Training Strategic Tutors to Enhance Learner Independence

By Michael F. Hock, Jean B. Schumaker, and Donald D. Deshler

ABSTRACT: The purpose of this study was to investigate whether traditional academic tutors hired to work with underprepared university-level student athletes could learn to implement a strategic approach to tutoring. The strategic approach to tutoring was defined as instruction in cognitive and metacognitive learning strategies integrated with the tutoring of specific course content. The intervention resulted in tutors substantially changing their tutoring behaviors indicating that tutors can be trained to be more strategic in their approach to tutoring by incorporating an instructional methodology within their tutoring routines. The implications of this alternative approach to delivering support services to at-risk students are discussed.

Traditional tutoring efforts may produce short-term and retention benefits, but students run the risk of becoming dependent upon tutors for academic progress and remaining unable to perform as independent learners.

Michael F. Hock
Program Coodinator and Research Associate

Jean B. Schumaker
Professor of Special Education
Associate Director

Donald D. Deshler
Professor of Special Education
Director

Center for Research on Learning
The University of Kansas
3061 Dole Human Development Building
Lawrence, KS 66049

Academic tutoring is one of the support services frequently provided to underprepared or at-risk college and university students (Figler, 1987). The positive short-term effects of tutoring on academic outcomes and retention of college and university students are well documented (Hartman, 1990; House & Wohlt, 1990; Medway, 1991). For example, in a meta-analysis of 65 research studies, Cohen, Kulik, and Kulik (1982) found that tutoring programs have significant and positive effects on the immediate academic performance and attitude of students.

Others have found that participation in a tutoring program by first-year college students resulted in tutored students earning more credit hours than nontutored students (House & Wohlt, 1990). Some researchers have also reported that underprepared students who receive tutoring services persist in college at significantly higher rates than do nontutored students (House & Wohlt, 1991). Further, the number of tutoring sessions attended is positively correlated with the grades students earn in their classes (House & Wohlt, 1992).

Unfortunately, while tutoring services are well intentioned and result in some positive short-term outcomes for tutored students, they often fail to meet the long-term needs of students who are experiencing or have the potential to experience academic difficulties (Hixon & Sherman, 1988; Jesudason, 1990; Maxwell, 1991; Wheeler, 1987). For example, although tutored students may get through immediate course requirements, they often remain unable to successfully and independently meet the academic demands of a course of study leading to a university degree. Further, although some of these dependent students may even graduate from the university, they may gain notoriety as degree holders who are unable to read, write, compute, or think at the level expected of college graduates. In essence, traditional tutoring efforts may produce short-term academic and retention benefits, but students run the risk of becoming dependent upon tutors for academic progress and remaining unable to perform as independent learners (Hixon & Sherman, 1988).

The reasons for the poor long-term outcomes associated with traditional tutoring programs have not been empirically determined. However, some authors have suggested that one of the prime factors may be that tutors are not adequately trained in tutoring/teaching principles (Hock, Deshler, & Schumaker, 1993; MacDonald, 1991; Medway, 1991). That is, although traditional tutorial programs usually employ individuals who are very competent in the targeted subject matter, these individuals (for the most part, graduate students or upper-class majors with a strong academic record in the targeted subject area) often have very limited, if any, skills related to effectively teaching the content they know. Medway (1991), for example, reported that tutors do not automatically use good teaching strategies and that they need formal training opportunities to be effective. Also, MacDonald (1991) observed that tutors generally ask questions or initiate discourse but often do not effectively explain information.

The Traditional Tutoring Model

The tutoring interactions just described are common in what can be labeled a Traditional Tutoring Model (TTM). The basic structure of this model is shown in the left half of Figure 1.

As depicted, traditional college/university tutoring programs operate by identifying a pool of tutors who have expertise in various subject areas. As students who are experiencing academic problems seek academic assistance (usually through the school's student assistance center), a match is made between an available tutor and the student. A major underlying assumption for this model is that exposing a student with academic difficulties to a tutor who is competent in a targeted academic area leads to academic achievement for the student. While some students can experience short-term success in this manner, many do not. For example, Schumaker and Deshler (1989) found in a study of academically at-risk

university student athletes that the TTM resulted in over 50% of the students receiving a GPA below 1.5 on a 4.0 scale. These data and the shortcomings described herein related to the long-term outcomes of traditional tutoring programs strongly suggest that marked changes are needed with regard to the conceptualization and operation of tutoring services.

Elements of Effective Tutoring Programs

Elements of "best" tutoring practices and tutor training procedures for underprepared college and university students have been suggested in the literature. Gallagher, Golin, and Kelleher (1992), for example, reported that individual needs assessment is an important step in determining the type and extent of personal, career, and learning-skill support that college students need. Other researchers have suggested that tutors need training and skill development opportunities. Specifically, they have suggested that tutor training efforts need to teach tutors how to ask good questions and clarify information (MacDonald, 1991; Medway, 1991), effectively listen and communicate (Leary, 1987), set high expectations for student achievement (Medway, 1991), effectively explain new or difficult information (MacDonald, 1991), and keep students involved and positive about the tutoring experience (Leary, 1987; Medway, 1991).

Instruction in learning strategies is another element that has been suggested as critical to the development of independent learners (Denton, Seybert, & Franklin, 1988; Malena & Atwood-Coker, 1987). A learning strategy has been defined as "an individual's approach to a task; it includes how a person thinks and acts when planning, executing, and evaluating performance on a task and its outcomes" (Deshler & Lenz, 1989, p. 205). Similarly, it has been recommended that tutors provide direct instruction in skills and strategies along with subject matter instruction and clarification (Malena & Atwood-Coker, 1987; Rings & Sheets, 1991). Finally, MacDonald (1991) suggests that tutoring support programs should strive to develop learners capable of independent academic success.

One way to accomplish this would be to provide tutors the preparation and opportunity to instruct students in critical skills and strategies. The resultant outcome might be independent learners who have successfully transitioned from tutor mediation to self-mediation during the study process, thus evolving from passive learning to "cognitive empowerment" and enriched understanding of information (MacDonald, 1991, p. 10). Indeed, research has shown that when students who are at-risk for failure master a broad array of learning strategies, their ability to function independently in demanding secondary or postsecondary settings improves (e.g., Denton, et al., 1988; Schumaker & Deshler, 1992).

Unfortunately, many students enter college with deficits in a host of learning strategies that need to be addressed if they are to experience long-term success (Malena & Atwood-Coker, 1987). Thus, programs that stress systematic instruction in a broad array of learning strategies could hold potential for positively affecting the long-term performance of underprepared students at the college level.

New Conceptualization of the Tutoring Process

A dramatically new vision for the tutoring process is necessary in order for the elements suggested in the literature as critical for developing competent and independent learners to be included in tutoring programs. Such a vision provides the philosophical foundation for the current study. Specifically, this new vision incorporates a strategic teaching process in which the tutor takes the central role as both planner and mediator of the learning. *Within this new vision, the tutor teaches not only the content but the strategies required to make the learning of content meaningful, integrated, and transferable.* In short, under this new role, tutors have a multifaceted agenda: (a) they must carefully organize and transform the content they teach into a form that is "learner friendly" and easy to understand, (b) they must consider which strategies students need in order to learn the content, and (c) they must teach students how

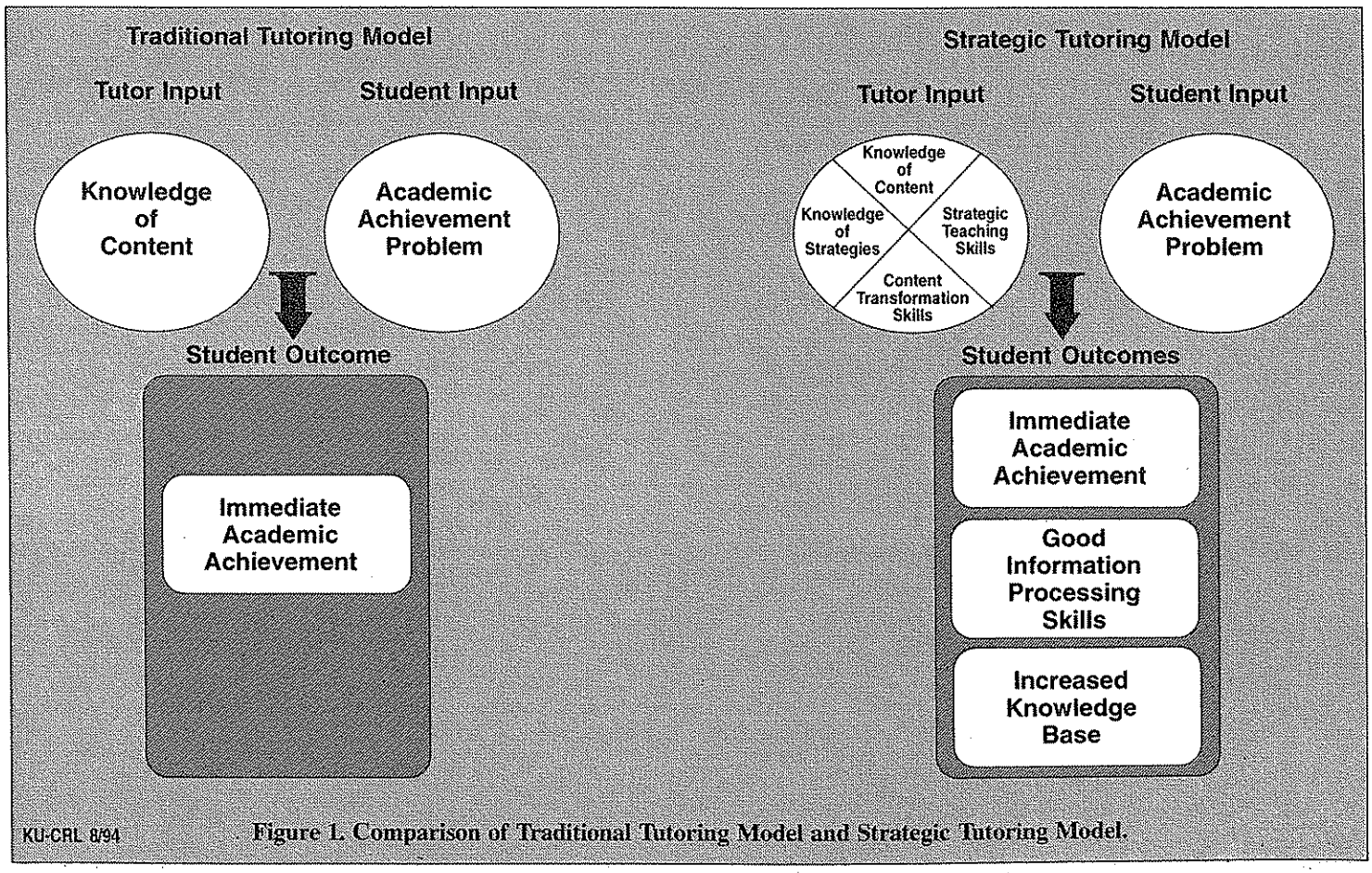

Figure 1. Comparison of Traditional Tutoring Model and Strategic Tutoring Model.

to use those strategies. Thus, effective tutoring becomes a delicate balance among content goals, strategies required for achieving those goals, and facilitating students' learning experiences through strategy instruction (Jones, Palincsar, Ogle, & Carr, 1987).

The approach to tutoring that follows this new vision is called the Strategic Tutoring Model (STM)(see right side of Figure 1). This model is based on over 16 years of research conducted at the University of Kansas Center for Research on Learning (KU-CRL) which has focused on the teaching of strategies and content to academically at-risk students. The STM requires that the tutor become a thinker responsible for organizing situations for learning. Within this model, the tutor is active in transforming the subject matter and engaging the students with the content in such a way as to increase both the student's understanding of the content as it is presented by the tutor *and* the student's ability to use learning strategies to independently act on the curriculum in the future (Hock, et al., 1993).

In contrast to the student outcomes generally realized under the Traditional Model, the Strategic Tutoring Model is aimed at producing changes in three major areas for at-risk students. First, students must receive the necessary assistance to realize immediate academic achievement with pressing class demands. Second, in order for at-risk students to move from a position of high dependence on tutorial assistance to one of independence as learners, they must become good information processors (Pressley, Borkowski, & Schneider, 1990). Some of the indicators of students being good information processors are the following: (a) they know a large number of useful learning strategies; (b) they understand when, where, and why these strategies are important; (c) they can select and monitor strategies wisely, and they are reflective and planful while learning; (d) they believe in carefully deployed effort; (e) they are intrinsically motivated; and (f) they know a great deal about many topics and have rapid access to that knowledge. Third, students must be actively involved with learning and consistently infusing good information processing concepts with learning strategies in order to gain expanded knowledge bases.

The purpose of this study was to determine whether tutors can be taught to use tutoring behaviors consistent with the STM. The plan was to provide tutors with a basic knowledge base in strategic instruction, show them how to teach at-risk students to use learning strategies, and measure how they actually tutored students before and after the training. Briefly, the major objective was to develop and validate a procedure for efficiently preparing tutors to use the instructional stages of a strategic tutoring routine to teach task-specific learning strategies to student athletes in a university setting.

Method

Participants and Setting

The study took place at a large midwestern university with a student population of approximently 27,000 and a scholarship student-athlete population of 454. At the time of the study, 55 tutors were employed to provide tutorial services to student athletes.

Some of the participants in this study had prior tutoring experience, others did not. All had expressed an interest in becoming strategic tutors. They were proficient in content knowledge but not necessarily trained in tutoring techniques. They had not been trained in the STM.

Tutor participants were selected from a pool of tutors who would be on campus prior to the start of the fall term. Six tutors expressed interest in participating in the study and all six were invited to participate.

Three of the six participating tutors were female, and three were male. One of the female tutors was African-American; all others were Caucasian. The tutors ranged in age from 20 to 25 years with a mean age of 22. All tutors had a grade-point- average of at least 3.0 (where 4.0=A) in the subjects they tutored with at least 15 hours of course work in the subject area to be tutored. Tutors ranged in educational experience from junior-level undergraduates to graduate students.

Measurement Procedures and Instrument

A Strategic Tutoring Checklist was designed to measure whether tutors were using tutoring behaviors consistent with the STM in their tutoring interactions (see Figure 2).

The checklist listed 20 critical strategic tutoring behaviors for the initial instructional stages of the STM. Specifically, tutors were scored on their performance in five domains: (a) assessing the student's approach to a task and gaining the student's commitment to learn a set of more effective and efficient strategies for task completion, (b) describing and/or creating with the student specific learning strategies for task completion, (c) modeling the strategies for the student,

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SCORING GUIDELINES
STRATEGIC TUTORING CHECKLIST: TUTOR TRAINING STUDY

DURING THE **STRATEGIC ASSESSMENT & COMMITMENT** PHASE, DID THE TUTOR:

_____ 1. Define/clarify the task and setting demand with the student? (Exactly what is it that you are supposed to do? Explain the assignment to me.)
_____ 2. Review accomplishments and performance thus far? (How did you do on the last assignment/test?)
_____ 3. Probe to jointly determine the student's current task strategy? (How will you approach this task? What is your strategy for completing this task? What steps will you take in order to complete this assignment?)
_____ 4. Discuss whether the current strategy is adequate to the task? (Do you think you might need to add something to your strategy? Did this approach work for you last time?)
_____ 5. Enlist the student's support for creating an alternative strategy? (Would you be willing to create or expand a strategy that will result in improved performance in this area?)
_____ 6. Give rationales for creating a new strategy? (What will the result be if you get a better grade on this type of assignment?)

DURING THE **DESCRIBE** PHASE, DID THE TUTOR:

_____ 7. Create with the student an alternative strategy? (What if we add this step to the strategy you are currently using?)
_____ 8. Adequately explain each step of the alternative strategy? (OK, our new strategy says we should _____ first, next we _____, next _____, etc.)
_____ 9. Compare and contrast the new with the old strategy? (How is this different from what you used to do?)

DURING THE **MODEL** PHASE, DID THE TUTOR:

_____ 10. Set expectations for the student during the model? (Watch me carefully as I model for you, I'll be asking you to take over so watch me use the strategy we developed.)
_____ 11. Model the new strategy for the student? (Think aloud? Reflect on the task? Problem solve? Monitor student progress? Evaluate the strategy's effectiveness? Adjust/adapt the strategy?)
_____ 12. Enlist the student's involvement in the model stage and provide feedback as needed? (What is the next step? What should I do next? OK, you complete the example.)

DURING THE **VERBAL ELABORATION AND REHEARSAL** PHASE, DID THE TUTOR:

_____ 13. Encourage the student to "paint the big picture" of the strategy in his or her own words? (Explain to me how you would describe this strategy to another student.)
_____ 14. Provide an opportunity for the student to discuss **what** each step of the strategy is designed to do and **why** it is important? (What does each step of the strategy help you to do? Why do you think this is important to you as a learner?)

DURING **INTRODUCTION TO PRACTICE** PHASE, DID THE TUTOR:

_____ 15. Specify with the student what should be accomplished next? (Now that you have a new strategy when, where can you use it?)
_____ 16. Specify expectations for the quality of task accomplishments? (What grade do you desire to earn on this task?)
_____ 17. Obtain positive belief statements concerning the task and express positive expectations? (I know that you will do well on this assignment! You have the skills and strategies to be successful!)
_____ 18. Use a strategic vocabulary? (That's a good strategic approach to the task. Learning strategies really make assignment completion more efficient. A strategic learner would....,what's your strategy for getting this assignment done?)
_____ 19. Emphasize generalization and adaptation of the strategy? (Where else could you use this strategy? How would you change this strategy for other courses or assignments? When will you reach the point when you use the strategy for this type of task automatically?)
_____ 20. Transform difficult content when appropriate? (The text didn't state that very clearly, here's another way to look at it.)

Figure 2. Instrument used to assess strategic tutoring behaviors.

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(d) verbally checking the student's understanding of the new strategies, and (e) setting the expectation for the student's independent practice of the new strategies.

Next to each item on the checklist was a blank where an observer could write 1 point if the behavior occurred or 0 points if it did not occur. A total of 20 points could be earned for correct responses to the 20 items. The percentage of correct tutoring behaviors performed was calculated by determining the total number of correct responses, dividing by 20, and multiplying by 100.

The checklist was completed while the tutors were observed in simulated tutoring situations. In order to ensure that all tutors experienced the same situations, scripts were written for 10 simulated tutoring situations, covering a variety of subjects and assignments. For one typical situation, the script was as follows:

> I have a test coming up in three days over chapters 2, 3, and 4 in my child development course. I've read the assigned chapters, but I have no idea what the chapters are about. When I got to the end of the chapters, I said to myself, "This stuff means nothing to me." I'm frustrated and I need a way to get the important information from the text chapters. The instructor has stated that the test will draw heavily from the assigned readings. I always seem to do poorly in courses that rely on the text. What should I do?

Tutoring situations were based on the tutoring needs expressed by student athletes who had actually requested tutorial help. The 10 tutoring situations were randomly assigned a sequence that dictated the order in which situations would be presented to the tutors.

At the beginning of each simulated situation, tutors were given a short paragraph to read which explained that a student would soon arrive to request help in a subject in which the tutor had content expertise. The tutor was instructed to help the student with the specific problem the student described. The tutor was told that the goal was to "use all your tutoring skills to get the student on the right track with regard to completion of this particular assignment" and that the tutor had 20 minutes to get the student to a point where he or she could work independently on the assignment. Sessions were video or audio taped and later scored using the checklist.

Four student confederates were recruited to play the role of students in need of tutorial help in courses in which the tutor subjects had expertise. They were all university students at the undergraduate level. The student confederates were coached on how to play the role of a student seeking assistance from a tutor and were provided with the appropriate written script and a description of the assignments they were unable to complete independently. The student confederates had access to the written descriptions during all role-play situations. They were also given written responses to questions that tutors might ask during a role-play situation. The formal nature of the study was shared with the student confederates, and their commitment to role play according to the written instructions was obtained. Finally, student confederates were randomly assigned to work with the tutor subjects. The student confederates all followed the instructions they had been given, described their assignments as specified, and answered questions according to the written responses they had been given.

Interscorer Reliability

All tutoring sessions (34) were scored by the first author. A second observer scored 15% (5) of the sessions, representing a random sample of both baseline and posttraining sessions. The reliability observer was trained to score the tutor sessions by first discussing the operational definition for each of the 20 items on the checklist with the first author. The reliability observer then independently scored five randomly selected sessions with no discussion.

The two observers' records on these sessions were compared item by item, and an agreement was scored if both observers indicated that a tutoring behavior was present or if both indicated that it was absent. To calculate the percentage of agreement, the number of agreements was divided by the number of agreements plus disagreements and multiplied by 100. Overall, the total percentage of agreement was 85%.

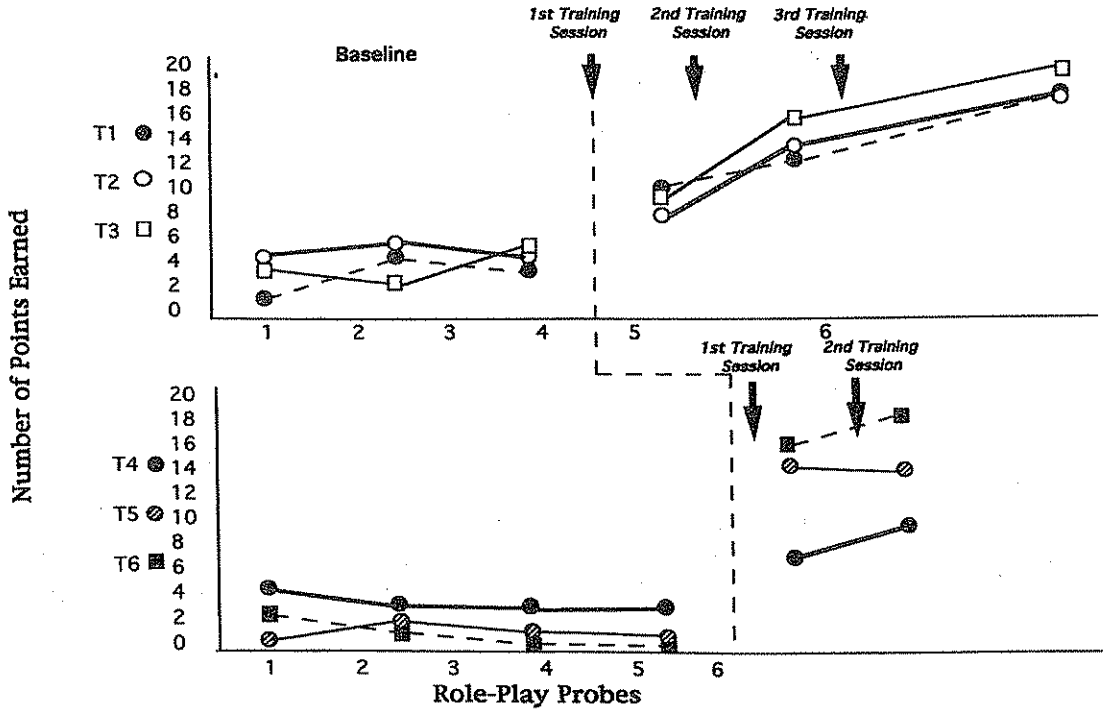

Figure 3. Tutor performance of the strategic tutoring routine.

Procedures

Tutor Training Procedures

Tutor training was provided by the first author, who was the Director of the tutoring program, and the Assistant Director. The Director was an experienced learning strategies instructor and trainer in the Strategies Intervention Model (e.g., Deshler & Schumaker, 1988; Schumaker & Clark, 1990). The Assistant Director was an experienced tutor who had been previously trained in the STM. The first training session consisted of an overview of the STM and the philosophical beliefs associated with the model. In addition, tutor subjects were given a description of the target strategic tutoring behaviors as defined for the Strategic Tutoring Checklist. A trainer modeled the strategic tutoring behaviors in a role-play interaction with one of the tutors. Finally, the tutors participated in an elaboration exercise about the strategic tutoring process just described and modeled. Here, tutors were asked to name the stages they should progress through in tutoring sessions and to name and explain the critical behaviors a strategic tutor would be expected to demonstrate in each stage.

The tutors were told that a student would be meeting with them at a specific time and would request help. They were encouraged to exhibit as many of the just-learned strategic tutoring behaviors as appropriate, given the task presented by the student and the student's needs. At the appointed time, the simulated tutoring sessions were held with the confederates and recorded on video or audio tape. Sessions were scored at a later time.

A follow-up training session was held in which each tutor received corrective feedback individually. The session included (a) a quick review of the model and strategic-tutoring behaviors listed on the checklist, (b) a review of the expectation that tutors incorporate strategic behaviors in tutoring interactions, (c) a review of the video or audio tape of the previous tutoring session, (d) a tutor self-scoring of the interaction on the Strategic Tutoring Checklist, and (e) some corrective feedback provided by the tutor trainer. Corrective feedback involved (a) informing the tutor which strategic tutoring skills were included in the interaction, (b) asking the tutor to state which skills were missing from the interaction, and (c) reviewing any critical tutoring behaviors not properly included in the tutoring interaction. A new tutoring appointment was then made, and the tutor was encouraged to include strategic tutoring behaviors in the upcoming session. This format was repeated for each subsequent tutoring session.

General Procedures

The study was conducted over a period of 7 months. Baseline information was obtained during the first 5 weeks of the fall semester. Three training sessions were provided for Tutors 1, 2, and 3, each lasting approximately 2 hours. Thus, a total of approximately 6 hours was spent actually training the three tutors. The training intervention for Tutors 4, 5, and 6 consisted of two sessions, each session lasting approximately 2 hours. A total of approximately 4 hours was spent in training Tutors 4, 5, and 6.

Experimental Design

A multiple-probe-across-subjects design (Horner & Baer, 1978), a variation of the multiple-baseline design, was used to evaluate the effects of training in the STM. Baseline data were collected relative to the percentage of strategic tutoring behaviors the tutors performed before the intervention. Three baseline measures were obtained for all tutors. During all baseline tutoring sessions, tutors were video or audio taped and scored with the Strategic Tutoring Checklist. After stable baseline measures were established for all tutors, Tutors 1, 2, and 3 received training. Baseline measures were continued for the Tutors 4, 5, and 6 until the first three tutors demonstrated an improvement in their performance of strategic tutoring behaviors. Then Tutors 4, 5, and 6 received the strategic tutor intervention.

Results

Figure 3 (see p. 22) shows the performance of the six tutors during baseline and after training.

Baseline measures are shown to the left of the dotted vertical line, posttraining measures to the right.

Baseline

The baseline measures indicated that the tutors were not very strategic in their tutoring approach as defined by the Strategic Tutoring Checklist and that their tutoring did not change significantly over a period of time even though they were engaged in real (not simulated) tutorial interactions daily. The baseline measures for all tutors in the study ranged from a score of 0 to a score of 6 out of a possible 20 points (M=2.61). The mean score for Tutors 1, 2, and 3 was 3.55; for Tutors 4, 5, and 6 it was 1.66.

During baseline, tutors typically asked the students to explain the task at hand and then described a way to complete the task. They usually took control of the situation and were directive in their instructions to students with regard to how to complete the task. Further, they typically described not one strategy but gave several "tips" for completing the task. For example, one tutor's response to a request for help to get ready for a biology exam was to tell the student to (a) outline the reading assignment; (b) learn one term first, then a second term, and finally compare and contrast the terms; (c) read the text's paragraphs; (d) find the main point of each paragraph; (e) write the main point down; (f) quiz himself/herself over all the information; and (g) take good class notes. The tutor sent the student off to follow these instructions independently assuming that the student was competent in all the suggested areas.

In other examples, tutors told the students what specific content they needed to learn to "pass the test" and how to proceed in the specific instance for which help was requested. Often, their descriptions of what to do were disorganized and contained little information that delineated a specific approach to the task at hand. In several instances, tutors actually took control and ownership of the task and proceeded to complete the assignment themselves as students sat back and passively watched.

Posttraining

After the first training session, checklist scores for Tutors 1, 2, and 3 ranged from 8 to 9 points (M = 8.16) and for Tutors 4, 5, and 6 from 7 to 16 points out of a possible 20 points (M =12.66). The mean score for all tutors was 10.83. Most of the gains in tutor scores reflected the tutors' use of methods for assessing student skills and gaining the student's commitment to learn a new strategy, the tutor's efforts to describe alternative strategies, and the tutor's use of a strategic vocabulary during sessions.

After the second training session scores for Tutors 1, 2, and 3 ranged from 12 to 16 points (M = 14) and from 7 to 16 points for Tutors 4, 5, and 6 (M = 13). At this point, all tutors were performing behaviors associated with all of the five instructional stages on the checklist: (a) assessing the student's approach to a task and gaining the student's commitment to learn a set of more effective and efficient strategies for task completion, (b) describing and/or creating with the student specific learning strategies for task completion, (c) modeling the strategies for the student, (d) verbally checking the student's understanding of the new strategies, and (e) setting the expectation for independent practice of the new strategies by the student.

Tutors 1, 2, and 3 participated in a third training session, which followed the same format as the previous two. Scores after the third training session ranged from 17 to 19 out of a possible 20 points (M = 17.66). At this point, Tutors 1, 2, and 3 were including most of the critical-tutoring behaviors with no clear pattern of omitted behaviors. Due to time constraints, Tutors 4, 5, and 6 did not receive training beyond the first two sessions. Even so, Tutors 5 and 6 were including critical-tutoring behaviors from all of targeted instructional stages on the checklist and earning scores similar to those of Tutors 1, 2, and 3. Tutor 4 was not including as many specific tutoring behaviors within each instructional stage, nor was she including critical tutoring behaviors from all stages. Specifically, Tutor 4 did not use verbal elaboration and strategic vocabulary or provide a detailed postorganizer at the end of the session.

The STM requires that the tutor become a thinker responsible for organizing situations for learning.

Discussion

Results indicate that tutors can be trained to be more strategic in their approach to tutoring as operationalized by the Strategic Tutoring Checklist. Specifically, university-level tutors can be taught to (a) assess the student's approach to a task and gain the student's commitment to learn a set of more effective and efficient strategies for task completion, (b) describe and/or create with the student specific learning strategies for task completion, (c) model the strategies for the student, (d) check the student's understanding of the new strategies verbally, and (e) set the expectation for independent practice of the new strategies by the student.

The findings of this study support the contention that traditional tutoring interactions are limited in scope and do not provide instruction beyond immediate content assignment completion (Hixon & Sherman, 1988; Jesudason, 1990; Wheeler, 1987). Thus, baseline data indicate that tutors generally found out what the immediate assignment was and proceeded to give a potpourri of instructions on how to complete the immediate task (sometimes actually completing a great part of the assignment themselves). Little attention was given to providing instruction that would teach the student the strategies necessary to approach similar tasks in the future in a more effective and, ultimately, independent way. Further, tutors did not, generally, explicitly model how one might use a strategy appropriate for the task at hand or model how to modify the strategy for a similar task one might encounter in the future.

The training procedures used in this study were found to be effective for training tutors to be more strategic in their tutoring interactions. Specifically, tutor training involved (a) orientation to a new model of tutoring, (b) explanation and modeling of critical tutoring behaviors by tutor trainers, (c) practice of a strategic tutoring routine by tutors, and (d) corrective feedback based upon review of video and audio taped tutoring sessions. The follow-up training sessions appeared to be critical in ensuring that the tutors used the trained behaviors and substantially changed their tutoring behaviors. In essence, tutors were able to integrate strategic tutoring behaviors with their content expertise. Thus, at the end of the study tutors' scores on the Strategic Tutoring Checklist ranged from 9 to 19 out of a possible 20 points. After training the tutors, as a group, performed 80% of the critical tutoring behaviors on the checklist.

One implication that can be drawn from this study is that although tutors may be trained to exhibit some strategic tutoring behaviors within a time frame of a few hours, training them to use a large number of strategic tutoring behaviors requires several sessions and intensive training efforts. In sum, the training of strategic tutors should not be viewed as an easy, one-shot or short-term undertaking.

One caution relative to the study is that all participating tutors were practicing tutors during the study. Thus, they had ample opportunity to practice strategic tutoring behaviors in actual sessions with student athletes. Therefore, their practice experiences extended beyond the formal training sessions. The effects of such additional practice are not reflected specifically in the data provided here.

A limitation of this study relates to the nature of the Strategic Tutoring Checklist. Tutors learned to tutor students in only five of the eight instructional stages envisioned for the whole strategic tutoring process. Further study is required to determine whether tutors can be taught to extend the strategic tutoring routine to include effective practice experiences, generalization of strategies to new and unique tasks, and internalization of critical learning behaviors by the tutees across settings and conditions.

Researchers have suggested that one of the prime reasons that students remain dependent upon tutors for academic success is that tutors are not adequately trained in tutoring/teaching principles (Hock, Deshler, & Schumaker, 1993; MacDonald,

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1991; Medway, 1991). Strategic tutoring addresses this shortcoming. Early indications suggest that students who have been tutored by tutors trained in this model have demonstrated increased academic success. For example, students tutored by strategic tutors have earned higher overall GPAs and obtained higher grades in challenging courses than did students in comparable cohorts. In addition, these students outperformed other students in a college algebra course even though they had significantly lower math ACT scores (Hock, Schumaker, & Deshler, 1991). However, more formal assessment of student outcomes is necessary. Researchers need to determine whether the strategic tutoring of underprepared students helps develop strategic learners who are able to independently meet the academic demands of college and university courses to such an extent that they successfully complete a course of study and graduate.

References

Cohen, P. A., Kulik, J. A., & Kulik, C. C. (1982). Educational outcomes of tutoring: A meta-analysis of findings. *American Educational Research Journal, 19*(2), 37-248.

Denton, P. H., Seybert, J. A., & Franklin, E. L. (1988). Ideas in practice: A content-based learning strategies program. *Journal of Developmental Education, 11*(3), 20-24.

Deshler, D. D., & Lenz, B. K. (1989). The strategies instructional approach. *International Journal of Disability, Development, and Education, 36*(3), 203-224.

Deshler, D. D., & Schumaker, J. B. (1988). An instructional model for teaching students how to learn. In J. L. Graden, J. E. Zins, & M. J. Curtis (Eds.), *Alternative educational delivery systems: Enhancing instructional options for all students* (pp. 391-411). Washington, DC: NASP.

Figler, S. K. (1987). Academic advising for athletes. *Journal of Sport and Social Issues, 11*(1&2), 74-81.

Gallagher, R.P., Golin, A., & Kelleher, K. (1992). The personal, career, and learning skills needs of college students. *Journal of College Student Development, 33*, 301-305.

Hartman, H. J. (1990). Factors affecting the tutoring process. *Journal of Developmental Education, 14*(2), 2-6.

Hixon, K. K., & Sherman, T. M. (1988, April). *What happens during tutoring: An investigation of time use, questioning, and learning process.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Hock, M. F., Deshler, D. D., & Schumaker, J. B. (1993). Learning strategy instruction for at-risk and learning disabled adults: The development of strategic learners through apprenticeship. *Preventing School Failure, 38*(1), 43-49.

Hock, M. F., Schumaker, J. B., & Deshler, D. D. (1991). *Annual report on the strategic tutoring program for at-risk student athletes at the University of Kansas.* Lawrence, KS: The Institute for Research in Learning Disabilities.

Horner, R. D., & Baer, D. M. (1978). Multiple-probe technique: A variation of the multiple baseline. *Journal of Applied Behavior Analysis, 11*, 189-196.

House, J. D., & Wohlt, V. (1990). The effect of tutoring program participation on the performance of academically underprepared college freshmen. *Journal of College Student Development, 16*, 365-370.

House, J. D., & Wohlt, V. (1991). Effect of tutoring on voluntary school withdrawal of academically underprepared minority students. *Journal of School Psychology, 29*, 135-142.

House, J. D., & Wohlt, V. (1992). Tutoring outcomes of academically underprepared adolescent minority students as a function of student and tutor characteristics. *Journal of Genetic Psychology, 153*(2), 225-227.

Jesudason, M. (1990, Spring). Middle school at-risk student athletes and Proposition 42. *Academic Athletic Journal*, 9-28.

Jones, B. F., Palincsar, A. S., Ogle, D. S., & Carr, E. G. (1987). *Strategic teaching and learning: Cognitive instruction in the content areas.* Alexandria, VA: Association for Supervision and Curriculum Development.

Leary, B. B. (1987). Interaction place maps: A tool for tutor training. *Journal of Developmental Education, 10*(3), 8-12.

MacDonald, R. B. (1991). An analysis of verbal interaction in college tutorials. *Journal of Developmental Education, 15*(1), 2-12.

Malena, R. F., & Atwood-Coker, K. J. (1987). Reading *O* prehension: The missing elements. *Journal of Developmental Education, 10*(3), 24-34.

Maxwell, M. (1991). The effects of expectations, sex, and ethnicity on peer tutoring. *Journal of Developmental Education, 15*(1), 14-18.

Medway, F. J. (1991). A social psychological analysis of peer tutoring. *Journal of Developmental Education, 15*(1), 20-26.

Pressley, M., Borkowski, J. G., & Schneider, W. (1990). Good information processing: What it is, how education can promote it. *International Journal of Educational Research, 2*, 857-867.

Rings, S., & Sheets, R. A. (1991). Student development and metacognition: Foundations for tutor training. *Journal of Developmental Education, 15*(1), 30-32.

Schumaker, J. B., & Clark, F. L. (1990). Achieving implementation of strategy instruction through effective inservice education. *Teacher Education and Special Education, 13*(2), 105-116.

Schumaker, J. B., & Deshler, D. D. (1989). *Annual report on the learning strategies program for at-risk student-athletes at the University of Kansas.* Lawrence, KS: The Institute for Research in Learning Disabilities.

Schumaker, J. B., & Deshler, D. D. (1992). Validation of learning strategy interventions for students with LD: Results of a programmatic research effort. In B. Y. Wong (Ed.), *Contemporary intervention research in learning disabilities: An international perspective* (pp. 22-46). New York: Springer-Verlag.

Wheeler, S. (1987). Knowns and unknowns in intercollegiate athletics: A report to the president's commission. *Journal of Sport Issues, 11*(1&2), 1-14.