Learning To Teach Is Not Enough— Future Teachers Also Need To Learn How To Learn

By Myron H. Dembo

The role of educational psychology in teacher education has been debated for decades both in print (e.g., Aspy, 1979; Claxton, 1984; Clinefelter, 1979; Fischer, 1965; Sternberg, 1996) and in symposia at the annual conference of the American Educational Research Association (e.g., Goals of Educational Psychology in Teacher Education, 1975; Rethinking Educational Psychology for Teachers: Ideas for Course Reform, 1993; New Directions for Educational Psychology in Teacher Education: The Role of Textbooks and Alternative Instructional Material, 1995). The major controversy centers on both the objectives of the required educational psychology course and the methodology used by instructors to attain their stated objectives.

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The purpose of this paper is to recommend a major change in the content and methods for teaching the human learning component in preservice teacher education programs. The rationale for introducing preservice teachers to the theory and research in human learning is that they will transfer their knowledge to their classroom teaching practices. Histori-

cally, the learning component of educational psychology courses is strongly influenced by basic textbooks in the field. These textbooks are the most comprehensive and well-written products in the history of the discipline. However, they emphasize the historical development of learning research and theory in the discipline. The major problem is that there is little evidence that the knowledge compiled in the textbooks has any impact on future teachers' classroom behavior.

The most recent attempt to deal with the role of educational psychology in teacher education was the creation of an ad hoc Committee on the Teaching of Educational Psychology by Division 15 of the American Psychological Association. The committee recommended that a major goal of educational psychology courses should be to help students develop a contemporary psychological perspective (Anderson, Blumenfeld, Pintrich, Clark, Marx, & Peterson, 1995):

> A psychological perspective provides a teacher with a way to "get hold of" a complex situation and think about its problems and possibilities in light of views of human learning. This advantage is not afforded by mere knowledge about concepts, principles, and theories; it is only manifested when those ideas are tied together as coherent frames that suggest when and how the ideas can be used. (p. 145)

The report has stimulated a good deal of discussion about teaching educational psychology. In fact, a special issue, "Teaching Educational Psychology" in the *Educational Psychologist* (Winter, 1996), included eight papers on various topics in the report. Two major issues continue to be debated: What is a "contemporary psychological perspective?" How do you develop such a perspective?

The "Isms" Approach

A common approach to developing a contemporary psychological perspective among educational psychologists is to organize the discipline around different *isms* and debate which *ism* is better than the other (Ormrod, 1998). Different *isms* have dominated the debate at different periods of time. When I first entered the field in the 1960s, behaviorism was at its peak. Papers and conferences focused on topics such as behavioral objectives, task analysis, competency-based instruction. In the 1970s, humanism became very popular and the buzzwords changed to self-concept, self-actualization, and open education. In fact, I'll never forget one conference I attended where a researcher accused teachers of being incompetent if they failed to organize their classroom learning environments around an open classroom setting. Of course, I never heard from that researcher when, a few years later, data were presented to indicate that direct instruction was a more effective instructional strategy than open or other unstructured forms of instruction (e.g., Good, 1979; Rosenshine, 1979). In the 1980s, cognitive psychology sessions dominated the literature. Attention turned to the importance of learners' memory, beliefs, and perceptions. The popular terminology included information processing, goal theory, self-efficacy, and intrinsic motivation.

Today, a new *ism*—constructivism—dominates the scene, and again many psychologists are convinced that they finally found "the perspective." The buzzwords are now mental models, authentic tasks, and metaphors. Many of the leaders in our field have adapted constructivism with the same vigor as those who adopted behaviorism, humanism, and cognitivism. An author would have difficulty selling a basic educational psychology textbook today without a chapter on constructivism.

Ormrod (1998) points out that there is little consensus on how to categorize the different perspectives on constructivism—individual constructivism, social constructivism, radical constructivism, radical relative constructivism, critical constructivism, constructionism, social constructionism, and sociocultural theory. Furthermore, some individuals (e.g., Anderson, Reder, & Simon, 1996, Marshall, 1996; Nuthall, 1996) believe that constructivism is not even a theory of learning, but a general philosophical position.

For decades, different educational psychologists were convinced that they had identified *the* "contemporary psychological perspective" necessary to educate teachers and encouraged other educators to follow the same perspective. To date, although different *isms* have made important contributions in understanding the teaching-learning process, no single perspective has dominated educational thinking over a long period of time.

Ormrod (1988) discusses the inconsistencies of how different individuals view the divisions or boundaries among different theoretical perspectives. She argues that educational psychology instructors can best serve students if they de-emphasize the importance of the different *isms* and focus instead on "Big Ideas—those that transcend any particular *Ism*" (p. 8). In other words, develop educational psychology courses around key principles that are common to two or more *isms*. Although I am not opposed to identifying key principles in the discipline, I would take an even more "radical" approach to educating teachers.

Preservice Teachers Need to Learn How to Learn

I think educational psychology should have two complementary goals for future teachers. The first goal is to teach future teachers to become more effective learners. The second goal is to teach them to be more effective teachers. I believe that attaining the first goal may help in the attainment of the second goal.

Peterson, Clark, and Dickson (1990) believe that new metaphors are needed for the learning and teaching of educational psychology. Metaphors must convey the way that psychological knowledge is viewed and how it can be related to teaching. Since I don't believe that teaching students *how* people learn or *about* cognition has been particularly useful, I would support the metaphor: "teacher as learner!"

Are teacher education students better learners because of their experiences in their educational psychology courses? I can't find any evidence to answer this question in the affirmative. In fact, there are empirical data (e.g., McClendon, 1966;

White & Hargrove, 1996) and anecdotal evidence to indicate that students in educational psychology courses often don't acquire, or fail to use, appropriate learning strategies in their own learning.

I have been giving students in teacher education the Learning and Study Strategies Inventory (LASSI) (Weinstein & Palmer, 1990). This instrument assesses students' learning and study skills in ten areas—attitude, motivation, time management, anxiety, information processing, selecting main ideas, study aids, self-testing, and test strategies. I have found that many of my students had serious deficiencies in their study skills. Yet, I was still convinced that I could teach them how to teach other students to use effective learning strategies. My students did not appear to be alarmed by their deficiencies since they tended to view principles of learning more appropriate for their future students than for their own use.

Woolfolk Hoy (1996) presents an excellent example of student thinking in a discussion of note taking by one of her "better" students: "I'm carrying 18 hours— I don't have time to learn this stuff" (p. 46). I have heard similar comments by students after discussing methods to improve one's reading comprehension: "I have too much reading to do to generate questions or answer them while I read!" If an educational psychology course doesn't help prospective teachers become more effective learners, why would it impact their ability to teach others (i.e., their future students) how to become more effective learners?

Duffy (1993) provided important insights concerning the difficulty he experienced attempting to teach teachers how to become more strategic in their reading instruction. He concluded: "Strategic reading requires strategic teachers, which, in turn, requires strategic staff development" (p. 245). His description of his experiences in staff development reminds me of my wife's teenage experience as a diving instructor in a summer camp. She knew all the principles of diving and would explain each step to the campers as they stood at the edge of the swimming pool prepared to dive. She broke down each step in the process. Some of her campers learned to dive, other didn't! What they never realized is that she couldn't dive herself! An important research question yet to be investigated is: Do deficiencies in preservice teachers' study and learning strategies interfere with their ability to successfully teach their students how to learn?

Reconceptualizing Educational Psychology

I concur with Sternberg (1996) who argues that educational psychologists should be analyzing the teaching-learning process to determine what makes an expert teacher or student. What better "contemporary educational psychology perspective" could we identify? Unfortunately, the current debate in educational psychology courses is more concerned with the presentation of different theoretical perspectives and what content should be included in textbooks.

Although a detailed review of the expertise literature is beyond the scope of

this paper, it is important to identify some findings that appear to have implications for the development of educational psychology courses. First, the knowledge structures of experts play a critical role in their performance. Experts have a great deal of domain-specific information that is highly organized and conceptually integrated (Glaser, 1992). Second, procedural knowledge is an important part of expert performance (Berliner, 1991). Third, self-regulation is a major aspect of the learning process in the acquisition of expertise (Glaser, 1996).

If students use rehearsal (e.g., underlining and reciting) rather than more complex learning strategies (e.g., mapping) in educational psychology courses, it is difficult to see how their knowledge in learning and instruction would be organized and conceptually integrated. Secondly, when educational psychology courses emphasize declarative over procedural knowledge, it is difficult for teachers to be reflective and solve problems in the classroom. Finally, if students don't learn self-regulatory skills, they will have difficulty adjusting their learning strategies to acquire the necessary knowledge in teaching and have difficulty developing the routines (i.e., automatized procedural knowledge) needed to accomplish the tasks required of teachers. If future teachers acquire self-regulatory skills in their own learning, they may be better able and willing to model and teach these skills in their own classrooms.

What is self-regulation? In the simplest terms self-regulation can be defined as the ability of students to control the factors or conditions affecting their learning. Research indicates that students' self-regulatory beliefs and processes are highly correlated with academic achievement (Zimmerman & Risemberg, 1997; Zimmerman & Martinez-Pons, 1990). Educational psychologists have compared successful and less successful students of similar intellectual ability. When given a learning task, successful learners monitor and control their behavior by setting goals, use their prior knowledge, consider alternative strategies, develop a plan of attack, and consider contingency plans when they run into trouble. In contrast, less successful students have little awareness of the factors affecting learning and are less likely to take charge of their own learning (Zimmerman, 1989). Finally, researchers have demonstrated that it is possible to teach self-regulatory behaviors that increase students' achievement and enhance their sense of efficacy (e.g., Schunk, 1995; Zimmerman, Bonner, & Kovich, 1996).

Why develop a course around self-regulation? First, research indicates that self-regulatory skills are the major determinants differentiating effective from less effective learners (Zimmerman & Risemberg, 1997). If a goal is to develop life-long learners, self-regulation provides a useful conceptual framework to work toward this goal. Staley and DuBois (1996) state: "A necessary step in influencing our students' future behavior as teachers is to *first influence their behavior as students*" (emphasis mine) (p.4). Research in metacognition indicates that students tend to use strategies that they believe to be effective (Pressley, Borkowski, & O'Sullivan, 1984). Therefore, if preservice teachers find that learning self-regulatory skills improves

their own learning, they may come to value the skills and teach them to their future students. Second, following Ormrod's (1998) perspective in identifying the "Big Ideas," an instructor can present information related to the self-regulatory skills without concern for where it came from. For example, if the goal for students is to practice (not learn about) self-motivation, ideas from such topics as operant conditioning, goal theory, and self-talk can be used to develop procedures to help students acquire this self-regulatory skill. Third, teaching self-regulation focuses on procedural knowledge, which is a major component in the development of expertise in any given area (Glaser, 1996).

Seven years ago I developed an educational psychology course for "at-risk" students to improve their academic performance and retention rates. During this period I have learned more about teaching educational psychology than I had learned the previous 25 years! Evaluation data indicate that students who do well in the learning-to-learn course maintained higher grade-point averages than students who do less well in the course. This finding has held for three semesters after completing the course (Dembo & Jakubowski, 1999).

I find three important differences between my learning-to-learn course and my traditional educational psychology course for teachers in terms of: (a) the goal of the course (teaching students how to learn vs. teaching students about learning), (b) the time frame (immediate change vs. future change, and (c) motivation to change (focus on oneself vs. focus on others). Since the main focus of the learning-to-learn course is immediate behavioral change, I found that I am constantly evaluating both my students' and my own behavior to assess students' behavioral change. In the traditional teacher education course, my focus is on evaluating declarative knowledge with less emphasis on personal behavior change. Also, the selection of relevant educational psychology content is different in the learning-to-learn course than my traditional course. Finally, many topics in my learning-to-learn course (e.g., time management, procrastination, and help seeking) often are not covered, or receive little attention, in teacher education courses.

An Applied Educational Psychology Course

I have developed a new preservice educational psychology course using self-regulated learning as the conceptual framework for the course. The purpose of the course is to help students develop essential self-regulatory skills and to help them teach these same skills to students in public school classrooms.

The course content and activities are organized around six topics, each of which is related to the dimensions of academic self-regulation (Zimmerman & Risemberg, 1997). Table 1 identifies the dimensions and related educational psychology content. The choice of content is based on the research supporting the development of self-regulatory behavior (see Zimmerman, 1989; 1994; Zimmerman & Risemberg, 1997).

Table 1
Content in an Applied Educational Psychology Course

Self-Regulatory Dimensions	*Related Educational Psychology Content*
Motivation	Goals, values, self-efficacy, self-talk
Methods of learning	Information processing system, use of learning strategies (i.e., rehearsal, elaboration, and organization)
Use of time	Procrastination, time planning and management
Physical environment	Environmental selection and restructuring
Social environment	Seeking help and working with others
Performance	Evaluation of present performance with long-term and intermediate goals

The work of Zimmerman and his colleagues states that higher achievers as compared to low achievers report using goal setting more frequently and consistently across academic tasks, use more effective learning strategies, manage their time more effectively, restructure their social (i.e., seek help) and physical environments (i.e., change study locations) to meet their needs, and modify their learning processes when they detect discrepancies between goals and performance. Dembo (2000) provides a detailed discussion of the self-regulatory dimensions and how they can be taught.

I begin the course by encouraging students to examine and compare their own motivational and learning strategies with the characteristics of self-regulated learners. To assist students in this process, I give the Learning and Study Strategies Inventory (LASSI) during the first week of class. The students score the instrument and plot their profiles. They then write a paper based on the following directions:

> You are to write a paper (about 4-5 pages) on the following aspects of your learning and study behavior. Provide as much detail as possible. Explain how you read textbooks and recall information, how you take notes, what processes you follow in writing a research or term paper, and how you prepare for exams. You will be describing your past behavior in high school and, or, college experiences to date. Second, review the results of the scales on the LASSI and discuss your strengths and weaknesses. To what extent do you agree or disagree with the scales? Why? How have your learning and study strategies influenced your past learning? Finally, describe what you think you need to do to become a more successful learner this semester?

Later in the course, the students select one area of difficulty and conduct a self-study to improve their learning skills.

Each self-regulatory dimension is presented in separated units with the

instruction following a similar procedure. The students first study the theory and research related to the self-regulatory dimension. Second, they examine their own motivation and learning beliefs regarding the dimension. Third, they practice using the strategies related to each self-regulatory dimension. Finally, they consider how they can teach their future students how to use the strategies.

Let's use the component, methods of learning, to illustrate the instructional process. First, the unit begins with the discussion of the information processing system. This model of human memory helps students to understand why it is important to consider different ways to learn. By pointing out that the purpose of learning is to get information into one's long-term memory, we can discuss the many ineffective study strategies students use and introduce different types of learning strategies such as rehearsal, elaboration, and organizational strategies (Weinstein & Mayer, 1986).

Rehearsal strategies can be effective in some types of learning. Copying material, taking verbatim notes, reciting words or definitions, and underlining material in handouts are all examples of rehearsal strategies. However, these strategies make few connections between the new information and the knowledge one already has in long-term memory. If the information is not connected to anything when it is stored in long-term memory, it is difficult to retrieve.

Elaboration strategies for more complex learning from texts include paraphrasing, summarizing, and creating analogies and generating and answering questions. We find that most students do not prepare for exams by generating and answering questions as part of studying.

Finally, psychologists have found that it is difficult, and sometimes impossible for humans to learn unorganized bits and pieces of information (e.g., definitions, dates, names, ideas) without imposing patterns of organization on the information (Gaskins & Elliot, 1991). By organizing information, connections and interrelationships are made within a body of new information. Learning is facilitated when a learner becomes aware of the inherent organizational structure of new material, or imposes an organizational structure on the material when no such structure initially exists. A body of new information to be learned is stored more effectively and remembered more completely when it is organized (Ormrod, 1998).

One of the important goals in teacher education is to encourage preservice teachers to emphasize critical thinking in their classrooms. Perkins and his colleagues (Perkins, Jay & Tishman, 1993) propose that teachers should create a culture of thinking in their classrooms. One aspect of developing this culture is an expectation that students will understand the content introduced in class. Teaching students appropriate learning strategies to deal with complex information in subject-matter content would appear to be a necessary first step in developing critical thinking skills.

After the discussion of memory and the information processing system, students are asked to assess their own learning strategies based on the Learning and

Study Skills Inventory (LASSI) (Weinstein & Palmer, 1990). In addition, they are asked to describe their beliefs about the effectiveness of the strategies they have used throughout their educational experiences. The activity is conducted through both journal writing, class exercises, and discussions.

The next step in this process is to encourage students to use more elaboration and organizational learning strategies. For example, the primary organizational strategy I teach is representation or mapping. Students are asked to identify material in their textbooks and then to develop four possible representations for the material: hierarchies, sequences, matrices, and diagrams (see Kiewra & DuBois, 1998). They bring these representations to class and share how they were developed and will be used for studying.

Finally, I provide reading comprehension material from elementary and secondary level textbooks and discuss how younger children can be taught to use these same learning strategies to improve their own learning. Since the students are observing in public school classrooms as part of the course, they are asked to provide examples whereby learning strategies would be helpful to these younger students in mastering specific academic content.

This same process is used to teach the remaining components of self-regulation: motivation, time management, control of the social and physical environment, and monitoring of one's performance. When students complete this unit of the course, they have thoroughly studied and evaluated their own motivation and learning strategies, have learned specific strategies to improve their academic performance, and have learned how to teach the same strategies to others.

A Procedure To Change Student Behavior

An important aspect of the learning process is to teach the preservice students how to complete a self-study to improve some aspect of their motivation and learning strategies. The topics are generated from the results of the Learning and Study Strategies Inventory (LASSI), journals, and personal perceptions of their own learning and studying deficiencies.

A self-regulatory cycle (Zimmerman, Bonner, & Kovach, 1996) is used as the framework for all case studies. The cycle involves four interrelated processes: The first step is *self-observation and evaluation*. It occurs when students judge their personal effectiveness, often from observations and recordings of the results of prior performances. Encouraging students to identify errors on exam papers and to keep journals about their learning and study behavior are examples of how students can be encouraged to self-observe and evaluate their performances.

Once students understand the nature of their deficiencies, they can then move to the second step in the cycle—*goal setting and strategic planning*. This is where students analyze the learning task, set goals, and develop a plan or strategy to help them attain their goals. Take the example of improving performance on writing a

paper. When given the task of writing a paper, students should start by analyzing their strengths and weaknesses and then analyze the assignment to determine the nature of the paper and what needs to be done. Next, they should establish a goal for completion and a number of subgoals (e.g., locating necessary references and proofreading) for completing the sections of the paper. Once the subgoals are identified, they should develop a strategy for completing each of them.

The third step in the cycle is *strategy implementation and monitoring*. This step focuses on the effectiveness of the learning strategy. A student should ask the following types of questions: Is the strategy working? Am I attaining each of my goals in completing the paper? Am I learning the necessary content for my exam? If a strategy is working, the students should maintain their current behavior. If not, they must consider what needs to be done to change their behavior.

The final step in the cycle is *strategic-outcome monitoring*. This step involves expanding monitoring to include performance outcomes. Students must answer the following questions: "Did the learning plan or strategy help me attain my goal?" "Did I have to make changes in my learning and study methods?"

The following is an outline of the questions in a student's case study on time management (Dembo, 2000, pp. 115-116):

> *Self-observation and evaluation:* (How do I manage my time? Do I need to change the way I plan and manage my study schedule? If yes, what problem do I encounter? What are the symptoms of my problem [i.e., When, where and how often does my problem occur? How much of an impact does this problem have on my academic performance?] What factors [e.g., internal beliefs, perceptions, physiological responses, feelings and/ or behaviors] contribute to this problem? What do I need to change to reduce or eliminate my problem?)

> *Goal setting and strategic planning:* (What are my goals? What strategies will I use to improve my time management? When will I use these strategies? How will I record my progress?)

> *Strategy-implementation and monitoring:* (What strategies did I use to improve my time management and when did I use these strategies? What method(s) did I use to record my progress (e.g., documents, charts, logs, tally sheets, checklists, and/or recordings) and when did I use these methods? How and when did I monitor my progress to determine if my new time-management plan was working? What changes, if any, did I make along the way?)

> *Strategic-outcome monitoring:* (Did I reach the goal(s) I set for myself? Have the modifications in my time management improved my academic performance and personal life? What strategies were the most and least effective? What additional changes do I need to make?)

Zimmerman, Bonner, and Kovach (1996) believe that one of the major advantages of using the self-regulatory cycle is that it can improve not only students' learning, but enhance their perceptions of self-efficacy and control over

the learning process. By learning to self-observe current learning and study behavior, and to determine for oneself what methods are effective and ineffective, a student can begin replacing ineffective methods with better methods, and become more aware of the improved effectiveness of the new methods.

Conclusions

The content of this new educational psychology course originates, not from the historical content of the field, but on the research supporting self-regulatory behavior. One of the objectives of the course is to require preservice teachers to demonstrate their use of self-regulatory skills in their own learning. In addition, they can be required to take the process further by developing their own strategies for teaching self-regulation to their students. The fact that they have learned to apply self-regulatory skills and make modifications in their own learning <u>may</u> help them teach these same skills to others. Obviously, this major assumption will need to be evaluated. We intend to study the behavior of preservice teachers after they leave this course and take methods courses and student teaching. Most important, the teacher education faculty will be reinforcing these self-regulatory skills throughout the program as they attempt to link each of the professional preservice courses and experiences.

In summary, I concur with the argument that educational psychologists should rethink their roles (Anderson et al., 1995). However, in the process, let us broaden our perspective of the issues before we convince ourselves, again, that we have found the appropriate role for educational psychology in teacher education. It is time to place less emphasis on the traditional educational psychology theory and research and move to models of student change. The research on expertise and self-regulation provides a useful framework for developing a new framework for educational psychology in teacher education.

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