



## CASE-BASED INSTRUCTION: A TECHNIQUE FOR INCREASING CONCEPTUAL APPLICATION IN INTRODUCTORY PSYCHOLOGY

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*As an alternative or supplement to the traditional lecture format, in case-based instruction (CBI) students actively experience an actual or fictional problem-centered narrative within applied settings. As a means of teaching reasoning skills that link theory to practice, CBI has been used across many disciplines, including business, law, medicine, teacher education, and the natural and behavioral sciences. In the present investigation, I formulate and use a hypothetical case narrative in teaching conceptual analysis and application of major theories (biological, psychodynamic, behavioral, humanistic, cognitive, and cross-cultural) in introductory psychology. Intact classes were randomly assigned to receive either CBI, combining small- and large-group discussion, or traditional lecture-based instruction (Control). As predicted, results of an independent t-test analysis show that students in the CBI condition outperformed those in the Control with respect to theoretical comprehension and application. Group discussions were generally lively and reflective of critical thinking and higher-level conceptual understanding. Overall, students viewed CBI not only as realistic and helpful in the learning process, but also as challenging, creatively stimulating, interesting, and enjoyable. Results are discussed in light of constructivist and cooperative learning models.*

Case-based pedagogy relies on student participation in real or fictional problem situations that may be experienced in applied settings within the discipline under study. Participants in CBI are asked to apply their previous experience toward solving real-world problems. After responding to questions on the case, or a narrative account of the problem-centered scenario, students are usually asked to discuss its central issues. Because class discussion is typically a vital component

Received 1 October 2000; accepted 8 March 2001.

I am grateful to Rebecca Mayo, Michael and Donna Borders, Robert Neimeyer, and two anonymous reviewers for providing instructive comments on an earlier version of this article.

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of CBI, a convincing argument in favor of using case studies is that "they can result in engaging and energizing discussions . . . [that] can change the focus of the typical university lecture class" (Richardson, 1997, p. 21). Through group discussion and other class activities (e.g., role playing, classroom demonstrations, laboratory exercises) aimed at cultivating an active learning environment, the case-study method can be used to encourage team work, while concurrently facilitating the development of reflective thinking and deeper conceptual understanding (Heath, 1999).

The use of case studies in teaching highlights the complementarity between the cognitive and sociocultural constructivist perspectives. Similar to these constructivist perspectives in which activity plays an important role in learning (Cobb, 1996), the case-based instructional model casts the learner in an active role. In line with Cobb's analysis, during CBI, at the same time that the learner constructs knowledge through conceptual activity located within the individual (cognitive constructivism), she or he participates in social interaction and activity that influence the learning outcome (sociocultural constructivism).

As a teaching method, CBI has been shown to bolster meaningful learning by successfully bridging the gap between theory and practice (Ertmer & Russell, 1995; Wright, 1996). Case studies have had a long history of use as a means of developing applied reasoning skills in prospective professionals within business, law, and medicine (Hutchings, 1993; Peragallo-Dittko, 1993; Ronstadt, 1977). College teachers continue to use case studies as instructional tools across a variety of disciplines, including nursing (e.g., Dowd & Davidhizar, 1999), science (e.g., Zeakes, 1989), and teacher education (e.g., Harrington, 1995).

Teaching psychology to a college audience has also been infused with case-based approaches. In teaching introduction to educational psychology students, Faux (1999) observed that case studies are effective in allowing students to apply theoretical knowledge. Similarly, in comparing CBI with traditional lecture, Labuda (1999) found that pre-service teachers enrolled in a course in introductory educational psychology view both computer- and text-based case studies to be realistic. Comparable findings have also been reported with the use of case-study methodology in teaching undergraduate courses in abnormal (Perkins, 1991), adolescent (McManus, 1986), and developmental (Cabe, Walker, & Williams, 1999) psychology.

## PURPOSE OF THE STUDY

In the present study, I formulate and use a hypothetical case narrative in teaching conceptual application of major theories in general

psychology. In line with the findings of related classroom investigations in psychology and other fields, I predict that students experiencing CBI should better understand and apply psychological theories, when compared to students taught in a traditional lecture format.

## METHOD

### Participants

Participants were 136 college freshmen and sophomores who completed one of four sections of an introductory psychology course. Students ranged in age from 17 to 48 years, with an average age of 26 years.

### Design

Intact classes were randomly assigned to receive case studies or traditional lecture-based instruction. I used an independent two-group design to compare participants' academic performance when exposed to CBI with similar performance in a group who received lecture-based instruction in the absence of case analysis (Control). The CBI condition included 70 students (44 women and 26 men) completing one of two course sections. The Control condition consisted of 66 students (38 women and 28 men) completing one of two course sections. There were no appreciable differences between these two conditions on the basis of age or gender.

I established constancy of conditions, except for the presence or absence of CBI, by handling all course sections the same in terms of lecture coverage, testing format, and other pertinent matters. As further evidence of equivalency between conditions, students' numerical ratings and accompanying written comments were consistently positive in all course sections with regard to my teaching effectiveness (e.g., course organization, lectures, and appropriateness of exams).

### Procedure

Consistent with a conceptual approach to teaching introductory psychology, I introduced the following six theoretical perspectives in the first two weeks of a 15-week semester course: biological, psychodynamic, behavioral, humanistic, cognitive, and cross-cultural. After three hours of lecture on the conceptual foundations of these theories in

each course section of the CBI condition, as part of a 50-minute, in-class exercise, I distributed a hypothetical case narrative that I had designed to reflect each of the aforementioned theories. (Refer to the Appendix for the content of this case narrative, including the intended applications of the major psychological theories embodied within it.) I then divided the class into six groups of 5–7 students, assigning each group to discuss the case's relation to one of the theories presented previously in class. One member within each group was selected as designated recorder, organizing and summarizing the responses of the group. The small-group discussion phase lasted approximately 15–20 minutes, after which time each group reported its conclusions to the entire class for peer feedback and critique.

In each course section of the Control condition, I also lectured similarly for three hours on the same psychological theories that I had presented in the CBI condition. For comparison purposes, however, in the Control I did not introduce CBI. Instead, I required students to submit 150–250 word synopses of the salient characteristics of each of the six psychological theories. On the submission date for these synopses, I allotted 50 minutes of class time in each course section for open discussion and review of the theories to which the summaries pertained.

## Instruments

In all course sections, I administered the same exam that pertained to higher-level conceptual analysis and application of the six major psychological theories. The exam, which was administered in equal parts over two, 50-minute class periods and counted as 20% of the final course grade, consisted of 30 novel, short, and fictional, problem-centered situations (five per psychological theory) in which students were asked to (1) identify the theory that most closely fits the situation, and (2) provide a brief, explanatory rationale for their selection. Two, sample test items and the respective theoretical perspective to which each item best matches, appear below:

Sixteen-year-old Megan's romantic feelings toward Mr. Wilson, her 48-year-old math tutor, may reflect her unconscious desire for affection that is absent in her relationship with her own father, a distant and cold man. (Freudian psychodynamic theory)

Antonio, who is chronically depressed, holds the illogical and self-defeating belief that women find him unattractive, though he is often described by females as "handsome" and "charming." (cognitive theory)

In the CBI condition, I also assessed students' attitudes toward case-based pedagogy by using two Likert rating scales. One scale measured the degree to which CBI is helpful in the learning process (from *very helpful* = 5 to *not helpful* = 1). The second scale assessed how realistic student participants found the case narrative to be (from *very realistic* = 5 to *not realistic* = 1). These two attitudinal rating scales were part of a single questionnaire, which also contained several questions about CBI that required students to respond narratively.

## RESULTS

Using data obtained from the 30-item exam, I undertook an independent *t*-test analysis to compare student performance in the CBI condition with similar performance in the Control. As hypothesized, student performance in the CBI condition ( $M = 83.23$ ,  $SD = 10.29$ ) differed significantly from performance in the Control ( $M = 76.76$ ,  $SD = 12.43$ ),  $t(134) = 2.34$ ,  $p < .01$ .

In both course sections that incorporated CBI into the learning process, class discussions (small group and entire class) were spirited and broadly inclusive. Students challenged one another to analyze creatively and critically the case narratives, as reflected in thought-provoking questions and insightful comments that were generally demonstrative of conceptual understanding and application of the main aspects of the psychological theories. In the small-group discussions, students were open to and respectful of a variety of viewpoints, gradually shaping and molding a collection of responses into unified positions. In engaging the whole class in discussion, I observed a similar pattern of openness and tolerance for diversity of opinions, but at the same time I found that students offered and accepted constructive criticism in an overall positive framework.

Students' attitudes toward CBI were largely favorable. On the question of its helpfulness toward learning, the mean attitudinal rating was 3.98, with 40% of students responding that it was *very helpful* (5); 29%, *helpful* (4); 23%, *moderately helpful* (3); 7%, *only slightly helpful* (2); and 1%, *not helpful* (1). On the question of how realistic the case appeared to students, the mean attitudinal rating was 3.77 in which 27% responded *very realistic* (5); 37%, *realistic* (4); 24%, *moderately realistic* (3); 9%, *only slightly realistic* (2); and 3%, *not realistic* (1).

On the attitudinal questionnaire, I examined students' narrative comments about CBI in order to ascertain shared attitudes and noteworthy trends. Numerous students commented on the degree of creativity, challenge, interest, and enjoyment afforded through the

case-study method. One student likened case analysis to "solving a difficult crossword puzzle with a creative solution in sight." Another student noted that CBI "worked better in holding my attention during class than when [the instructor] simply lectured on the subject." Yet another student referred to case analysis as "fun, yet informative, because it's actually 'psychology-in-action' in real life."

## DISCUSSION

The results of the present study support the view that CBI increases students' conceptual understanding and application of important theoretical perspectives in general psychology. In developing students' applied reasoning skills, the case-study method can be effectively used to "connect in-class learning with the reality outside the classroom" (Smith & Murphy, 1998, p. 265), a practice that bears a striking resemblance to a primary goal of constructivist classroom models (e.g., Wilson & Daviss, 1994). The linkage of theory to practice becomes especially relevant to teaching and learning in the discipline of psychology, where many possibilities exist to extrapolate from theoretical constructs to real-world applications.

The use of case studies places the student in the role of problem-solver (Silverman & Welty, 1990), as opposed to the more traditional role of passive recipient in the transmission of information from teacher to student. As discussed by Yager and Tweed (1991), teaching should emphasize questions and possible explanations, both of which are inherent facets of case studies. Once teachers initially create for students reality-based experiences that stress underlying themes and built-in questions, students as problem-solvers can then cognitively construct their own meaningful conclusions on the basis of their prior knowledge. In this way, case studies can serve as explanatory tools in the process of students constructing self-knowledge that integrates theoretical principles and hands-on experiences.

The fact that the case-study approach typically includes classroom discussion is another advantage to its use as an instructional method, as validated in the results of the current experiment. Cooperative learning, which has blossomed into one of the key topics in education over the past decade, has been associated with improvements in students' achievement (Slavin, 1990) and social skills (Johnson, 1990). In the form of small- or large-group discussion, case studies are cooperative activities that not only "give students valuable experience in discussing, arguing, summarizing, and thinking reflectively in the classroom setting" (Richardson, 1997, p. 21), but also "help students hear a variety of viewpoints, compare their responses with those of their peers, and

understand how their ideas compare to the ideas of others in the classroom" (Richardson, p. 17). The cooperative components of CBI are consonant with the sociocultural constructivist perspective, which emphasizes the "socially and culturally situated nature of activity" (Cobb, 1996, p. 34) and the individual-in-social-action as the primary unit of analysis (Minick, 1989).

An interesting consequence of cooperative case-study activities is that they can affect the roles of both student and instructor in such a way as to change the classroom climate (Richardson, 1997). During classroom discussion, the task of the instructor shifts from absolute authority to subtle facilitator, adroitly guiding, summarizing, and finalizing the discussion. On the other hand, students are empowered with the expectation that they will arrive at plausible solutions to problem situations encountered in real-world scenarios. For those instructors who may at first feel threatened by this apparent redistribution of power in the classroom, Wong (1993) offered that allowing students to engage in a generative process of knowledge acquisition "does not suggest that all explanations are of equal value, nor does it eliminate the teacher's role as a knowledgeable authority" (p. 378).

As a final advantage of case-based pedagogy, the present results point to increased student interest in subject matter that simulates real life. These findings corroborate those in other classroom environments (e.g., Labuda, 1999; Smith & Murphy, 1998) where students describe CBI not only as realistic, helpful, and challenging, but also as interesting, rewarding, and enjoyable. In the revealing words of one student participant in the present investigation: "The case study allowed me to play detective, carefully searching for telltale clues in an unfolding story that led me, step by step, to my own logical conclusions."

Although the current findings point to the promise of CBI as an instructional tool, the present study should be viewed broadly as exploratory. There is considerable room for further investigation into the use of CBI in introductory and other psychology courses. Subsequent research might include more than a single, brief, case-study assignment to test the effectiveness of CBI. Moreover, because the author served in the dual role of teacher and researcher in the present experiment—despite efforts to control subjective factors that could have influenced the results—future investigators may be in a position to avoid such potential for experimenter bias.

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## APPENDIX

### Case Narrative and the Intended Applications of Major Psychological Theories

*Directions:* Comment on how each of the following psychological perspectives can be applied in this hypothetical case narrative of a 15-year-old, American-born male named “William”: biological, psychodynamic, behavioral, humanistic, cognitive, and cross-cultural. [NOTE: To assist the reader of this article in uncovering the intended theoretical applications, I have inserted the name of the applicable theoretical perspective(s) in boldface type after corresponding passages in the case narrative that embody aspects of one or more theories.]

William has been experiencing longstanding emotional and behavioral problems, including feelings of despair and fits of uncontrolled rage. These same psychological difficulties are evident in members of William’s family (i.e., his father is chronically depressed and his older brother is frequently antisocial and aggressive in his interactions with others). **[biological (hereditary) and behavioral (learning) perspectives]**

William has been receiving psychological counseling for the past two years, the last several months of which he has been taking — with limited success — prescribed antidepressant and anti-anxiety medications. **(biological perspective)** His therapist has employed various environmental manipulations (e.g., progressive relaxation and anger-management techniques) to assist William with his behavioral problems; however, none of these approaches has been particularly effective thus far. **(behavioral perspective: classical and operant conditioning)**

On his own, William has not shown the capacity for personal insight into his thoughts and feelings as possible causal factors for his psychological woes. In fact, when asked why he feels the way that he does about life, he offers little insight in the nature of his own troubles. **(cognitive theory)**

With regard to his family dynamics, William appears to possess underlying feelings of hostility and abandonment toward his mother, who divorced his father when William was three years old. Yet, he is either unwilling or unable to come to terms with his deep-rooted, negative feelings about his mother. **(Freudian psychodynamic theory)**

William’s circle of peers has also been questionable. Most of them have been adjudicated for delinquent activities, and William himself has recently been brought before juvenile court for assaulting a classmate on a bus ride home from school. **(behavioral perspective: operant conditioning and cognitive social learning theory)**

Two months ago, William met a 43-year-old local preacher, Reverend Belton, who has since taken a keen interest in William's welfare. Reverend Belton holds a favorable view of human nature, believing that people are born basically good and that even the habitually wayward can make positive, life-affirming changes. **(humanistic perspective)** Though it is probably too early to say conclusively, despite their age differences William seems to be developing both a working rapport and a fundamental trust in his interpersonal relationship with the Reverend.

Another important figure in William's life is Woo, a 20-year-old college student of Taiwanese descent, who is attending an American university near William's home and has befriended William over the past five months. Drawing from his own cultural traditions, values, and beliefs, Woo has had several productive conversations with William about appropriate self-control, responsible decision-making, and harmonious group relations. **(cross-cultural perspective)** Although only time will reveal the full impact that Woo will have on William, early indications suggest that he is serving as a stabilizing role model in William's life. **(behavioral perspective: cognitive social learning theory)**