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To our readers:

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LETTER FROM THE EDITORS

To our readers:

This issue of The Learning Assistance Review exemplifies some of the fine research that is being done by practitioners in our field. This is significant because not long ago, we had to go outside our own field to find research that would contribute to our practice. More and more we are systemically organizing and publishing the results of our own work. This is indeed a cause for celebration as the wisdom of our practice is becoming documented and will be handed down to our colleagues.

The first article, written by Brothen and Bazzare, describes a quasi experimental study conducted at the University of Minnesota General College. The authors look at a PSI delivery model in a psychology course and how a personal intervention strategy can affect a student's tendency to procrastinate. The results of their work show a lowered rate of procrastination and an increase in course performance. The authors discuss the implications for developmental students.

In the second article, Kalivoda and Higbee, discuss an exploratory, qualitative study that they conducted related to faculty attitude and subsequent behavior regarding accommodations for students with acquired brain injury. They apply a theoretical model to their interviewing process as they uncover strategies for positively influencing faculty to grant accommodations to all students with special needs. The final research article by Lemire considers three learning styles models and the instruments typically used with students to assess them. Through graphics of psychometric data and realted narrative, the author concludes that these instruments provide valuable information for our practice but that due to inconsistent results, additional research is needed.

Two MCLCA officers, Eaton and Folstein, provide an excellent foundation for further discussion on individual professional certification in "Join the Conversation." They review the background, including an interview with Hunter Boylan, of the current movement to establish a process for certification and raise questions that will stimulate your thinking on this important area of concern. As always, we encourage you to respond and become an active participant in this current dialogue among professionals.

Concluding this issue is a book review written by D"Adamo-Weinstin on "Re-Thinking AD/HD." This resource is an edited compliation of articles related to serving the needs of students with special needs and promises to ve a valuable resource for your professional bookshelf.

Martha will be taking a six month leave of absence from her editorial responsibilities as she assumes a teaching/research position at the University of Port Elizabeth in South Africa. She will leave on March 1st and return on September 1st, so if you have any questions related to the journal during that time, please address them to Nancy Bornstein. If you would like to correspond with Martha on non-TLAR issues while she is there, you can reach her at the following email address: indmmc@upe.ac.za.

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ARTICLES

AN INTERVENTION TO REMEDIATE DEVELOPMENTAL STUDENTS' PROCRASTINATION IN A COMPUTER-BASED PSI COURSE

By Thomas Brothen and M. Elizabeth Bazzarre, University of Minnesota

Abstract

Procrastination interferes with academic success. This paper examines the effectiveness of a learning assistance intervention to remediate developmental students' procrastination in a computer-based introductory psychology course taught with the Personalized System of Instruction (PSI). Sixty five first year students who after four weeks of a ten-week quarter had not finished any of the mandatory quizzes either received a personal, commitment-inducing intervention or served as controls. An evaluation of the intervention suggests that it was effective in getting the procrastinating students to take quizzes, spend more time working on course assignments, and resulted in their getting higher course grades.

To succeed in higher education students must become learners who are autonomous, good strategy users, and self-regulated (Stahl, Simpson, & Hayes, 1992; Zimmerman, 1989). Unfortunately, many college students suffer from inability to regulate studying behavior. One fairly common regulation problem is procrastination, typically resulting in increased stress and decreased academic performance (Tice & Baumeister, 1997). Procrastination has become almost a stereotype of student life and is typified in students' increased study hours just before an exam and in students' "all nighters" the day before a paper is due. However, procrastination may be especially problematic for developmental students. At the University of Minnesota such students are not admissible to regular degree-granting programs due to poor high school performance and usually present poor study habits or other ineffective academic behaviors; they are served by the University's General College. The mission of General College is to help these students qualify for transfer to degree programs. It provides a lower division curriculum for 850 students admitted each year, most of whom fall in the middle third and some in the bottom third on combined college success predictors (high school rank and scholastic aptitude test score).

This paper describes an evaluation of an intervention designed to increase developmental students' on-task behavior in an introductory psychology class taught through a computer-

based Personalized System of Instruction method (PSI; Keller, 1968; Brothen, 1996). PSI has four distinguishing characteristics. First, there is emphasis on written materials rather than lecture as the major teaching activity. Instead of presenting information to students orally, instructors select and/or create appropriate reading materials, create behavioral objectives and study questions, and prepare multiple forms of tests that measure student progress and provide feedback. Second, students pace themselves through the course—finishing assignments as they are able. Flexibility is a cornerstone of the method and is based on the realization that students have many other obligations and learn at different rates. Third, the course is broken down into manageable units that students are to master before they move on to the next. Mastery is determined by successful completion of short unit tests that provide feedback to unsuccessful students so they may remediate deficiencies before trying again. Finally, undergraduate proctors typically score tests and help students understand what their deficiencies are and how they might deal with them.

The General College psychology course is similar in basic design to the typical PSI course (Buskist et. al., 1991). Students in each of five course sections during the academic term of this study registered for a total of three class periods each week during the ten week academic quarter. Two of these periods took place in a 40-station computer classroom. In addition, students attended three more hours in Open Lab sessions held throughout the week in the computer classroom. In this classroom, students handed in study questions, interacted with the instructor and teaching assistants, completed computer-assisted course exercises programmed by the instructor with an authoring system (Brothen, 1995), and took computerized quizzes for each of 20 textbook chapters, all on a self-paced schedule. The third scheduled class period consisted of one Friday lecture session for all sections (200 students total) in a large lecture hall (Brothen & Wambach, In Press).

In his classic formulation of the mastery learning model, Bloom (1968) suggested that students with academic deficiencies can be nearly as successful in mastery courses as well qualified students. Keller's (1968) PSI model is a mastery learning teaching method with special promise for developmental students. Several reviews and meta-analyses of dozens of control-group studies over the years (Keller, 1974; Kulik, Kulik, and Bangert-Drowns, 1990; Kulik, Kulik, and Cohen, 1979; Robin, 1976; Ryan, 1974) have found superior student learning in PSI compared to traditional forms of instruction—and this advantage is even greater for students with lower academic ability. To complement the real gains developmental educators foster in their students, the noted educational researcher James A. Kulik (Bonham, 1990) recommends they consider using PSI. He notes that PSI interventions are beneficial for 90% of students and typically move average performance from the 50th to the 70th percentile on examinations (p. 17).

A central feature of PSI is self-pacing. Students complete assignments at their own pace and take quizzes on each unit until they demonstrate content mastery. A consequent concern with PSI is that its structure is particularly allowing of student procrastination, resulting in their falling behind and withdrawing from the course. Much research on this issue (see Sherman, Ruskin, & Semb, 1982) has led to suggestions for ways to deal with this concern (e.g.,

Lamwers & Jazwinski, 1989). The procrastination effect in PSI courses is not large—in their meta-analysis of 72 PSI evaluation studies Kulik, et.al. (1990) found an overall effect size of .14 standard deviation for course completion. That is, students were only slightly less likely to complete PSI courses than courses taught traditionally. Even so, this effect may cause some potential users of PSI to hesitate.

Although the Kulik, et al (1990) data suggested that poorer students are more advantaged by PSI than better students, developmental educators would be justifiably cautious about any teaching method that seems to interfere with educational progress. Developmental students bring numerous problems to their educational pursuits with poor time management and procrastination among the most serious (Stahl, Simpson, & Hayes, 1992). One certainly would not want to establish a teaching environment that encourages educationally dysfunctional behaviors. But, a great potential advantage of PSI is that its self-pacing feature can help developmental students develop the work habits and self-regulating behaviors (Zimmerman, 1989) demanded by higher education and provide a route to success for those whose attendance in class is often disrupted by personal and financial problems.

This study reports the implementation and evaluation of an intervention with students who had taken no quizzes (one of the key elements of the course) through 40% of the academic quarter. Our intervention draws upon a long history of social psychological research on attitude and behavior change (McGuire, 1969) suggesting that a public commitment to change has a powerful effect on an individual's subsequent behavior. The goal of this study was to determine if having a course assistant simply ask procrastinating students once to make a commitment to take a quiz could effectively combat their procrastination and improve their course performance.

Method

Participants

The participants in this study were 65 first year students taking introductory psychology at the General College of the University of Minnesota. Students participated in this quasi-experimental study if they had not taken any quizzes through 4 weeks of a 10 week quarter. We assigned subjects to treatment or no treatment conditions based on their attendance in class on the first day of week five. We put those present in class into the experimental condition and those not present into the control condition. It is possible that this method of subject assignment resulted in a biased experimental group. Students who happened to be in class on that day might likely be those who were already spending more time working on course assignments. Accordingly, an analysis of work done to that date showed a small but significant relationship between group (experimental or control) membership and the amount of time students had spent at the computer working on their assignments ($r = .30$, $p < .01$). Those students selected for the intervention had already spent slightly more time working. Further analysis revealed another difference between the groups but in the "opposite" direction. Students' high school grade point averages and college entrance exam scores,

obtained from the General College Research Office, showed students in the intervention group to be actually lower qualified. The mean high school grade point average for experimental group students was 2.44 and for control group students was 2.64; however, this difference was not statistically significant (t (40) = 1.58, p = .123). The mean American College Testing Program's Comprehensive Examination (ACT) score for experimental group students was 19.21 and for control group students was 21.52. This difference was statistically significant (t (40) = 2.03, p <. 05). These academic ability differences suggest that the group composition might be biased against positive results of the intervention. In any case, the differences between the groups do suggest that the results of this study should be interpreted with caution.

Procedure

On the day we implemented the intervention, the class teaching assistant who was similar in age to the students noted if individuals from the target population were present as they entered the classroom. Then, once everyone entered the classroom, the teaching assistant approached those students identified as not yet having taken a quiz. She conveyed a personal, concerned, but firm message to students asking them to commit to doing something they had been avoiding. She sat down next to each in turn and followed a prepared script to talk with them about their lack of test taking. She said, "Hi, (name of student). I have been examining your progress and notice that you have not taken any quizzes yet. This puts you at danger of failing the course. So, what we need to do is have you decide when, this week, you will be taking your first quiz. Here is a schedule; I need you to sign up for a day and time on that schedule. (teaching assistant waits for student to sign up) Great, (name of student), we will be expecting to see you on (day) at (time)." We made no follow-up contact with these students after this intervention. We treated students in both groups no differently than other students in the course.

The instructor then tracked the course exercise performance of experimental (intervention) group and control group students with a software package designed specifically for the course. Students' date of completion of computer based exercises, the students' scores on the exercises, and the time students spent working on them became part of a computerized database for subsequent analysis.

Results and Discussion

Of the students who were contacted and thus became members of the experimental (intervention) group, 10 (45%) took the quiz on the date they said they would and 12 did not. Of the 53 students not contacted, none (0%) took a quiz during the same one week time period. The difference between these proportions is highly statistically significant (z = 5.23, p < .001). The intervention was somewhat successful in getting students to do something they apparently had been avoiding for nearly four weeks. This is an important outcome. Quiz taking is the primary determinant of course success in PSI, but merely taking the quiz is not enough. The important outcome is course performance.

Intervention group students also took more quizzes than control group students throughout the remainder of the quarter. The mean number of quizzes taken by intervention group students was 13.09 (of 20) and for control group students was 6.21. This difference was statistically significant (t (73) = 3.51, p <. 001). An increase in total quiz taking is also an important outcome because, for all students in the course, the total number of quizzes taken was strongly related to final grade (r = .93, p < .001). Students in the intervention group also spent more time working during the entire quarter on all exercises in the course (an average of 1,502 minutes) than control group students (an average of 909 minutes). This difference was statistically significant (t (73) = 3.33, p <. 001). Time on task is another important outcome because, for all students in the course, the total amount of time working was strongly related to final grade (r = .70, p < .001). A comparison of final grades for the two groups in this study revealed what the preceding data suggests. The intervention (experimental) group students got higher grades in the course than the control students. Fifty nine percent of them received C or better grades while 34% of the control group students achieved at this level. The difference between these proportions is statistically significant (z = 2.00, p < .05).

Personally contacting and getting a commitment from students in the intervention group appears to have led to an increase in their total time working in the course and thus to better grades than control group students. But, as noted earlier, intervention group students had already been working more when they were contacted and assigned to the experimental group. Controlling for total time working before the contact, however, still resulted in an effect of the intervention on subsequent total time worked. The partial correlation between contact and total time worked with prior work time removed was significant (r = .23, p = .05). Thus, even if the experimental group was biased with the presence of relatively harder workers than the control group, the intervention had an independent effect.

The results of this study suggest that a personal, commitment-inducing intervention with developmental students procrastinating in a PSI course can be effective in getting them to take quizzes, spend more time working on course assignments, and resulted in their getting higher course grades. Standard practice in PSI courses is to let students decide how to pace themselves (Buskist et. al., 1991). There is even experimental evidence to suggest that giving a minimum of guidance can benefit students. Johnson and Croft (1975) showed that letting students work totally on their own resulted in their developing self-regulating studying behaviors more than a group given specific guidance for completing PSI assignments or a group for which deadlines were imposed.

This study suggests that a brief personal intervention focused on a specific behavior (e.g., taking a quiz) may be productive. Developmental students may simply need to "do it" to discover that it's not as bad as they thought. This may be enough to stimulate a more effective work orientation. The "personal approach" taken by a course teaching assistant could be just what some developmental students need to set them on the path to becoming successful academically.

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M. Elizabeth Bazzarre *is a Summa Cum Laude graduate of the University of Minnesota's Institute of Child Development. She is currently a human resource consultant for Pecos River Associates.*

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Notes

This paper is based on the second author's Summa Cum Laude thesis submitted in partial fulfillment of the Bachelor of Arts Degree, Institute of Child Development, University of Minnesota. Portions of this paper were presented at the 10th Annual Convention of the American Psychological Society, May 1998, Washington D.C. Requests for further information may be addressed to Thomas Brothen, General College, University of Minnesota, 346 Appleby Hall, Minneapolis, MN, 55455, tel: 612/625-2805, e-mail: broth001@maroon.tc.umn.edu.

INFLUENCING FACULTY ATTITUDES TOWARD ACCOMMODATING STUDENTS WITH DISABILITIES: A THEORETICAL APPROACH

By Karen S. Kalivoda and Jeanne L. Higbee, The University of Georgia

Abstract

The purpose of this exploratory study was to apply the theory of planned behavior to understand faculty attitudes regarding the provision of academic adjustments to students with disabilities. Although faculty may have positive attitudes toward students with disabilities, other factors such as time and budgetary constraints or lack of administrative support may impede the provision of accommodations. Faculty responded to interview questions regarding their attitudes toward providing a specific accommodation for students with brain injuries. Examination of the behavioral, normative, and control beliefs that underlie the components of the theory provides information about appropriate methods of intervention to positively influence faculty behavior.

The passage of the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973 has contributed to the rapid growth of educational opportunity for students with disabilities at institutions of higher education. A survey published following the passage of the ADA found that 9.9% of freshmen self-reported having a disability (Astin, Dey, Korn, & Riggs, 1991). A front-page article in the Chronicle of Higher Education (Jaschik, 1993) reported that college administrators were struggling to determine how to implement this federal regulation. Federal legislation requires campuses to develop policies and practices to provide equal educational opportunity for students with disabilities (Jarrow, 1997).

Faculty may or may not be aware of students with disabilities in their classrooms. Some disabilities (e.g., paralysis or visual impairments) are difficult to hide. Others such as leukemia, psychological disorders, acquired brain injuries, diabetes, cystic fibrosis, and learning disabilities may not be so easily observable. The accommodation needs of students vary just as the type and severity of disabilities vary. Institutions must provide architectural, technological (Kincaid & Simon, 1994), or academic modifications based on the individual needs of each student.

Faculty are chiefly responsible for providing academic adjustments for students with disabilities in their classes. Possible accommodations may include allowing a student to tape record lectures, to use a spell checker on all written work, or to write a paper in lieu of giving an oral presentation. Professors should not be requested to lower academic standards or to provide adjustments that are excessive, but the law requires them to make reasonable accommodations including consideration of required course substitutions, time extensions

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for tests and assignments, or the provision of a sign language interpreter or Braille text. Federal regulations assert that it is discriminatory to withhold necessary academic adjustments, but faculty are not always willing to provide them (Dinsmore v. Pugh and the Regents of the University of California at Berkeley, 1989; Goodin, 1985; Malouff, 1996; Nathanson, 1983). The goal of this study is to gain a better understanding of the factors that influence faculty intention to provide academic accommodations to students with disabilities.

There may be a number of reasons why teaching faculty do not always readily provide academic adjustments. Some may be unaware of the implications of the legal mandate and their institution's policies and procedures for serving students with disabilities. Others may lack information about how to provide appropriate academic adjustments. Faculty members may believe that requests for academic modifications are an infringement upon their academic freedom, or that providing modifications for students with disabilities is unfair to other students. If academic adjustments, when needed, are not provided by faculty, students with disabilities will be at an academic disadvantage (Kalivoda & Higbee, 1989). Thus, faculty behavior influences the extent to which students with disabilities are afforded equal educational opportunity. The beliefs and attitudes underlying faculty behavior merit systematic investigation and study.

Research has been conducted to explore attitudes toward people with disabilities as a group and toward people with specific types and degrees of disabilities, such as people with cerebral palsy, physical disabilities, visual impairments, and learning disabilities (Donaldson & Martinson, 1977; Hafer & Narcus, 1979; Makas, 1989; Shapiro & Margolis, 1989). Researchers have also initiated investigations involving the assessment or modification of attitudes and behavior toward college students with disabilities (Leyser, 1989). Studies by Matthews, Anderson, and Skolnick (1987) and Nelson, Dodd, and Smith (1990) found that most faculty were willing to provide academic modifications for students with learning disabilities. Several studies (Fonosch & Schwab, 1981; Patton, 1980; Schoen, Uysal, & McDonald, 1987) used the Attitude Toward Disabled Persons scale (Yuker, Block, & Campbell, 1960) or the Attitude Toward Treatment of Disabled Students scale (Fonosch & Schwab, 1981) to explore whether faculty members who had a high degree of contact with people with disabilities had a significantly more positive attitude, with mixed results.

Nathanson (1983) used a survey to gather information regarding the most effective in-service training and other interventions to change faculty attitudes and behaviors toward students with physical disabilities. Most faculty reported that they had little or no background that prepared them to teach students with disabilities. Although many were initially hesitant to interact with students with disabilities, they reported that with increased contact, they became more comfortable in their interactions.

Cortez (1983) investigated the effects of a faculty training program on faculty attitudes and knowledge acquisition of disability related legislation, disabling conditions, and alternative teaching techniques. The results revealed that the group of faculty members who registered

for and received the training (49 of the 629 instructional faculty who received a needs assessment questionnaire) had significantly more positive attitudes and significantly higher scores regarding knowledge acquisition than the group that did not receive the training.

Although these studies have made significant contributions to knowledge regarding faculty attitudes toward students with disabilities, many failed to distinguish between attitudes and behavior. Some authors assumed that a positive attitude toward students with disabilities would result in positive behavior.

Theoretical Framework

Rather than using the traditional attitude measurement approach, this study uses an extension of the theory of reasoned action, the theory of planned behavior, as an alternative approach to understanding and predicting specific behaviors. The theory of reasoned action is based on the belief that people usually make rational decisions based on the information available to them, including beliefs regarding the consequences of behavior (Ajzen & Fishbein, 1980). Although behavior is based on beliefs, there is not a direct link. According to the theory, beliefs influence the formation of attitudes, attitudes influence intention, and intention is the immediate determinant of behavior. There are two main components of the theory, attitude toward the behavior and subjective norm with respect to the behavior (Fishbein & Ajzen, 1975). The faculty member's positive or negative evaluation of performing the behavior, in this case providing an academic accommodation, is referred to as attitude toward the behavior. Normative beliefs underlie a person's subjective norm, which is determined by his or her beliefs in regard to the presence or absence of social support for engaging in the behavior in question (Ajzen & Fishbein, 1980).

Recognizing the limitations of the theory of reasoned action, Ajzen (1985) introduced the theory of planned behavior, which takes into account the degree to which individuals are capable of exercising control over the behavior in question. For example, if the performance of the behavior is contingent upon time, money, skills, and the cooperation of other people, then the degree of control a person has over the behavior should be measured. It may be impossible to gain an accurate measure of actual control, but a person's perceived behavioral control is measurable (Ajzen & Madden, 1986). According to the theory of planned behavior, a person's perceived behavioral control, attitude toward the behavior, and subjective norm are the three basic determinants of a person's behavioral intention.

Selection of Target Population

For the purpose of this research, Fishbein and Ajzen (1977) would consider a college student with a "disability" and "academic adjustments" too broad. A specific subgroup of college students with disabilities, students with acquired brain injury (ABI), was selected as the target population due to their increasing numbers on today's college campuses (Holmes, Kixmiller, Minor, Thomas, & Wurtz, 1990). It is estimated that two million young people

sustain brain injuries in the United States every year (National Institutes of Health, 1991). The largest group of people to incur brain injuries falls in the 15-24 year old age range.

The following definition of "acquired brain injury", utilized for purposes of this study, has been adopted from the Consortium for the Study of Programs for the Brain Injured in California Community Colleges (1987): "Acquired Brain Injury (ABI) is an acquired impairment of medically verifiable brain functioning resulting in a loss or partial loss of one or more of the following: cognitive, communication, motor, psychosocial, and sensory/perceptual abilities" (p. 10). Common causes of ABI are traumas, such as motor vehicle accidents, or internal events, such as tumors, cerebral vascular accidents, ingestion of toxic substances, or infections of the brain. Students who have experienced damage to the brain often enter or return to college with cognitive, social, behavioral, and sensorimotor disorders. Problems in the cognitive area usually pose the greatest challenge in the classroom (Ozer, 1988).

Common cognitive problems fall in the following areas: memory, language, perception, organization, attention, and concentration. For instance, many students with ABI have problems with speech and writing due to slow mental processing. Holmes (1988) asserts that this is not due to an impairment of overall intelligence and that comprehension may be intact but the ability to express one's self may be impaired:

> The student is slower in understanding what has been said, and is slower in responding. He or she may be unable to find the right word, or words may be substituted for others. Speech may be slurred or scanning (slow, methodical speech), or there may be difficulties in pronunciation due to impaired muscle function. (p. 41)

Although students may experience problems in the above areas, they may still possess the academic abilities to achieve in a college or university environment. In order to persist and have equal access, students with ABI often require academic adjustments.

Selection of Specific Behavior

The Rehabilitation Act of 1973 requires that instructional faculty provide accommodations to meet the specific needs of students with disabilities in their classes (Heyward, 1992). A common and controversial accommodation, not only for ABI students, but for students with visual impairments, learning disabilities, manual dexterity impairments, and other disabilities, is the provision of an alternate test format (Wynn v Tufts University School of Medicine, 1992; Matthews et al., 1987) . An alternate test format is the specific behavioral criterion selected for this study. A few examples of alternate test formats are substituting an oral for a written test, an essay for a multiple choice test, or a paper and pencil test for a computerized math test. The determination of an appropriate test format for each student with ABI should be based on the student's specific cognitive problems as documented in a neuropsychological evaluation report. The provision of an academic adjustment such as an

alternate test format should only be provided if there is a competitive disadvantage posed by the disability (Ozer, 1988).

Method

Subjects

A sample of 33 randomly selected faculty in 9 of the 13 schools and colleges of a major southeastern university yielded 25 participants, for a response rate of 76%. Respondents included six females and 19 males, 12 full professors, five associate professors, five assistant professors, and three instructors, for a relatively representative sample of the faculty as a whole. All participants were informed that their responses would be confidential, but not anonymous.

Instrumentation

An open-ended interview schedule was constructed according to the guidelines outlined by Ajzen and Fishbein (1980) in order to collect information regarding the behavioral beliefs, referents, and control beliefs of faculty. The respondents were asked to state their beliefs in regard to providing an alternate test format for a student with ABI.

Elicitation of behavioral beliefs. According to the theory, attitude toward the behavior is based on beliefs about the consequences of the behavior. Faculty members were asked, "What do you see as the advantages and disadvantages of providing an alternate test format to a student with ABI?"

Elicitation of referents. Subjective norms are based on the perceived social support for engaging in the behavior and the respondents' motivation to comply with their referents. Faculty members were asked, "Are there any groups or people who would approve or disapprove of you providing an alternate test format to a student with ABI?"

Elicitation of control beliefs. Perceived behavioral control is determined by the extent to which faculty think they have control over the behavior; thus, faculty were asked, "What things outside of your control might prevent you from providing or make it easier to provide an alternate test format to a student with ABI?"

Beliefs were content analyzed and similar beliefs were grouped together based on the method proposed by Ajzen and Fishbein (1980) by an expert panel consisting of two faculty, two higher education administrators, and two university professionals who work with students who have disabilities.

Results

Behavioral beliefs

The 25 respondents indicated 14 different outcomes associated with providing an alternate test format to ABI students. As suggested by Ajzen and Fishbein (1980), the responses were content analyzed and responses that referred to similar outcomes were grouped together, as provided in Table 1. Nine of the beliefs were specified as advantages and the other five were identified as disadvantages.

Table 1. Advantages and Disadvantages of Providing an Alternate Test Format to a Student with ABI

Behavior Beliefs: Advantages	n
Allows the students to demonstrate knowledge	15
Provides equal opportunity	6
Benefits the student	5
Accommodates diverse learning styles	4
Gives student opportunity to pursue educational goals	4
Allows student to complete and perform	2
Permits the student to learn	2
Makes content of test accessible	2
Accommodates cultural diversity	1
Behavioral Beliefs: Disadvantages	**n**
Compromises the learning experience	12
Unfair to other students in the class	11
Results in a test that is not comparable	11
Requires extra time and effort of faculty	10
Disservice to the student with ABI	4

The most frequently mentioned advantage was that providing an alternate test format would allow ABI students to demonstrate their knowledge on the test. One faculty member stated, "If the disability prohibits students from responding to a traditional test, then an alternate test format would facilitate their ability to demonstrate their knowledge." Another faculty member expounded on how this type of approach might positively impact the whole student body, addressing diverse learning styles. She also gave her opinion on what makes a good teacher. She stated the following:

> The advantage would be allowing them to demonstrate what they know. Giving them extra time or an oral test would help a lot of students show what they know, not just the disabled. This whole idea of being flexible as a teacher and aware of people's different learning styles and needs will help the diverse population of college students. A good teacher tries to get things across to all learners in different ways and is aware of individual differences. Diversity means you can't rely on that typical student anymore.

Another faculty member strongly expressed that providing an alternate test format was an effective and necessary way to assure equal opportunity. He stated the following:

> From the students' perspective the test would be set up to benefit their being able to demonstrate their knowledge and proficiency, the opportunity to demonstrate this in an adapted manner. If the disability prohibits them from responding to a traditional test, it would facilitate their ability to demonstrate their knowledge. It would be an effort to treat them equitably.

The most frequently cited disadvantages were related to fairness issues and the extra time and attention required of faculty members. One faculty member stated that providing an alternate test format would be "more trouble for already overworked teachers." He went on to say, "We have to make up an alternate test form and then grade it. This takes time." A number of faculty expressed that providing an alternate test format would be unfair to other students in their classes. One faculty member stated the following:

> Preferential treatment for the brain injured student is unfair to other students. Everybody has some problems and what is the effect [of providing an alternate test format] to the other students who haven't requested anything special but may also have legitimate problems?

Another faculty member agreed that it would be preferential treatment for the ABI student and said that it was "unfair to the other students." Disadvantages that were reported at a lower frequency indicated that some faculty believed that providing an alternate test format to ABI students would hinder their performance, insult their intelligence, and encourage them to take advantage of their disability.

Referents

Table 2 identifies people who might approve or disapprove of providing an alternate test format.

Table 2. People Who Might Approve or Disapprove of Providing an Alternate Test Format

Referents	Approve (n)	Disapprove (n)
Faculty colleagues	11	9

Referents	Approve (n)	Disapprove (n)
Other students in class	3	16
Central administration	10	7
Department head	9	3
Academic vice president	3	1
Academic dean	4	0
President of the institution	3	1
Disability services personnel	2	0

The group of people most frequently mentioned as showing approval for the behavior was faculty colleagues. One faculty member in the College of Arts and Sciences stated, "All faculty should approve. They should accept it as a duty of the teaching profession." The group of people cited most often as disapproving of the behavior was other students in the class. One participant responded:

> The other students in my class may think that I am giving special treatment to the brain injured student. This may especially be a problem since the disability is not readily apparent and they may not understand why I am allowing different things for the ABI student.

Overall, most faculty stated that even though others may disapprove, they did not believe that it would influence their decision to perform the behavior.

Control Beliefs

Control beliefs were content analyzed and similar control beliefs were grouped together as indicated in Table 3.

Table 3. Factors that Might Facilitate or Inhibit Me from Providing an Alternate Test Format to a Student with ABI

Facilitating Control Beliefs	n
Assistance in modifying the test	12
Documentation of the disability	9
Assistance from disability services	9
Information about brain injuries	6
Support from the top administration	6

Facilitating Control Beliefs	n
Notification early in the quarter	6
Information regarding institutional guidelines	5

Inhibiting Control Beliefs	n
Time constraints	16
Skill to modify the test	11
Large classes	8
Lack of reward for teaching	4
Heavy teaching load	3
Course content	3
Lack of resources	2

The inhibiting factor that was most frequently cited was time constraints. The reward system for teaching was often associated with time constraints. One participant stated, "Time constraints may prevent me [from providing an alternate test format] and the whole structure with regard to teaching. There is no reward built into the system. . . . I would get no recognition for the extra effort or time given." When asked what factors would facilitate the provision of an alternate test format, a majority of the faculty responding stated that assistance from the Office of Disability Services on how to change the test to an appropriate format would not only be helpful but would be necessary. One faculty member commented, "It would be very helpful to know just where to begin. I need your office to help because I don't have the skill."

Discussion

Understanding the theory of planned behavior should assist higher education professionals in removing barriers to equal access for students with disabilities. Although faculty who have positive attitudes toward students with disabilities may desire to provide appropriate accommodations such as an alternate test format, factors outside their control may prevent them from doing so. Educators need to identify the beliefs underlying the three components of the theory of planned behavior that may impact the provision of services. Once these are identified, steps can be taken to eliminate potential obstacles to equal access.

Faculty specifically mentioned the desire to provide a means for students with ABI to demonstrate their knowledge but hesitated to offer an alternate test form without adequate documentation of each student's specific disability. Some respondents suggested that providing faculty with information about brain injuries and the institution's policies and procedures for serving ABI students may address some of these concerns. Simply informing

faculty that the institution requires certain criteria to be met prior to providing accommodations to students with ABI may decrease their anxiety about the validity of the disability. For example, students with cognitive or psychological disorders resulting from a brain injury usually participate in a neuropsychological evaluation. These evaluations typically involve an assessment of cognitive and psychological strengths and limitations, readiness for college, preferred learning styles, interests, and individual needs. If the neuropsychologist determines that college is a viable option, the report should provide recommendations regarding appropriate learning strategies and academic accommodations, such as alternative testing guidelines, for the student. This type of documentation should be required prior to advocating on behalf of the student.

Information Dissemination

Three basic approaches that have been used successfully to provide general information about disabilities are: (a) dissemination of written information, (b) one-to-one consultation, and (c) workshops (Moore, Newlon, & Nye, 1986). The individual responsible for providing services to students with disabilities on campus may find it helpful to develop and disseminate written materials such as a disability handbook and periodic newsletters to assist faculty in accommodating students with disabilities. Guidebooks serve to dispel misinformation about disabilities and also to sensitize faculty to the responsibilities that are reasonable for them to assume with students who have disabilities in their classes.

Although time consuming, meeting individually with faculty is an ideal way to address specific behavioral, normative, and control beliefs. Conversing one to one with faculty can shed light on the reasons why there is hesitation to provide a certain accommodation. For instance, a student with a disability reports that a teacher is reluctant to provide a requested accommodation. After setting up a meeting with the faculty member, it is discovered that the assistant professor is going up for tenure review in the near future and expresses concerns regarding time constraints due to numerous committee obligations and a sense of pressure from the department head to increase research productivity. The disability support office could resolve the problem by offering to assist the faculty member in administering the test.

Workshops are a means of communicating with a diverse group of faculty in a limited period of time, but they may not be fruitful because they may not address the specific concerns of attendees. Prior to scheduling workshops, it would be helpful to survey faculty regarding their behavioral, normative, and control beliefs. Given that department heads were identified as salient referents, one approach to educating groups of faculty might be invited presentations at departmental meetings.

Faculty Recognition

Some faculty believed that providing an alternate test format would demand an unreasonable amount of time for which they would not be rewarded. Institutional policies and procedures

can address these concerns by recognizing and rewarding the behavior in the merit, tenure, and review processes and by providing resources to faculty who have students with disabilities in their classes. One means of accomplishing this is the identification of a disability services liaison in each academic department. These faculty members would perform this function as a part of their service to the institution. They might also have the opportunity to conduct research regarding the academic achievement of students with disabilities. Each term the faculty members serving as liaisons could meet to share information and discuss campus-wide concerns. This approach might be particularly helpful on campuses that are too small to fund a separate office for disability services or a full-time disability specialist, or too large to provide one-on-one services to all faculty members.

Faculty who stated that they did not have adequate time, resources, or knowledge to provide the accommodation (perceived behavioral control), may rely heavily on the educational and supportive resources provided by disability resource offices. They may understand the legal requirements and the institution's policy in support of students with disabilities (attitude toward the behavior), have the support of the academic department head (subjective norm), yet hesitate to provide the requested accommodation solely due to other demands on their time. On the other hand, the more resources and fewer obstacles faculty perceive, the greater their perceived control over the behavior.

Conclusion

The theory of reasoned action and the theory of planned behavior have been used successfully in a variety of settings and with a diversity of target groups, behaviors, and subjects. The qualitative method of research used in this study may enhance the understanding of faculty responses that a closed ended questionnaire cannot tap, while also providing the basis for the development of a standardized instrument for use with a larger research sample. Future research is needed to gather information about faculty members' intentions to provide various types of academic accommodations to students with disabilities other than acquired brain injury. After gaining an understanding of salient beliefs and referents, attempts can be made to influence faculty behavior. Application of this social psychological theory in an educational setting may help provide educators with information that will assist them in promoting equal opportunity for all students.

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