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ABSTRACT
        The use of case studies to teach educational
psychology was studied, focusing on their effectiveness in helping
students become more reflective in their thinking about the roles of
teachers. The effects on content learned, affect and motivation, and
performance were studied for students taught through case studies and
through traditional instruction. Participants were 106 undergraduates
in an educational psychology survey course. Students in the case
study group (n=38) spent about 25% of their class time discussing six
case studies. Students in an integrative log group (n=45) received
traditional instruction supplemented by developing log entries to
encourage reflection. Twenty-three students were taught entirely in
the traditional manner. Students in the case study group developed
firmer content knowledge and demonstrated higher levels of moral and
ethical reasoning, with an increase in reflective pedagogical
thinking. Whether students who have analyzed case studies perform
better in the classroom will be determined through further
longitudinal research. Two tables and two figures illustrate study
findings. (Contains 22 references.) (SLD)

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The Use of Case Studies to Teach Educational Psychology:
A Comparison with Traditional Instruction

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Perspective and Theoretical Framework

If one looks at introductory chapters of most educational psychology texts, one finds the authors describing to students the importance of developing into teachers who are reflective practitioners (e.g., Biehler & Snowman, 1993; Eggen & Kauchak, 1994; Woolfolk, 1995). Woolfolk (1995) describes reflective teaching as "thoughtful and inventive" with an emphasis on "how teachers plan, solve problems, create instruction, and make decisions" (pp.8-9). She relates it to a teacher who has integrated the "art" of teaching with the "science" of teaching. In reviewing the literature on reflection, Ross (1989) found the following elements used to define the reflective process: (1) recognizing an educational dilemma; (2) responding to a dilemma by recognizing both similarities to other situations and the unique qualities of the particular situation; (3) framing and refraning the dilemma; (4) experimenting with the dilemma to discover the consequences and implications of the various solutions; (5) examining the intended and unintended consequences of the implemented solution by determining whether the consequences are desirable or not. Ross continues her review by referring to Schon's (1983) perspective of reflective practice being grounded in a repertoire of values, knowledge, theories, and practices, that teachers use to frame dilemmas and make judgements and decisions regarding solutions. She relates this to Liston and Zeichner's (1987) views that teachers use moral as well as educational criteria in examining consequences of implemented solutions. Ross (1989) points out that according to Kitchner & King (1981) reflection by teachers requires "the ability to view situations from multiple perspectives, the ability to search for alternative explanations of classroom events, and the ability to use evidence in supporting or evaluating a decision or position (p. 23)

Wasserman (1993) describes how traditional teacher preparation courses often fail to prepare preservice teachers adequately for the transition from theoretical

knowledge to classroom application due to the failure to help educational students learn how to "make meaning" of classroom situations. She suggests that students must be given the opportunity to apply critical analysis to making meaning of classroom dilemmas by developing skills of observation, comparison, extraction of main ideas, intuition, and application of facts and principles as applied in case studies. Since the primary focus of most educational psychology courses is to provide a theoretical and research foundation (i.e., the science of teaching) for students to use as a base to develop their personal teaching practices (i.e., the art of teaching), case studies provide a vehicle for students to reflect on realistic classroom dilemmas and apply the psychological theories and research findings they are learning in the course (Silverman, Welty, & Lyon, 1992).

We know that students are more likely to find educational psychology principles and concepts more meaningful and retain these principles and concepts longer if they are actively generating their own understanding of them (e.g., see Wittrock, 1986). The application of this information in "making meaning" of classroom situations by analyzing case studies of teaching dilemmas should enable preservice educators to become more "intelligent" professional decision makers when they enter real classrooms as teachers (Wasserman, 1993). Lohman (1993) points out that fluid abilities can probably be best promoted by first imposing "some organizational scheme on declarative knowledge," especially knowledge over ill-structured domains, by encouraging "students to identify main points, but from several different perspectives" via stories or case studies. Lohman cites Spiro et al. (1987) to argue that

> The best way to... instruct in order to attain the goal of cognitive
> flexibility... is by a method of case-based presentations which treats a
> content domain as a landscape that is explored by "criss-crossing" it in
> many directions, by reexamining each case "site" in the varying contexts

of different neighboring cases, and by using a variety of abstract dimensions for comparing cases. (p. 178)

Theoretically, therefore, we should expect that students engaged in case study analyses should develop a more well defined "teaching" schema, with more connections to educational psychology principles and concepts and more ways to apply these concepts than students who are not exposed to cases.

Objectives and Research Questions

There are four questions that are of a particular concern to me as an instructor who uses cases as part of my instruction of educational psychology courses. These questions are:

(1) How effective are case studies as a pedagogical method in helping students become more reflective in their thinking about the role of teachers in classrooms?

(2) Do students in case study classes learn the same amount of content as students in more traditionally taught educational psychology classes?

(3) Do students in case study classes exhibit more positive affects and greater levels of motivation to learn educational psychology content than students in more traditionally taught classes?

(4) Do students who have analyzed case studies perform any differently (i.e., become more reflective practitioners) than students who have not analyzed case studies?

The research reported in this paper addresses the first two questions. The third question is addressed in a separate paper (Allen & Lunyolo, 1995) and the fourth question requires more longitudinal data collection which is currently on-going.

1. HOW EFFECTIVE ARE CASE STUDIES AS A PEDAGOGICAL METHOD IN
HELPING STUDENTS BECOME MORE REFLECTIVE IN THEIR THINKING ABOUT THE ROLE
OF TEACHERS IN CLASSROOMS? After going through a course which uses a case-based
approach, do students really think differently than students who go through a more
traditionally taught educational psychology course? This question regarding students
cognitive processes was subdivided into three research questions, each considering a
different aspect of reflection:

1a) Do students exposed to cases exhibit more cognitive flexibility in solving
problems?

1b) Do students exposed to cases make decisions on a higher level of moral
reasoning?

1c) Do students exposed to cases become more "expert" in their thinking and
think about classroom situations in more complex ways by considering multiple
perspectives, applying theory to practical solutions, and considering the consequences
of their suggested actions?

2. DO STUDENTS IN CASE STUDY CLASSES LEARN THE SAME AMOUNT OF
CONTENT AS STUDENTS IN MORE TRADITIONALLY TAUGHT EDUCATIONAL
PSYCHOLOGY CLASSES? Due to the amount of class time that students engage in
discussions of cases, students in case-based courses are usually exposed to less direct
coverage of some content topics than in more traditional lecture oriented courses.
However, the argument can be made that even if students are exposed to less content,
what content is covered is learned more thoroughly due to the need to work with the
information at higher cognitive levels, such as: application, analysis, synthesis, and
evaluation (Sudzina & Kilbane, 1992). As Lohman (1993) puts its:

> ...the motto might well be "less is more." A clear understanding of the
> key events, controversies, or concepts in a domain, along with the
> ability to connect these ideas both to each other and to a larger scheme is

more important than a much larger base of fact and skill knowledge that is disconnected, is not tied with other learning, and can be applied only locally. (p.21)

3. DO STUDENTS IN CASE STUDY CLASSES EXHIBIT MORE POSITIVE AFFECTS AND GREATER LEVELS OF MOTIVATION TO LEARN EDUCATIONAL PSYCHOLOGY CONTENT THAN STUDENTS IN MORE TRADITIONALLY TAUGHT CLASSES? Even if there are not significant cognitive differences demonstrated between students in a case study class and students in a more traditionally taught class, if case study students experience a more positive attitude and exhibit more motivated behaviors toward their educational psychology classroom experience while still learning the content, then the use of case studies can be justified. Research exists that provides some evidence for the positive affects experienced by students in a case study class, but that research is primarily based on student self-report data (James, 1992; Kleinfeld, 1991; Watson, 1975). Analysis of comparison group data based on less subjective measures than self-reports would help to either confirm or provide an alternative answer.

4. DO STUDENTS WHO HAVE ANALYZED CASE STUDIES PERFORM ANY DIFFERENTLY (I.E., BECOME MORE REFLECTIVE PRACTITIONERS) THAN STUDENTS WHO HAVE NOT ANALYZED CASE STUDIES? If students exposed to cases don't perform any differently in the classroom than students who attend more traditionally taught education classes, does it really matter if cases are used? This is a research area that is particularly sparse due to the longitudinal and complex design that is necessary to answer this question.

Methods and Data Source

Subjects

The participants in this study were 106 undergraduate students taking an educational psychology survey course. Most of the students were female (90%). The three treatment groups were

(1) *Case Study Group* (CSG) - These students (n = 38) received "traditional" instruction in a combined lecture-recitation format over educational psychology content for approximately 3 days. This type of instruction is defined as "a teaching strategy in which the teacher presents information and then encourages processing through active questioning" (Eggen and Kauchak, 1994, p. 623). This was followed by a day of discussion of a case of a teacher experiencing a classroom problem related to the educational psychology topics most recently discussed. The discussion of the case followed similar guidelines as those proposed by Silverman, Welty, & Lyon (1991) which focus on developing problem-solving and decision-making skills. Students were required to prepare an outline before each of the six cases was discussed, and a written analysis for four of the cases was required after the discussion. Approximately 25% of the instructional time allotted for the class was devoted to discussing the cases.

(2) *Integrative Log Group* (ILG) - These students (n = 45) were taught primarily through a traditional lecture-recitation format over the same content as the CSG. However, the 25% instructional time spent on cases in the CSG was used for direct instruction to provide a greater coverage on some topics. However, students in this group were required to develop Integrative Log entries that attempted to develop "reflective" thought in a non-case manner. These entries were completed outside of classroom instructional time.

(3) *Traditional Lecture Group* (TLG) - These students (n = 23) was taught entirely through a traditional lecture-recitation format without any specific "reflective" treatments.

Instruments

To measure levels of cognitive flexibility (question 1a), students were given the Raven's Standard Progressive Matrices Test which measures "the nonverbal component of Spearman's "g". This component assesses educative ability or the ability to make sense of complex situations, derive meaning from events, and to perceive and think

clearly" (The Psychological Corporation, 1994, p.86). This standardized cognitive abilities test measures student's ability "to solve... unfamiliar problems" or dilemmas "in a domain and" the ability "to impose multiple organizational schemes on their learning" (Lohman, 1993, p.21). Students were given the Defining Issues Test (DIT) to measure levels of moral reasoning and decision making ability (question 1b). According to Rest (1990) "the DIT is based on the fact that people judge different considerations as important in arriving at a moral decision about what to do" (p.2). This corresponds to Schon's (1983) and Liston & Zeichner's (1987) perspectives of reflective teachers who use value and moral criteria in examining classroom dilemmas and making judgements when initiating actions to solve these problems. To measure students reflective ability to consider multiple perspectives, apply appropriate educational psychology theory to analyze cases, and to note possible consequences of their solutions (question 1c), six written case outlines and four case analyses were collected from each of the students in the Case Study treatment group. The analyses of written cases were evaluated by using a modified version of the Framework for Reflective Pedagogical Thinking, a coding scheme developed by Sparks-Langer, et al. (1990). The original framework consists of seven levels of language use and thinking that range from "no use of descriptive language" (level 1) to "explanations with consideration of ethical, moral, political issues" (Level 7). Since in the current research the scores for the analyses all fell in the 4 to 7 range, mid-levels were created between 4 and 7 to take into account more precise differences between the case analyses (see Figure 1). For example, a score of 6 indicates that the case was explained with a principle or theory in consideration of the context of the case, while a score of 6.5 indicates that the explanation used multiple theories or principles in context that implied a teaching philosophy. Original definitions were also modified slightly to clarify differences between the scores. Previously read case analyses were rescored based on this modified framework.

This modified framework also corresponds to the coding scheme developed by Hatton and Smith (1995), a scheme developed from a review of the literature on reflection in teacher education. Their Criteria for the Recognition of Evidence for the Different Types of Reflective Writing involves a non-reflective writing level and then three hierarchical levels of reflective writing, from descriptive to dialogic to critical reflection. Descriptive reflection goes beyond description of the case to provide reasons for the events in recognition of the research; dialogic reflection analyzes and integrates different perspectives; critical reflection takes multiple historical and socio-political contexts into consideration. Figure 1 provides definitions of the levels, their corresponding scores, and examples from the students' case analyses.

Out of the 6 case studies, students in the CSG wrote analyses on 4 of them of their choice. One rater read through each case's analyses twice before assigning each of them a score. 12 case analyses were picked at random and read by 3 other raters to check for scoring reliability ($r = .82$).

To measure the amount of content that students learned (question 2), all groups were given an educational psychology pretest and final exam constructed from a test item bank supplementing the common required text used by all students.

Results and Conclusions

Reflective Thinking

A series of paired samples t-tests were conducted to analyze if any change occurred on either the Raven's SPM or the DIT within each group (see Table 1). A significant difference was found on the Raven's SPM for the TLG but in a negative direction as all three groups did less well on the post-test than the pretest. The CSG was the only group to show significant positive gains on the DIT. To measure if there was any differences between groups on the DIT after the different instructional treatments, an Analysis of Covariance was conducted for each measure adjusting for pretest differences. No significant differences were found in the manner in which

students in each group solved moral dilemmas on the DIT, $F(2,84)=1.248$ ($p=.292$). The data (written analyses) to measure changes in CSG students ability to consider multiple perspectives and apply relevant educational psychology theory to the dilemmas presented in the cases was coded and analyzed using the modified Framework for Reflective Pedagogical Thinking. Figure 2 illustrates the increase in the number of case analysis scores ranging from 5.5 and above from the first written analyses to the fourth analysis, while the number of case analyses scored 5.0 or below is shown decreasing from the first to fourth analysis. A t-test analysis demonstrated strong significant differences between scores on Case 1 and Case 4 ($n=34$, $t=5.089$, $p=.000$).

Content Knowledge

No significant differences were found on the Ed. Psych. pretest between groups, $F(2,103) = 2.012$, $p = 0.139$. Therefore to determine if the Case Study Group (CSG) learned the same amount of content as the more traditionally taught groups (question 2), an ANOVA was conducted. This analysis showed extremely strong levels of significance, $F(2,103) = 20.694$, $p < .0005$, so a series of post-hoc analyses (Scheffe tests) were conducted between the three pairs of groups (see Table 2). Significant differences were found between the CSG and each of the other two treatment groups (ILG & TLG), but there was no significant difference between the ILG and the TLG.

Discussion

A major finding of this study is that instruction through the case study method seems to significantly increase the level of educational psychology content knowledge that a student obtains when compared to more traditional instructional methods. This would lend support to the cognitive theories of generative learning (Wittrock, 1986), since analyzing cases and writing case analyses require that students generate their own synthesis of how educational psychology theory applies to solving the case problems.

This active generation and synthesis should help to more deeply process the educational and psychological concepts taught in the course. It should also help students to retain this information longer, and therefore have it available the following year when these students do their student teaching.

It appears that even in the short term, the case study method of instruction may significantly change the way in which students think about general moral or ethical dilemmas. This, in light of the above finding of significant differences in the levels of content learned by case study groups suggests that devoting approximately 25% of the class time to case discussions, may provide an increase in levels of moral reasoning and that the process of instruction (or "quality" of instruction) may be more important than the quantity of content covered. Perhaps "less IS more" if less coverage allows for more in depth analysis and synthesis. Since the dilemmas of the DIT are not classroom specific, the analysis of the written cases using the Framework of Reflective Pedagogical Thinking to address question 1c, may shed some light on the need for considering types of reflective thinking within context specific situations.

Regarding the Raven's SPM data, it appears the manner in which the post-test data were collected may have been a major factor in the consistent decrease of pre- to post-test scores for all three groups. For the pre-test, students were tested individually, but for the post-test, the students were tested as groups immediately following their final exam. Giving the Raven's post-test separate from the final exam may have given more meaningful scores. Both fatigue and "end of the semester" anxiety and disinterest may have effected the manner and seriousness in which the students took the Raven's post-test.

Educational Significance and Future Directions for Research

So far, the results of this longitudinal study suggests that the use of case studies in teaching educational psychology helps students develop a firmer content knowledge base than more traditional teaching methods. If we believe that "good" teachers should

base their classroom behaviors on sound theory and research, then this result is educationally significant, since it suggests students exposed to cases in educational psychology courses will have a firmer knowledge base to operate from once they get into the classroom. The DIT data suggests that students exposed to cases do shift to higher levels of moral/ethical reasoning than those students not exposed to cases. Since the analysis of the data on the written cases by the CSG also show an increase in "reflective pedagogical thinking", this also lends support to the use of cases to improve the ways pre-service teachers think about classroom situations, and thus should provide them with schemas to draw from when in the midst of the complexities of the classroom.

A major educational significance of the use of case studies will only be determine when question 4 is answered: Do students who have analyzed case studies *perform* any differently than students not exposed to cases? This is the BIG question relevant to educational significance and why the students of this research study will be followed into their student teaching experience (and hopefully into their first year of teaching) to determine if students exposed to cases truly become more "Reflective Practitioners" than other students. The author intents to continue to collect data on the subjects of this study over the next 2-3 years to develop an analysis which can inform teacher educators, particularly educational psychology instructors, as to the advantages and disadvantages of the use of case studies. Hopefully this information can contribute to creating better curricular programming in teacher education institutions.

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Table 1: Means, Standard Deviations, and T-tests on paired group samples for moral decision making (DIT) and problem-solving ability (Raven's SPM)

Group		DIT Pre	DIT Post	Raven's SPM Pre	Raven's SPM Post
	M	33.575	38.228	51.105	49.947
	SD	12.175	14.037	3.697	5.240
CSG	n	32		38	
	t	-2.112		-1.921	
	p	.043		.063	
	M	37.600	36.005	49.718	49.231
	SD	13.199	13.358	7.041	6.834
ILG	n	38		39	
	t	.767		-.794	
	p	.448		.432	
	M	35.083	36.828	50.174	48.000
	SD	14.702	13.020	4.638	5.665
TLG	n	18		23	
	t	-.526		-2.524	
	p	.605		**.019**	

Table 2: Means, S.D., and Post Hoc Comparisons of EPY 350 Post-test

Group	M	SD	Post Hoc Comparisons
CSG (n = 38)	84.211	8.470	**CSG > ILG, p < .001**
ILG (n = 45)	71.733	16.597	**CSG > TLG, p < .001**
TLG (n = 23)	70.957	10.178	ILG > TLG, not significant

Figure 1

Rating Scale for Reflective Case Analyses

Score	Modified Framework (based on Sparks Langer et al., 1990)	Reflective Writing Criteria (based on Hatton and Smith, 1995)	Students Case Analysis Examples (cases come from Silverman, Welty, and Lyon, 1992)
1	no descriptive language	.	
2	simple, lay person description	Descriptive Writing · not reflective · description of events that occurred	Barbara hates her class and is sure they hate her as well (6056)*
3	events labeled with terms without justification	Descriptive Writing · no attempt to provide reasons	Throughout the case she only acknowledges inappropriate behavior. (4370)*
4	explanation with tradition or personal preference given as the rationale	Descriptive Reflection · reflective, not only a description of events but an attempt to provide reasons	I think the way I see my problems is the way the students would see it. The students don't want to be put down, especially in front of their friends. Students are willing to give new ideas a a try. (3422)
4.5	explanation with principle/ theory given that is irrelevant or unsupported	Descriptive Reflection · see above	The next problem is that she needs to get and maintain the students attention. The evidence I found was when she was giving directions & the students were doing their own thing. The educational principle that applies here is teacher theorist/ teacher practitioner. (4370)
5	explanation with appropriate principle/ theory given as the rationale	Descriptive Reflection · recognition of alternate view-points in the research and literature which are reported	She should praise the students who are prepared and use them as good examples for the others. Using positive reinforcement (Biehler and Snowman, 1993), would help her get the behavior that she wants. The students would be more prepared and less time would be spent yelling at them. (3337)
5.5	explanation with both principle, theory and context factors given, but not well connected	Dialogic Reflection · demonstrates a "stepping back" from the events/actions to a different level of mulling about	As for this case study and for Barbara, I think she really needed to be more assertive at the very beginning of class and more self-assured when things started to get a little hairy. Jacob Kounin has very key items to keep in mind when discussing classroom management. (6056)
6	explanation with principle theory given in consideration of context factors	Dialogic Reflection such reflection is analytical or/and integrative of factors and perspectives and may recognize inconsistencies in attempts to provide rationale and critique	I see Ken's problem as a failure to match his actions to relate to his desired outcomes. Ken wanted class discussion, yet he did not model this behavior. Kelly failed to ask high level open ended questions. It is my opinion that Sybil has a lot to offer Ken in this area. She gives her students the expressive autonomy they need to hold a discussion (2711)

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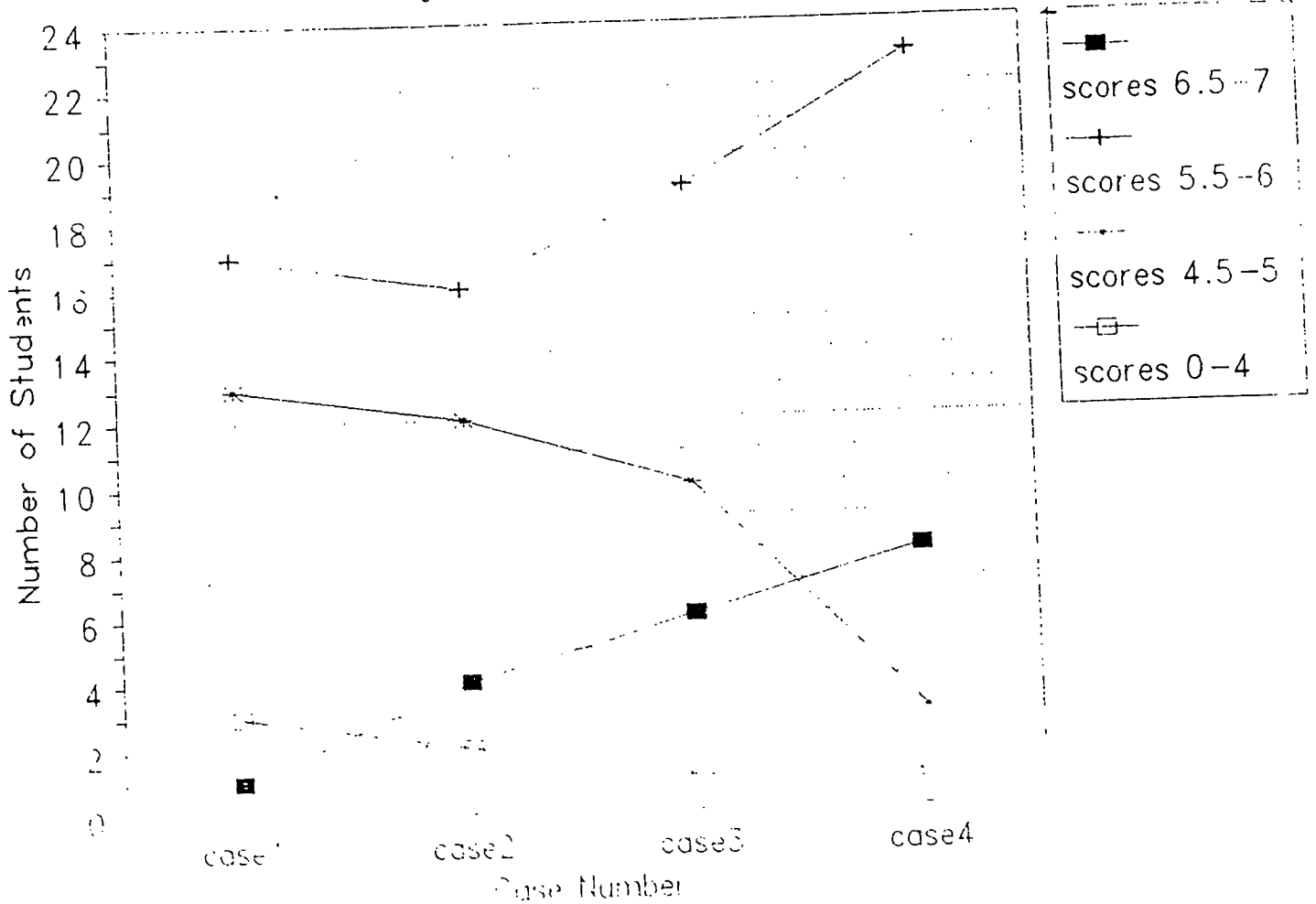|			
6.5	explanation with multiple principles/theories developed in context so that a teaching philosophy is implied	Critical Reflection · demonstrates an awareness that actions and events are not only located, and explicable by, reference to multiple perspectives, but are located in and influenced by multiple historical and socio-political contexts	Barbara needs to address her problem with Marie. She could use the "no-lose method" with Marie (Biehler and Snowman, 1993). Barbara needs to come to an agreement and establish a rapport. Neither Barbara or Marie are "winning" in this situation. Barbara should also use "I-messages" with the students, to convey how she feels about their unacceptable behavior. She needs to talk about the situation or behavior, not the student. Talking about the student can cause personality problems. (0588)
7	explanation with ethical, moral, political, and/or philosophical issues explicitly stated	Critical Reflection · see above	To establish the type of environment needed Barbara needs to go out on a limb with her students. She needs to allow them to do more than just worksheets and lectures. They need the opportunity to express themselves (Biehler and Snowman, 1993). By doing this Barbara would be creating a classroom in which the students could learn and experiment, and where they had a sense of ownership in not only their activities, but also their classroom. This would establish a sense of respect that is also desperately needed in this class. (9028)

* Although these excerpts show the criteria for the particular score, the overall analysis from which they are drawn did not receive the same score.

Figure 2

Change in Students' Reflective Thinking