of your
educational opportunity.**

VII. MATERIALS FEE: Due to the production requirements of
this course, there is a materials fee for consumabale
materials. This fee should be paid at the University
Bookstore before March 1. Be sure to get a receipt from the
Bookstore and show it to me. If the materials fee is unpaid
at the end of the semester, University policy dictates that
you will receive an "Incomplete" grade until all fees are
paid.

MEDIA LAB HOURS: The Media Lab will be open during the
following hours so you can use the computers, equipment,
etc.

Mon and Wed	1:30 - 3:30 p.m.
Tues and Thurs	9 - 11 a.m.

OFFICE HOURS: My office is located in Education Hall, Room
103. The office telephone is 555-1234. My e-mail address
is dianej@university.edu. I make every effort to be in my
office during posted hours, unless a committee meeting pre-
empts that time. Other arrangements can occasionally be
made for special circumstances.

Mon and Wed	1:30 - 3:30 p.m.
Tues and Thurs	9 - 11 a.m. and 2 - 4 p.m.

TALLY SHEET

_____ Case Analysis #1
_____ Case Analysis #2
_____ Transparency (Handdrawn or Flip)
_____ Bulletin Board
_____ Telecommunications
___ annotated address list (w/partner)
___ e-mail messages
_____ Final Project (Individual or Partners)
_____ Equipment Proficiency
_____ Class Activities
_____ Test 1 (Chapters 1, 2, 3, 8)
_____ Test 2 (Chapters 4, 5, 6, 7)
_____ Final Exam (Chapters 9, 10, 11 and selected points
             from Chapters 1 - 8)

Tentative Schedule for Media and Technology in Education
Spring 1997 [for the weeks during which the study was
conducted]

Date		Chapters	Study Components
Jan	13	Introduction	Survey of Prior Knowledge
	15	Chapter 1	Survey of Equipment Use; Survey of Computer Use
	17		"Mr. Fishbein" (in-class selection case)
	20		
	22		
	24		
	27	Chapter 2	
	29		Motivation Survey
	31		
Feb	3		"VietNam" (in-class demonstration/instruction in use of Case Analysis Guide)
	5		"Jack" (in-class analysis)
	7		
	10	Chapter 3	Return feedback for "Jack"; Distribute "RX" for analysis;
	12		Collect "RX"
	14		
	17	Chapter 8	Return feedback for "RX"; Distribute "LongDivision" for analysis
	19		Collect "LongDivision"
	21		
	24		Return feedback for "LongDivision"
	26	Test 1 - Chapters 1, 2, 3 and 8 and Case Analysis of "QuickStart"	
	28	Chapter 4	
Mar	3		Return test and feedback for "QuickStart"; Administer Survey re Use of Cases in Course
	5	Chapter 5	
	7		
	10-14	Spring Break!	

INFORMED CONSENT FORM

"Exploration of Processes Used in Case Analysis
by Pre-Service Teacher Education Students
in a Media and Technology Course"
conducted through the University of Oklahoma - Norman
by Diane H. Jackson

You are being asked to participate in research examining the **instructional technique of case analysis**. This research is being conducted by Diane H. Jackson, a doctoral candidate in the Department of Educational Psychology at the University of Oklahoma. The study will be conducted in conjunction with typical classroom activities during the Spring 1997 semester and will not require students to perform any activities that would not generally be included in the instruction in the course.

There are two parts of this study, and only a small group will be selected for the second part. If you choose to participate, you will respond to a set of questionnaire items seeking your attitudes and beliefs about learning. You will also respond to a questionnaire and series of cases concerning media and technology. You will also respond to a questionnaire about the use of cases during the course. If you choose to participate in Part Two, you will think-aloud while reading and analyzing three cases involving media and technology. Your responses will be audiotaped on tape recorders. Think-alouds will take place at your convenience outside of the scheduled course time. You will also be asked to write an analysis of a case.

Your responses to the questionnaires and cases will be treated confidentially. At no time will your name or any identifying code be made public.

Your participation in this study is voluntary. There will be no penalty should you decide not to participate. If you choose to participate, your responses will in no way affect your grade in the class. Additionally, should you change your mind about participating once you have begun, you may withdraw at any point without penalty. This research has been reviewed by Cameron University Academic Research and the University of Oklahoma Institutional Review Board. If you have any questions regarding this study, contact Diane H. Jackson at 581-2864.

Signature:
    I hereby consent to participate in the study described
above.

_____   Date: _____
        Sign Here

    I hereby consent to release of my ACT score for summary
evaluation purposes only. I understand that at no time will
this information or any identifying code be made public.

_____   Date: _____
        Sign Here

SURVEY OF PRIOR KNOWLEDGE OF MEDIA AND TECHNOLOGY COURSE CONTENT

In order to design a more effective course for you this semester, I need some information about your understanding of the concepts which will be covered in this course. Please use your scantron to mark your answer for each multiple choice item below. For some questions at the end of the survey, you will write your answers on the paper provided. This is not a test and you will not receive a grade, but please do your best so I can help this course meet your needs this semester. Thank you.

1. Define instruction.
   a   the arrangement of information and environment to facilitate learning
   b.   the interaction between learner and instructor
   c.   the design of stimuli to direct the attention of the learner.
   d.   a step-by-step protocol to perform a task.
2. What does "learning" mean?
   a.   the interaction between teacher and student.
   b.   the acquisition of knowledge, skills, and/or attitudes by the learner
   c.   the internal organization of knowledge by the learner.
   d.   the ability to apply problem solving methods to new instructional situations.
3. How is "technology" best defined?
   a.   the hardware used to do tasks
   b.   the process of developing reliable and repeatable solutions to tasks
   c.   the hardware and software used to achieve socially desirable goals
   d.   a way of designing instructional materials.
4. How are behaviorist principles of learning best applied?
   a.   the shaping of cognitive strategies.
   b.   the acquisition of knowledge and motor skills.
   c.   getting students motivated to learn.
   d.   higher level mental behaviors.
5. When are cognitive principles particularly useful?
   a.   when applied to the acquisition of important information.
   b.   when used in programs of mastery learning.
   c.   when applied to problem solving situations.
   d.   when reinforcing psychomotor skills.

6. What are "schemata"?
   a. the mental structures by which people organize their perceptions of the environment.
   b. the cognitive strategies that people use to solve complex problems.
   c. the plans used by instructors to organize instructional strategies.
   d. models of learning theories showing the steps in the learning process.
7. In transactional communication, what does student feedback indicate?
   a. the meaning of the teacher's message
   b. the teacher's message
   c. the student's interpretation of the teacher's message
   d. the student's message
8. Which of the following is required by abstract learning experiences?
   a. less time but more prior background
   b. less time and less prior background
   c. more time and more prior background
   d. more time but less prior background
9. What is a medium?
   a. a presentation format
   b. a procedure of instruction to help learners achieve objectives
   c. a carrier of information between source and receiver
   d. a type of subject-matter content
   e. a type of instruction
10. According to research, media should be selected based upon
    a. the type of media (e.g., film, video, audiotape)
    b. the content to be taught (e.g., objectives)
    c. the environment (e.g., classroom facilities)
    d. the instructor's preference
    e. their ease of use
11. Much of the effectiveness of media in instructional situations depends upon
    a. the audience
    b. the objectives
    c. their sources
    d. how they are used
    e. the evaluation activities
12. When does "dehumanization" occur?
    a. when teachers perceive students as having rights
    b. when teachers perceive students as being like machines
    c. when teachers use machines in instruction
    d. when teachers use machines as alternatives to talking to students

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13. When are technology and humanism in harmony?
    a. when technology reinforces teacher objectives
    b. when technology is limited to repetitive learning tasks
    c. when instructional objectives are adhered to for student peace of mind
    d. when instructional methods/content are adapted to student needs
14. Which of the following is an example of a general learner characteristic?
    a. prerequisite skills
    b. attitude about subject matter
    c. knowledge of the content
    d. age
15. Which of the following is an example of a specific learner competency?
    a. age of the learner
    b. intellectual aptitude
    c. cultural factors
    d. prior knowledge of the subject
16. Which of the following is not a purpose of stating objectives?
    a. to deal with differences in learner motivation levels
    b. to assist in selecting media
    c. to help in designing evaluation
    d. to communicate with students
17. Which of the following is the best performance term (hint: remember the "behavioral" perspective) for an objective?
    a. fully comprehend
    b. translate
    c. know
    d. appreciate
18. The primary function of visuals in communication is to
    a) serve as concrete referents.
    b) motivate reluctant learners.
    c) replace printed messages.
    d) make texts more attractive.
19. Which of Allen's Principles of Prime Importance would be most useful if you were trying to arouse interest and psychologically "set" your students for learning?
    a) repetition
    b) cues
    c) advance organizer
    d) feedback
20. In what ways can a teacher provide feedback to students?
    a) smiles, thumbs-up signal
    b) verbal remarks
    c) written comments on assignments
    d) grades for assignments   e) all of the above

21. How can you keep your audience's attention and help them learn from pictures?
    a) by passing around pictures
    b) by using many pictures
    c) by having a student describe each
    d) by asking direct questions
22. Which of the following is an example of a breakdown in encoding?
    a) auditory fatigue
    b) lack of comprehension skills
    c) sender's skill in organizing presentation
    d) lack of attentiveness on the part of listeners
23. Which of the following is an example of a breakdown in listening?
    a) lack of attentiveness
    b) lack of skills in auditory analysis
    c) cotton in student's ears
    d) sender's skill in organizing presentation
24. Which of the following is an example of a breakdown in decoding?
    a) auditory fatigue
    b) lack of comprehension skills
    c) speaker talks too softly
    d) lack of skills in auditory analysis
25. In developing listening skills, it is important to
    a) present the structure of a presentation
    b) repeat the directions several times
    c) avoid context in listening
    d) guide students' attending behaviors
26. When improving listening skills through following directions, it is important to
    a) speak loudly
    b) do the activity individually
    c) say it only once
    d) give written instructions to the students
27. Videos and films are best used for learning in which domain?
    a) cognitive
    b) affective
    c) psychomotor
    d) all of the above
28. How are videos and films useful in problem-solving instructional situations?
    a) They can present the problem in an open-ended fashion for a discussion.
    b) They can show elements of the problem in a way that facilitates tying them together.
    c) They are more realistic than other media, making the problem more relevant.
    d. All of the above.

29. Which of the following are desirable practices for preparing a class for a video lesson?
    a) reviewing previous related study
    b) stating the objectives in the lesson
    c) listing "cues" -- main points to watch for -- on the chalkboard
    d) all of the above.
30. A current instructional advantage of computers is
    a) color, music, and animated graphics add appeal to drill exercises
    b) freedom from maintenance concerns
    c) abundance of software available from publishers
    d) all of the above
31. Which of the following statements is **not** an advantage of computer-assisted instruction?
    a) software is interchangeable and compatible with various computer hardware
    b) the novelty of working with the computer may raise student motivation
    c) high speed response and immediate reinforcement
    d) has a patient manner to provide a positive environment for the slower learner
32. A teacher using a computer to help with recording student progress and selecting instructional materials is an example of
    a) computer-assisted instruction
    b) computer-based training
    c) computer-managed instruction
    d) computer-instructional development
33. Which CAI method provides immediate reinforcement after each correct response?
    a) drill-and-practice
    b) discovery
    c) simulation
    d) game
34. Which method of instruction promotes an inductive approach to solving problems through trial and error?
    a) tutorial
    b) game
    c) drill
    d) discovery
35. What is the most important step in selecting computer-based materials?
    a) establish need
    b) examine sources
    c) study reviews
    d) listen to friends' recommendations

TEACHING SPECIALTY AND PRIOR EDUCATION COURSE WORK

Answer the following questions on this paper. If you need
more space, use the back of the paper.

36. What is your teaching specialty?
     _____   early childhood
     _____   elementary education
     _____   secondary education (specify specific area -
             math, biology, English, physical
             education, music, etc.)
     _____   special education
     _____   other (please specify)

37. List here the education courses already completed. Do
     not include education courses you are taking this
     semester.

38. When do you expect to do your student teaching? Please
     give estimated semester and year.

39. What is your experience with the instructional
     technique of case analysis? (Mention courses where you
     analyzed cases and how cases were used)

40. Based on your experience with case analysis, what is
     your opinion of this technique for instructional
     purposes?

PRIOR USE OF EQUIPMENT

Name _____Class Time_____

Equipment Type:	Previous Experience		
	never used	can use	expert

dry mount press

lamination

overhead projector

change overhead bulb

filmstrip projector

opaque projector

TV/VCR

laserdisc

cassette tape recorder

slide projector

LCD panel

computer - load program

computer - use CD-ROM

computer - internet

thermalfax operation

video camera

Describe any previous experiences you have had designing instruction for learners:

SURVEY OF COMPUTER USE

Name _____ Class Time _____

Please answer the following questions about your computer experience:

Yes   No

___	___	I have used a word processor.
___	___	I have used a spreadsheet.
___	___	I have used a database.
___	___	I can define ROM.
___	___	I can define RAM.
___	___	I have integrated software into a lesson plan.
___	___	I know what types of educational software are
available.
___	___	I have programmed a computer.
___	___	I have formatted a disk.
___	___	I have copied a disk.
___	___	I have copied a file.
___	___	I have saved a file.
___	___	I have accessed a variety of computer programs.
___	___	I know what to look for when buying software.
** If you answer yes, please make a list
below where noted.
___	___	I have used the internet.
___	___	I have used multimedia.
___	___	I have created a multimedia program.
___	___	I am unsure of what to do with a computer.
___	___	I can name the parts of a computer.

** Please list what you need to know when buying software.

Please write what you would like to get from this course.
Continue on the back of this sheet if you need to do so.

MOTIVATION AND STRATEGY USE SURVEY

This survey is intended to provide an overview of your outlook on learning the material from this class. It will sample your attitudes and beliefs about learning/studying. Please answer each question as honestly as you can. Your responses will not influence your grade in any way and they will be confidential.

Part 1--Directions: The following statements represent reasons that students might have for doing school work. Read each statement and indicate whether you agree that it is one of your reasons for doing the work in this class. Use the 5-point scale below and fill in the number of your response on the answer sheet provided.

Strongly Disagree = 1
Disagree = 2
Undecided = 3
Agree = 4
Strongly Agree = 5

1. I do the work in this class because I
    want to understand the concepts.   1 2 3 4 5

2. I do the work in this class because I
    like to perform better than other
    students.   1 2 3 4 5

3. I do the work in this class because I
    like learning new material or ideas.   1 2 3 4 5

4. I do the work in this class because I
    want the instructor to be happy with me. 1 2 3 4 5

5. I do the work in this class because I
    want to be a good teacher in the future. 1 2 3 4 5

6. I do the work in this class because I
    don't want others to think I'm not smart. 1 2 3 4 5

7. I do the work in this class because I
    like the challenge of learning new
    things.   1 2 3 4 5

8. I do the work in this class because
    good grades lead to other things that
    I want (e.g., money, graduation, good
    job, certification).   1 2 3 4 5

9. I do the work in this class because I
    like to look capable to my peers and
    friends.   1 2 3 4 5

10. I do the work in this class because
    being a good teacher in the future is
    important to me.   1 2 3 4 5

11. I do the work in this class because I
    like to understand what I am learning.   1 2 3 4 5

12. I do the work in this class because I
    don't want the instructor to be unhappy
    with me.   1 2 3 4 5

13. I do the work in this class because I
    like to acquire new knowledge.   1 2 3 4 5

14. I do the work in this class because I
    like others to think I'm smart.   1 2 3 4 5

15. I do the work in this class because I
    don't want to look foolish or stupid to
    my peers or to my instructor.   1 2 3 4 5

16. I do the work in this class because
    that is what the instructor expects
    me to do.   1 2 3 4 5

17. I do the work in this class because
    my grades have important consequences
    for my future (e.g., money, graduation,
    good job, certification).   1 2 3 4 5

18. I do the work in this class because I
    want to please the instructor.   1 2 3 4 5

Part 2--Directions: Read each statement carefully. Respond
to the statements along the following 5-point scale. Fill
in the number of your response on the answer sheet provided.
Strongly Disagree = 1
Disagree = 2
Undecided = 3
Agree = 4
Strongly Agree = 5

19. Compared with other students in this
    class I don't know very much about
    the subject.   1 2 3 4 5

20. I understand the ideas being taught
    in this course.   1 2 3 4 5

21. I am doing well in this class
    compared to others.   1 2 3 4 5

22. Compared with other students in this
    class I think I am doing well.   1 2 3 4 5

23. My knowledge and skills are better
    than those of other students in this
    class.   1 2 3 4 5

24. I can do the work in this class.   1 2 3 4 5

25. In a next course in this area I would
    probably have difficulty understanding
    the material.   1 2 3 4 5

26. I have limited understanding of the
    concepts in this class.   1 2 3 4 5

Part 3--Directions: The statements below deal with specific
study strategies that you may use for this class. Read each
statement carefully. Fill in the number of your response on
the answer sheet provided.

Strongly Disagree = 1
Disagree = 2
Undecided = 3
Agree = 4
Strongly Agree = 5

27. When learning new material, I summarize
    it in my own words.   1 2 3 4 5

28. If I have trouble understanding course
    material I go over it again until I
    understand it.   1 2 3 4 5

29. As I progress through the course I have a
    clear idea of what I am trying to
    accomplish.   1 2 3 4 5

30. I underline details as I read for course
    assignments.   1 2 3 4 5

31. I put together ideas or concepts and
    draw conclusions which are not directly
    stated in course materials.   1 2 3 4 5

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32. I ask questions when I don't understand
    something in my readings or something
    said during lecture.   1 2 3 4 5

33. Before a quiz or exam, I plan out how I
    will study the material.   1 2 3 4 5

34. It is easy for me to establish learning
    goals for this class.   1 2 3 4 5

35. While studying course material I compare
    and contrast different concepts.   1 2 3 4 5

36. I underline main ideas as I read for
    course assignments.   1 2 3 4 5

37. In order for me to understand what
    technical terms mean, I memorize
    the text-book definitions.   1 2 3 4 5

38. I mentally combine different pieces
    of information from course materials
    into some order that makes sense to me.   1 2 3 4 5

39. I mainly read the course materials
    to get the information needed for
    the tests.   1 2 3 4 5

40. When I study I take note of what
    material I have or have not
    understood.   1 2 3 4 5

41. I find it difficult to organize my
    study time effectively.   1 2 3 4 5

42. I try and write down exactly what my
    instructor says during lectures.   1 2 3 4 5

43. I recopy my notes from class to help
    learn the material.   1 2 3 4 5

44. I learn new material by mentally
    associating new ideas with similar
    ideas that I already know.   1 2 3 4 5

45. When doing the reading for class I try
    to figure out what part of the reading
    will be on the test.   1 2 3 4 5

46. I write out lists of new terms and
    definitions.   1 2 3 4 5

47. I copy down details exactly as they
    are stated in my readings.   1   2   3   4   5

48. I mentally combine different pieces
    of information from course material
    together.   1   2   3   4   5

49. I make sure I understand material
    that I study.   1   2   3   4   5

50. I copy down main ideas exactly as
    they are stated in my readings or
    by my instructor.   1   2   3   4   5

51. I evaluate usefulness of the ideas
    presented in course materials.   1   2   3   4   5

52. While learning new concepts, I try
    to think of practical applications.   1   2   3   4   5

VERBAL PROTOCOLS

DEMONSTRATION AND PRACTICE OF VERBAL PROTOCOL

Thank you for agreeing to help me with this...

I am interested in people's thoughts as they analyze cases.
The protocol we will use will help me learn more about the
thoughts that go through your mind as you analyze cases.
Part of what you will do is "think aloud" as you analyze a
case. Let me demonstrate, using this mini-case:

> It's Children's Book Week, and Mr. Ritchey's fourth
> graders have all brought their costumes to school so
> that they can dress up for the class Book Character
> Party and school-wide costume parade later in the day.
> The festivities don't start for another 30 minutes, so
> Mr. Ritchey has his students working in cooperative
> groups in learning centers on media projects that are
> due next week. Unfortunately, the children are talking
> more about their costumes than about the media
> projects, and their attention to the projects
> disappears altogether when three of the children's
> parents come in with cookies and punch for the class
> party. Mr. Ritchey is becoming irritated.

Do you see what I did? I "thought aloud" - anything that
came to mind - and my thoughts were recorded on tape. I
also underlined and made a few margin notes.

Now, I'm going to take a few minutes to write my impressions
of this case.

Now, I'm going to turn on the tape again, and explain my
analysis. I can take as much time as I need to explain my
analysis. I might even add a few comments that I hadn't
thought of or written down before.

Questions?

OK, let's practice, using another mini-case. I'll stay here
while you practice in case you have any questions as you go.
However, for future think-alouds, you will be able to do
these by yourself.

Protocol:

Distribute instructions, case, blank paper, pencils, tape,
tape recorder.

VERBAL PROTOCOL INSTRUCTIONS USED DURING DEMONSTRATION AND PRACTICE

While analyzing a case, people think and say things to themselves which they are unaware of or quickly forget. However, these thoughts are important since they help you during analysis.

I am interested in your thoughts as you analyze the following case. In order to learn more about them, please follow the directions below.

1. Before beginning, please turn on the tape recorder and state your pseudonym, the date, and the title of the case. Then rewind the tape and play back your introduction to see if the recorder and tape are working properly.

2. Turn on the tape recorder (press "record") and read the case aloud. While reading aloud, feel free to write notes or underline points. Be sure to say aloud both the case words and your own thoughts, whatever those thoughts may be. The tapes last for 60 minutes per side. If you need to turn over the tape, please do so, push "record", and continue reading and thinking aloud.

3. When you finish reading the case aloud, turn off the tape. Take a few minutes to think about the case. Feel free to refer to your notes. Then write your analysis of the case.

4. When your written analysis is completed, turn on the tape again and give your analysis of the case. You can read and discuss what you've written, and add any new insights that come to mind.

5. When you have finished, be sure that the tape is labeled with your pseudonym and the date. Then turn in the tape to me.

PROTOCOL DEMONSTRATION

It's Children's Book Week, and Mr. Ritchey's fourth
graders have all brought their costumes to school so
that they can dress up for the class Book Character
Party and school-wide costume parade later in the day.
The festivities don't start for another 30 minutes, so
Mr. Ritchey has his students working in cooperative
groups in learning centers on media projects that are
due next week. Unfortunately, the children are talking
more about their costumes than about the media
projects, and their attention to the projects
disappears altogether when three of the children's
parents come in with cookies and punch for the class
party. Mr. Ritchey is becoming irritated.

PROTOCOL PRACTICE

Ms. Baker asks her fourth grade students to read an
article about gun control in a recent issue of Newsweek
magazine. She describes the main point of the article
before her students begin reading it, and she gives
them several questions they should try to answer as
they read. Even so, her students are unable to
understand what they are reading. Ms. Baker is puzzled.
The next day she shows the students a 10 minute video
about gun control. During post-viewing questioning,
the students appear to understand a little more about
gun control.

VERBAL PROTOCOL INSTRUCTIONS

While analyzing a case, people think and say things to themselves which they are unaware of or quickly forget. However, these thoughts are important since they help you during analysis.

I am interested in your thoughts as you analyze the following case. In order to learn more about them, please follow the directions below.

1. Before beginning, please turn on the tape recorder and state your pseudonym, the date, and the title of the case. Then rewind the tape and play back your introduction to see if the recorder and tape are working properly.

2. Turn on the tape recorder (press "record") and read the case aloud. While reading aloud, feel free to write notes or underline points. Be sure to say aloud both the case words and your own thoughts, whatever those thoughts may be. The tapes last for 60 minutes per side. If you need to turn over the tape, please do so, push "record", and continue reading and thinking aloud.

3. When you finish reading the case aloud, turn off the tape. Take a few minutes to think about the case. Feel free to refer to your notes or the Case Analysis Guide. Then write your analysis of the case.

4. When your written analysis is completed, turn on the tape again and give your analysis of the case. You can read and discuss what you've written, and add any new insights that come to mind.

5. When you have finished, be sure that the tape is labeled with your pseudonym and the date. Then turn in the tape to me.

PILOT OF VERBAL PROTOCOLS

BRIEF INTERVIEW AND DEMONSTRATION BEFORE PROTOCOL #1

Thank you for agreeing to help me with this ...

I am interested in people's thoughts as they analyze cases. Have you had any experience analyzing cases? _____

The protocols we will pilot today will help me learn more about the thoughts that go through your mind as you analyze cases. We will try 3 different methods. Part of what you will do is "think aloud" as you analyze a case. Let me demonstrate.

(Read-think aloud)

> It's Children's Book Week, and Mr. Ritchey's fourth
> graders have all brought their costumes to school so
> that they can dress up for the class Book Character
> Party and school-wide costume parade later in the day.
> The festivities don't start for another 30 minutes, so
> Mr. Ritchey has his students working in cooperative
> groups in learning centers on science projects that are
> due next week. Unfortunately, the children are talking
> more about their costumes than about the science
> projects, and their attention to the projects
> disappears altogether when three of the children's
> parents come in with cookies and punch for the class
> party.

Do you see what I did? I "thought aloud" - anything that came to mind - and my thoughts were recorded on tape. I'll later play them back and transcribe.

As you "think aloud", you can take as much time as you wish and say anything that comes to mind. The tapes last _____ minutes on each side. If you need to turn over a tape, please do so, and continue to think aloud about the case.

Questions?

OK, let's start with Protocol #1. I'll just sit here for the first one, in case you have any questions.

(Distribute Protocol #1 instructions, case, tape and tape recorder.)

When student has finished Protocol #1, ask if she was comfortable with me in the room, prefer I leave, mind if I

leave?

Now, for the next two protocols, I'm going to leave the room. Here are the instructions for Protocol #2, along with the new case. Take as long as you wish, and be sure to turn on the tape recorder before you begin. When you've finished, please bring the tape to me.

(After student completes Protocol #2, repeat procedure for Protocol #3).

PROTOCOL #1

        While analyzing a case, people think and say things to
themselves of which they are unaware or quickly forget.
However, these thoughts are important since they help in
analysis.

        I am interested in your thoughts as you analyze the
following case. In order to learn more about your thoughts,
please follow the directions below.

        1.   Before beginning, please turn on the tape recorder
and state your name, the date, and the title of the case.
Then rewind the tape and play back your introduction to see
if the recorder and tape are working properly.

        2.   Read the case aloud. Be sure to say aloud both
the case words and your own thoughts, whatever those
thoughts may be. The tapes last for ____ minutes per side.
If you need to turn over the tape, please do so, then
continue thinking aloud.

        3.   When you finish reading the case, take a few
minutes to think about the case. Then turn on the tape and
talk through your analysis of the case (i.e., think-aloud).

        4.   When you have finished, be sure that the tape is
labeled with your name and the date. Then turn in the tape
to me.

MR. FISHBEIN

Mr. Fishbein is a very creative new teacher who teaches second grade. He loves to show his students how the different subject areas all complement one another, so he presents new concepts in multiple ways showing the tie- in with math, science, reading, and art. He uses a lot of group activities and work-alone projects as opposed to teacher-directed lessons.

Often Mr. Fishbein finds that his students aren't staying on task when they are working on small group projects. In fact, during an observation his principal noticed that only the group Mr. Fishbein was currently working with was on task. He also noticed that when he goes to visit with groups or individuals during project work periods he had to explain the instructions over again to each group or individual.

Mr. Fishbein has two students (Janet and Casey) who almost never participate in the group activities. Several times a week he says to them, "You need to get to work. Why can't you work with the others?" Additionally, he has two other students (Trevor and Lawana) who constantly fool around with whomever they
are near. They distract other students and Mr. Fishbein finds that he spends a lot of class time reprimanding them. He told each of them individually that he was tired of their constant misbehavior, though he didn't explain which behaviors he was noting. Then one day he yelled at Lawana "You are such a problem in this class". Even that didn't deter Lawana.

One of Mr. Fishbein's more exciting units was on mammals. The main unit was a part of the science curriculum, but he had students count mammal species in math and compare current counts to those of years back. He also had the students read stories about different types of mammals. Of course, they all had seen the movie, "Free Willy," and were excited to talk about whales and that particular story. Additionally, Mr. Fishbein had students work in small groups to construct an artistic rendition of a mammal of their choice using any type of material that they wanted (e.g., clay, paper, paper-mache).

While most of his mammal unit was a great success, the art project turned into a nightmare. All but one group decided on whales and several groups wanted to make them to scale. Some groups spent days deciding on what materials they would use. Mr. Fishbein ended up spending lots of his own money on materials and his classroom was a mess for three weeks. Furthermore, many students asked him throughout the day when they would be able to work on the art project again.

<u>PROTOCOL #2</u>

While analyzing a case, people think and say things to themselves of which they are unaware or quickly forget. However, these thoughts are important since they help in analysis.

I am interested in your thoughts as you analyze the following case. In order to learn more about them, please follow the directions below.

1. Before beginning, please turn on the tape recorder and state your name, the date, and the title of the case. Then rewind the tape and play back your introduction to see if the recorder and tape are working properly.

2. Read the case aloud. Be sure to say aloud both the case words and your own thoughts, whatever those thoughts may be. The tapes last for _____ minutes per side. If you need to turn over the tape, please do so, then continue thinking aloud.

3. When you finish reading the case aloud, turn off the tape. Take a few minutes to think about the case. Then write your analysis of the case.

4. When your written analysis is completed, turn on the tape again and explain why you worte what you did (i.e., think-aloud).

5. When you have finished, be sure that the tape is labeled with your name and the date. Then turn in the tape to me.

LONG DIVISION BLUES

It is March 1, Mary Miller's first day of teaching in a class of 20 fourth-grade students. Ms. Greene, the principal, tells her she is replacing an emergency hire, a former college math teacher who "didn't have a clue about children". She adds, "I'm sure with your excellent education from Great University you will be successful with these students."

Mary spends the first week getting to know her students and is pleased to realize that they are full of energy and generally sweet and agreeable, with only minor class problems (talking, getting out of seats, forgetting lunch money, etc.) By the end of the week, Mary and her students have settled into a routine and she feels they are going to get along well.

Mary checks with the other 4th grade teachers and learns that it's time to begin teaching long division. Her colleague, Tyler Henry, informs her that in order to accomplish all the curricular expectations, the teachers always begin long division on March 8. Mary dutifully goes home that first Friday to prepare her lessons for the next week, focusing on long division. She decides that by the end of the day on Monday, her students should be able to do simple division problems.

Monday morning, Mary begins teaching the children about long division. Since she also wants the children to develop a positive attitude about math, she plays background music on the cassette player while she lectures. She uses the overhead projector and transparencies to show students the various symbols used and "the really big numbers you can divide". She works some long division problems on a transparency to show the children how to do the math. The students seem more interested in the overhead projector and how it works than in Mary's lecture.

After answering their questions regarding its operation, Mary continues with the math lesson. She asks "Do you understand what I'm saying?" and is pleased when the children smile and nod their heads yes. Mary continues with her explanation of long division as the children become fidgety. Mary glances at her watch and realizes that 45 minutes have passed. She then shows the students a pocket calculator they can use once they've learned to divide "the pencil way".

As Mary passes out a practice sheet with 10 division problems, she asks the students "Now, do you have any questions?" No hands are raised. "If not, go ahead and do

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your work.   We'll go to lunch when you're finished."   The
students begin to work and Mary returns to her desk to
prepare for the Language Arts lesson that will follow after
lunch.

Later that night, Mary checks the children's long
division seatwork. She is appalled that most of the
children missed all items on the worksheet.   "What in the
world is the matter with those children? They were so good
while I was teaching. They said they understood it! Did I
get the 'dummy class' or what?"

PROTOCOL #3

   While analyzing a case, people think and say
things to themselves of which they are unaware or
quickly forget. However, these thoughts are
important as they help in analysis.

   I am interested in your thoughts as you
analyze the following case. In order to learn
more about them, please follow the directions
below.

   1. Before beginning, please turn on the tape
recorder and state your name, the date, and the
title of the case. Then rewind the tape and play
back your introduction to see if the recorder and
tape are working properly.

   2. Read the case aloud. Be sure to say
aloud both the case words and your own thoughts,
whatever those thoughts may be. The tapes last
for ____ minutes per side. If you need to turn
over the tape, please do so, then continue
thinking aloud.

   3. When you finish reading the case aloud,
turn off the tape. Take a few minutes to think
about the case. Then turn on the tape recorder
again and write your analysis of the case,
thinking aloud while you write.

   4. When you have finished, be sure that the
tape is labeled with your name and the date. Then
turn in the tape to me.

QUICKSTART

The weekly faculty meeting at Jackson Elementary had
adjourned. Several fourth grade teachers were still
discussing the latest education program adopted by the
school district and scheduled to begin soon in their school.
The new program, QuickStart, claimed to increase reading
levels as well student motivation for reading. With
QuickStart, students choose and read a book from a grade-
appropriate list, and use a computer to answer ten factual
questions about the book. Points are earned for the number
of questions answered as well as the difficulty of the book.
Students strive to attain a certain number of points and
then receive a tangible reward for their reading progress.
Computer print-outs keep teachers and parents informed of
the students' progress in QuickStart.

"I am not interested in this QuickStart Program at
all," announced Jane Blevins. "I simply cannot believe that
a computer will help my students want to read more. It's
hard enough to get my fourth graders to read as it is, much
less use a computer to do it. I've been teaching fourth
grade for 10 years without using any computers, and I know
what works with my kids."

"Well, I think it sounds great," Bill Barnett
exclaimed. "This district is finally moving in the right
direction. We haven't even begun to use computers to
maximum capacity and efficiency. I want to spend more time
on math and science - and all those reading lessons and
activities have really been killing me. It's great to have
a computer program that will motivate the kids to read and
help me keep track of their progress more efficiently. I
just hope I can upgrade the computer in my classroom...
These kids deserve to use the latest technology and I can't
wait to begin."

Terry Taylor listened to her colleagues before
commenting. "QuickStart sounds interesting but I'm not
ready to give up everything I do to encourage reading just
yet. My kids already read lots of books. They enjoy our
daily story sessions after lunch and our class book
discussions, as well as the creative writing and other
projects based on the books they've read. Of course, if
there's something else that will keep them reading and
progressing, I guess it's worth a try."

Jane Blevins could not contain herself any longer.
"Well, I'm going to keep on doing what I've been doing. I
assign pages to read, the kids read them, and then they
answer worksheets about their readings. THAT's the way to
make progress to higher levels. And as for enjoying reading,
you know how it is. Some kids will and some kids won't. We
are already tasked with too much to cover in a day---and now
they want us to add one more thing to our workload?"

INTERVIEW REGARDING PROTOCOLS

1. Did you feel comfortable with each type of protocol?

2. Which protocol did you find the most comfortable
    to do? Why?

3. Which protocol was the least comfortable? Why?

4. Was any protocol more "difficult" to do than another?
    (Not speaking of content here, only method.) Why?

5. Which of these protocols seemed to help you
    "think aloud" more efficiently?

6. Which case did you most enjoy analyzing? Why?

7. Which case did you least enjoy analyzing? Why?

8. Two of the protocol instructions were in regular
    type and two were in large, bold type. Which did
    you prefer?

9. Do you have any suggestions about the protocols?

TRANSCRIPTION OF INTERVIEW REGARDING PILOT OF PROTOCOLS

1. Did you feel comfortable with each type of protocol?

   #'s 1 & 2 yes - 3 was more difficult/only because I was talking and writing or trying to write at the same time - I don't think it was as evaluative as #2

2. Which protocol did you find the most comfortable to do? Why?

   #2 I had time to think - write - extend on writing - then explain my answer. I could add extra thoughts as rereading my answers.

3. Which protocol was the least comfortable? Why?

   #3 As mentioned above I was try to talk and write at the same time. The idea of dead air time on the tape while I was writing made me a bit subconscious.

4. Was any protocol more "difficult" to do than another? (Not speaking of content here, only method.) Why?

   #3 - As mentioned in #3 and #1, I felt more on the spot for quick answers - even though I had time to analyze before turning on the tape again, it just didn't flow.

5. Which of these protocols seemed to help you "think aloud" more efficiently?

   When I read aloud the 1st time with comments, it almost pegmarked the area for further evaluation. In going back and writing my answers and expanding #2 - on them of why was helpful for my own reflection, I didn't feel in a rush or on the spot. When I turned the tape back on and discussed my answers it almost was a discussion. (-ex.) This is my answer - let me quaify it or ask other

6. Which case did you most enjoy analyzing? Why?

   #1 and 2 only because I was picking apart someone's work, by calling up information of what should be done or not done, I can bring in beliefs - make more suggestions.

7.   Which case did you least enjoy analyzing? Why?

      #3 - I felt I was picking apart a person not ideals,
      they almost embodied her. I'm not that strong in it to
      approach her. And we have all known someone like that,
      they usually don't change. I felt very ineffective.

8.   Two of the protocol instructions were in regular
      type and two were in large, bold type. Which did
      you prefer?

      The font type preferred was the non-bold, simply
      because that is what I'm used to, may not as aggressive
      or forceful.

9.   Do you have any suggestions about the protocols?

      I honestly like #2 more than the others, maybe because
      for me writing is more complete it's the result of
      thought. I had more to work with trying to recall
      specifics. In fact I still remember items and making
      more suggestion to fit. I feel I was more evaluative,
      more complete, more reflective.

      With case studies when I read them it's ya I see how
      this works but to read, note areas, discuss them will
      help analyze. But if I happen to actually see any of
      these three cases - evaluation, analyzing would be more
      thought and questions, peer discussion, maybe research
      on best possible solution or collaboration of possible
      solutions.

APPENDIX H

OVERVIEW OF CASE ISSUES

Issues	Fishbein	VietNam	Jack	Rx	LongD	Quick
grade	2nd	11th	7th	8th	4th	5th
subject	sci	hist	Eng	sci	math	read
learner analysis	x	x	x	x	x	x
task analysis	x	x	x	x	x	x
objectives	x	x	x	x	x	x
communication theory					x	
use of media & technology	x	x	x	x	x	x
technology as tool, not panacea			x			x
attitudes toward media and tech.						x
teaching methods and strategies	x	x	x	x	x	x
classroom management	x				x	
motivation	x			x		x

MR. FISHBEIN

Mr. Fishbein is a very creative new teacher who teaches second grade. He wants to show his students how the different subject areas all complement one another. He presents new concepts in multiple ways showing the integration with math, science, reading, and art. In addition to teacher-directed lessons, he uses many group activities and work-alone projects.

Often Mr. Fishbein finds that his students aren't staying on task when they are working on small group projects. In fact, during a classroom observation, his principal noticed that only the group Mr. Fishbein was currently working with was on task. The principal also noticed that when Mr. Fishbein went to visit with groups during project work periods he had to explain the instructions over again to each group.

Mr. Fishbein has two students (Janet and Casey) who almost never participate in the group activities. Several times a week he says to them, "You need to get to work. Why can't you work with the others?" Additionally, he has two other students (Trevor and Lawana) who constantly fool around with whomever they are near. They distract other students and Mr. Fishbein finds that he spends a lot of class time reprimanding them. He told each of them individually that he was tired of their constant misbehavior, though he didn't explain which behaviors he was noting. Then one day he yelled at Lawana "You are such a problem in this class". Even that didn't deter Lawana.

One of Mr. Fishbein's more exciting units was on mammals. The mammal unit was a part of the science curriculum, but during math he had students count endangered mammal species and compare current counts to those of years back. He also had them read stories and poems about different types of mammals. Finally, Mr. Fishbein showed the popular video "Free Willy" in class (as an example of a type of mammal). The students enjoyed the video and were eager to talk about it. After discussing "Free Willy," Mr. Fishbein then assigned students to small groups to construct an artistic rendition of a mammal of their choice using any type of material that they wanted (e.g., clay, paper, paper-mache).

Mr. Fishbein felt most of his mammal unit was successful because the children seemed to enjoy the activities. However, there were a few disappointments. First, the art project turned into a nightmare. All but one group decided to construct whales and several groups wanted to make them to scale. Some groups spent hours deciding on what materials they would use. Mr. Fishbein ended up spending lots of his own money on materials and his classroom was a mess for three weeks. Furthermore, many students asked him throughout the day when they would be

able to work on the art project again.

The second disappointment was the children's performance on their unit test. Over three-fourths of the children were unable to describe the characteristics of mammals correctly. In fact, Mr. Fishbein was startled to note that at least half of the children mentioned that mammals had to live in water! Mr. Fishbein began to doubt his creative ideas about curriculum integration, use of media, and group activities.

ISSUES FOR MR. FISHBEIN

teacher uses integrated curriculum
teacher uses several methods: teacher-directed, work-alone,
    cooperative groups
students on/off task
explanation of instructions
behavior issues
classroom management issues
motivation issues - Why do Janet and Casey not participate?
                    Why do Trevor and Lawana act up so?
incomplete task analysis
focus on activity as fun, but are kids learning
    anything?
use of media - video, books, etc.
incomplete planning for activity re logistics, time, cost,
    abilities of students, etc.
evaluation calls for revision of instruction, not doubt in
    value of integrated curriculum, group activities, media

ISSUES FOR VIETNAM HISTORY LESSON

The following issues are based on the 10-minute video
segment which shows a lesson on Vietnam to an 11th grade
history class.

use of media - chalkboard, maps, students' worksheet/map,
                colored chalk
use of methods - lecture
pedagogy - writes hard words on board so students can refer
           has worksheet/map for students during lecture
           refers to prior knowledge
           asks questions to keep students involved
           maintains eye contact
           uses analogy of dominoes
           lays foundation for future classes to build
                interest in next day's lesson

ways to improve -
     locate Vietnam in the word (On tape, teacher stands
          in front of a USA map for the entire lecture
          about Vietnam)
     use pictures, photos, videotape to help students
          identify important people, places, events
     use dominoes to illustrate the Domino Theory

JACK WRITES A PAPER

Jack and his seventh-grade classmates have been receiving keyboarding instruction for several years. Jack can find most of the keys without looking, and he uses the computer to type papers he has already hand-written. However, he is not an accomplished typist. His English teacher has assigned an in-class theme and decides it's important for students to learn to compose at the keyboard. The English teacher takes the class to the computer lab and tells the students they must complete their papers by the end of the class period (50 minutes).

Jack has great difficulty with this task. Although his typing proficiency clearly limits how quickly he can work, his problems go beyond his ability to get his ideas down on paper. He has an unusual amount of difficulty thinking of what he wants to say and how he wants to organize his paper. The paper he writes is atypically poor.

ISSUES FOR JACK WRITES A PAPER

cognitive demands for task
working memory (time and capacity limits)
failure to properly analyze task
tech as a tool for other tasks
clarify assignment's objective
asking Jack to do several difficult tasks: keyboarding,
      using computer program, writing an essay at the
      keyboard, time limit for assignment, grade for work

RX FOR AILING INSTRUCTION

        It's Thursday night at home, the night before a test in
8th grade science on the circulatory system. Gail is trying
to make sense of 50 pages of notes copied from the
chalkboard during the previous 5 days in class. Gail's dad
is trying to help her study by calling out questions based
on the notes copied in class. Gail appears to have trouble
remembering and understanding the terms and concepts.

        As Gail becomes more frustrated about her inability to
remember, her dad asks if she's studied her textbook. "We
read the chapter in class on Monday, but we're not allowed
to bring the books home because we have so few books." Gail
reveals that most class periods involve laboriously copying
three chalkboards of notes about the circulatory system.

        Dad asks, "Didn't Mr. Bray go over the circulatory
system in class? Weren't you listening?"

        "Dad, I DO listen! First, Mr. Bray calls roll, then we
copy the notes. Then he reads the notes aloud and asks if
we have any questions. All we ever do is write notes from
the board. Science is so boring... and I STILL don't get
this...it's just a bunch of words," Gail replied.

ISSUES FOR RX FOR AILING INSTRUCTION

lack of meaningful encoding
rote learning (and teaching!)
lack of schema, elaboration
why "cramming" doesn't work - WM limitations
use of technology would help Gail encode, develop schema,
Gail no longer motivated due to boring class
teacher may be burned out, lazy, incompetent, ignorant of
        latest cognitive psychology principles or media uses
not enough books for each student

LONG DIVISION BLUES

It is March 1, Mary Miller's first day of teaching in a class of 20 fourth-grade students. Ms. Greene, the principal, tells her she is replacing an emergency hire, a former college math teacher who "didn't have a clue about children". She adds, "I'm sure with your excellent education from Great University you will be successful with these students."

Mary spends the first week getting to know her students and is pleased to realize that they are full of energy and generally sweet and agreeable, with only minor class problems (talking, getting out of seats, forgetting lunch money, etc.) By the end of the week, Mary and her students have settled into a routine and she feels they are going to get along well.

Mary checks with the other 4th grade teachers and learns that it's time to begin teaching long division. Her colleague, Tyler Henry, informs her that in order to accomplish all the curricular expectations, the teachers always begin long division on March 8. Mary dutifully goes home that first Friday to prepare her lessons for the next week, focusing on long division. She decides that by the end of the day on Monday, her students should be able to do simple division problems.

Monday morning, Mary begins teaching the children about long division. Since she also wants the children to develop a positive attitude about math, she plays background music on the cassette player while she lectures. She uses the overhead projector and transparencies to show students the various symbols used and "the really big numbers you can divide". She works some long division problems on a transparency to show the children how to do the math. The students seem more interested in the overhead projector and how it works than in Mary's lecture.

After answering their questions regarding its operation, Mary continues with the math lesson. She asks "Do you understand what I'm saying?" and is pleased when the children smile and nod their heads yes. Mary continues with her explanation of long division as the children become fidgety. Mary glances at her watch and realizes that 45 minutes have passed. She then shows the students a pocket calculator they can use once they've learned to divide "the pencil way".

As Mary passes out a practice sheet with 10 division problems, she asks the students "Now, do you have any questions?" No hands are raised. "If not, go ahead and do

your work.   We'll go to lunch when you're finished."   The
students begin to work and Mary returns to her desk to
prepare for the Language Arts lesson that will follow after
lunch.

        Later that night, Mary checks the children's long
division seatwork.   She is appalled that every one of the
children missed all items on the worksheet.   "What in the
world is the matter with those children?   They were so good
while I was teaching -- they heard every word!   Did I get
the 'dummy class' or what?"

ISSUES FOR LONG DIVISION BLUES

the learning objective is poorly defined
evidence of incomplete learner analysis
        prior math knowledge?
learning tasks not appropriately analyzed,
failure to activate prior knowledge
giving too much, or extraneous information
            during introductory sessions
inadequate methods
        students need more concrete examples during
        initial learning - (Students may infer
        from the case as written that Mary did
        not use such examples...)
"noise" or interference can interfere with communication
        music during initial instruction may not be
        appropriate time.   Could work during seatwork
        time, after students have become used to background
        music at such times...
novelty of overhead transparency use is
        distracting the students
lunchtime distraction could mean students are
        focusing more on upcoming lunch-recess, etc.
            than the incomprehensible math lesson)
pressure from principal for teacher to succeed
referring to class as "the dummy class"

QUICKSTART

The weekly faculty meeting at Jackson Elementary had adjourned. Several fourth grade teachers were still discussing the latest education program adopted by the school district and scheduled to begin soon in their school. The new program, QuickStart, claimed to increase reading levels as well student motivation for reading. With QuickStart, students choose and read a book from a grade-appropriate list, and use a computer to answer ten factual questions about the book. Points are earned for the number of questions answered as well as the difficulty of the book. Students strive to attain a certain number of points and then receive a tangible reward for their reading progress. Computer print-outs keep teachers and parents informed of the students' progress in QuickStart. Principal Smith was interested in how the faculty would respond to the new program and lingered awhile after the meeting to eavesdrop on teachers' conversations.

"I am not interested in this QuickStart Program at all," announced Ann Blevins. "I simply cannot believe that a computer will help my students want to read more. It's hard enough to get my fourth graders to read as it is, much less use a computer to do it. I've been teaching fourth grade for 10 years without using any computers, and I know what works with my kids."

"Well, I think it sounds great," Kay Barnett exclaimed. "This district is finally moving in the right direction. We haven't even begun to use computers to maximum capacity and efficiency. I want to spend more time on math and science - and all those reading lessons and activities have really been killing me. It's great to have a computer program that will motivate the kids to read and help me keep track of their progress more efficiently. I just hope I can upgrade the computer in my classroom... These kids deserve to use the latest technology and I can't wait to begin."

Terry Taylor listened to her colleagues before commenting. "QuickStart sounds interesting but I'm not ready to give up everything I do to encourage reading just yet. My kids already read lots of books. They enjoy our daily story sessions after lunch and our class book discussions, as well as the creative writing and other projects based on the books they've read. Of course, if there's something else that will keep them reading and progressing, I guess it's worth a try."

Ann Blevins could not contain herself any longer. "Well, I'm going to keep on doing what I've been doing. I

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assign pages to read, the kids read them, and then they answer worksheets about their readings. THAT's the way to make progress to higher levels. And as for enjoying reading, you know how it is. Some kids will and some kids won't. We are already tasked with too much to cover in a day--and now they want us to add one more thing to our workload?"

Principal Smith was somewhat surprised by the reactions of these three teachers and silently wondered, "What will happen with QuickStart at Jackson Elementary?"

ISSUES FOR QUICKSTART

use of technology as panacea for education ills
distrust or fear of technology
technology vs. humanism
use of technology as "tool"
teacher as manipulator of learning experience
anything "new" will show positive results...
    what are longterm effects?
principal's next step in staff development
role of computers in education
limitations and advantages of computer assisted instruction

SCORING RUBRIC FOR MR. FISHBEIN

Content

	no mention	mention	mention+elab

Situation/Issue
   integrated curr.
   group activities
   class. management
   motivation
   use of media
   task analysis
   learner analysis
   objectives
   planning
   evaluation
   other?

Recommendations

Rationale for
Recommendations

Comments of Evaluator:

Metacog Awareness

Prior Knowledge

Case Sim/Diff
from Prior Know

Additional Info
Needed

Future Usefulness

Comments of Evaluator:

SCORING RUBRIC FOR JACK WRITES A PAPER

Content

                              <u>no mention</u>   <u>mention</u>

<u>mention+elab</u>

Situation/Issue
  cognitive demands
  task analysis
  learner analysis
  objectives
  tech as tool
  writing process
  other?

Recommendations

Rationale for
Recommendations

Comments of Evaluator:

Metacog Awareness

Prior Knowledge

Case Sim/Diff
from Prior Know

Additional Info
Needed

Future Usefulness

Comments of Evaluator:

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SCORING RUBRIC FOR RX FOR AILING INSTRUCTION

Content

	no mention	mention	mention+elab

Situation/Issue
  lack of schema
  lack of meaningful
    encoding
  rote learning
  cramming for test
  use of technology
  motivation
  learner analysis
  task analysis
  other?

Recommendations

Rationale for
Recommendations

Comments of Evaluator:

Metacog Awareness

Prior Knowledge

Case Sim/Diff
from Prior Know

Additional Info
Needed

Future Usefulness

Comments of Evaluator:

<u>SCORING RUBRIC FOR LONG DIVISION BLUES</u>

Content

	<u>no mention</u>	<u>mention</u>	<u>mention+elab</u>

Situation/Issue
  learner analysis
  task analysis
  objectives
  inadequate methods
  use of media
  "noise"/interference
  other?

Recommendations

Rationale for
Recommendations

Comments of Evaluator:

Metacog Awareness

Prior Knowledge

Case Sim/Diff
from Prior Know

Additional Info
Needed

Future Usefulness

Comments of Evaluator:

Content

	no mention	mention	mention+elab

Situation/Issue
  tech as panacea
  tech as tool
  tech v. humanism
  diversity of responses
    to tech
  teacher's role w/tech
  task analysis
  learner analysis
  motivation
  other?

Recommendations

Rationale for
Recommendations

Comments of Evaluator:

Metacog Awareness

Prior Knowledge

Case Sim/Diff
from Prior Know

Additional Info
Needed

Future Usefulness

Comments of Evaluator:

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CASE ANALYSIS SURVEY

       Course instruction this semester has included the use of cases both in class and outside of class. Please answer the following questions and tell me what you really think about the use of cases. If you need additional space, use the back of this survey. Your answers will be treated confidentially. Thank you.

Name _____

1.   What did you <u>like</u> about the use of cases and case analysis? Explain your answer.

2.   What did you <u>dislike</u> about the use of cases and case analysis? Explain.

3.   What did you find <u>easy</u> about case analysis? Explain.

4.   What did you find <u>difficult</u> about case analysis? Explain.

5.   Do you feel you learned course concepts using cases? Why or why not?

6. Which of the following cases did you most enjoy analyzing and why? (Jack Writes a Paper, Rx for Ailing Instruction, Long Division Blues, QuickStart)

7. Which of the above listed cases did you least enjoy analyzing and why?

8. Did you find the use of cases challenging? If so, how? If not, why do you think the use of cases was not challenging?

9. Did you find the use of cases pleasant or annoying? Explain.

10. Did the use of cases cause you any anxiety or frustration? Explain.

11. Did you feel you had appropriate knowledge and skills to analyze the cases? Explain.

12. Did you find case analysis rewarding? Explain.

13. Did your interest in or involvement with the course change while using cases? Explain.

14. Did you change your study habits for this course based on the use of case analysis? Explain.

15. Would you recommend or not recommend the use of cases in future media and technology courses? Why?

16. Had you analyzed cases in other courses before taking this class? If so, which course(s)? What was your impression of case use then?

17. Do you have any additional comments you wish to make concerning the use of cases or case analysis in this class?