

Motivation in Preservice Teacher Education: Possibilities for Transfer of Learning

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The purpose of this study was to determine the extent to which preservice teachers understood and applied motivation concepts personally as learners and professionally for their future classroom practice. An assignment in an educational psychology class required the students to construct a motivational toolbox with five strategies for themselves and five for their future classroom. Seven students volunteered their toolboxes for analysis and five for a follow-up interview the subsequent semester. Artifact analysis was used to analyze student applications for understanding the concepts and the possibilities for transfer. Three prominent themes emerged for personal use: awareness of "myself as a learner," confidence, and adaptive strategies for achievement. Themes that emerged for professional practice included: Teacher expectations and efficacy; student beliefs about ability and effort (e.g., self-efficacy); cultivating a sense of membership; and adaptive strategies for achievement. In their "toolboxes," the preservice teachers evidenced understanding of motivation concepts and ability to transfer their learning to authentic tasks.

Keywords: motivation, preservice teacher education, educational strategies, transfer of learning

The purpose of this research was to determine the extent to which preservice teachers understood and applied motivation concepts from a required educational psychology course to themselves as learners and to their intended classroom practice. It is not enough that preservice teachers learn motivation theories and strategies; it is important that they be able to apply strategies in context. Difficulties in preservice teachers' application of motivation strategies was highlighted in the theme for a symposium sponsored by the Teaching Educational Psychology Special Interest Group (SIG) at the annual meeting of the American Educational Research Association (AERA) in 2004: "What Should Preservice Teachers Know About Recent Theory and Research in Motivation?" A central issue in the subsequent discussion in that session was the difficulty in getting the students to apply the motivational knowledge taught in educational psychology courses. This relates to difficulties in general in the transfer of knowledge and strategies from preservice teacher education to application for practice.

Transfer is the ability of students to use their learning in varied contexts, but it is a difficult task to accomplish (Alexander, 2006). Richardson (1996) concluded that preservice teacher education is a weak intervention: coursework and other classroom experiences generally have resulted in little or no transfer to practice. One problem is that preservice teachers have little to no practical teaching experience, thus creating a problem of transfer for preservice teachers. Another problem is that prior knowledge and preconceptions held by preservice teachers may conflict with theories and strategies

taught in preservice teacher education (Korthagen & Kessels, 1999).

Because the knowledge base on motivation has greatly expanded over the last decade of the 20th century and into the 21st, a larger potential repertoire of strategies exist for students to learn, making transfer more complex. According to Pintrich (2003), the research on motivation has reached the point where principles can be generalized to develop interventions because the focus has been on achievement-, classroom-, and school-related beliefs of students and their roles in enhancing or decreasing motivation in learning contexts. Similarly, Murphy and Alexander (2000) examined motivational terminology in current literature and concluded, "the most compelling perception is the number of motivational constructs significantly linked to students' academic growth and development" (p. 44) (e.g., self-efficacy, intrinsic motivation). Further recognition of the advancement of motivation knowledge is the 14 learning principles developed by the American Psychological Association (APA) Task Force (American Psychological Association [APA], 1997). A subcategory includes motivational components such as social-cognitive factors of exercise of control and regulation of effort.

In addition, the potential contributions of motivation to the present climate of school reform is increasingly acknowledged (e.g., Dembo, 2004; Darling-Hammond, 1997; Meece & McColskey, 1997). For example, Darling-Hammond (1997) asserted that an understanding of motivation is critical in today's climate of higher standards when achieving understanding is difficult because teachers must know how to cultivate student effort

without lowering expectations or discouraging students from difficult tasks. Furthermore Dembo (2004) asserted that student motivation is often overlooked in the current climate of school reform, with its expectations that students will meet higher academic standards.

A critical question is, "How can we prepare preservice teachers to understand motivational concepts and apply them to teaching and learning?" The National Council for Accreditation of Teacher Education (NCATE) revised accreditation standards were designed to address the lack of transfer of knowledge taught to preservice teachers into their field of practice. Wise (2000) stated, "It is no longer good enough for a faculty member ... to say, 'I taught the material.' The focus is on showing that the candidate can actually connect theory to practice and be effective in a K-12 school" (p.1). The NCATE vehicle for evaluating transfer of learning is performance assessment of teacher candidates.

A major problem is to determine what type of instructional practice might assist students in the transfer of knowledge. The challenge for teacher educators is to design learning tasks with outcomes that will be more likely to be applicable beyond the course. Differing type of learning task can either limit or increase the likelihood of transfer. Tasks that are based on memorization of facts tend to limit transfer and produce inert knowledge, while tasks that require application of learning theory tend to increase transfer (Bransford, Goldman, & Vye, 1991; Newmann, Secada, Wehlage, 1995). Inert knowledge occurs when students learn at some level but do not use the knowledge in other situations (Bransford, et al.). Other reasons that knowledge may remain inert include students' not understanding how the knowledge can be used, learning it in only in one specific context, and insufficient time or practice. This raises the question of how the problem of inert knowledge and lack of transfer can be addressed in preservice teacher education.

One approach for increasing transfer is devoting sufficient instructional time to concepts and procedures (Alexander, 2006). Collaborative activities and discussions where students can share ideas and solutions as well as understanding concept is another approach. A third approach, using authentic or performance tasks and assessments, is increasingly advocated for enhancing transfer of knowledge and reducing the likelihood of inert knowledge (e.g., Darling-Hammond, Ancess, & Falk 1995; Newmann, Secada, Wehlage, 1995). Authentic tasks, according to Newmann, et al., require students to construct knowledge, involve disciplined inquiry,

and in turn lead to more to practical use. Disciplined inquiry is essential for authentic tasks and is grounded in a professional knowledge base (Newmann, et al.). In addition, the tasks must provide information to instructors about the quality of students' participation in activities, their process of inquiry and knowledge, and their ability to apply knowledge gained to real world situations (Greeno, Collins, & Resnick, 1996). Perkins (1992) extended this description to student performances that might show explanation, exemplification, application, and contextualization. One commonality in these various descriptions of authentic tasks is that students have to do more with the knowledge than memorize it for an immediate assessment via a test.

To increase student application of theories and strategies, we designed the "toolbox assignment" for two units in our educational psychology course for preservice teachers: information processing and motivation. In these assignments, students were asked to apply the concepts they had studied to their own learning and also to envision applications to their future classrooms. This paper addresses data collected during the latter unit; in it we describe and interpret the preservice teachers' choice and use of motivational strategies for their personal use and for their future classrooms. The specific research questions were:

- 1) What motivation concepts did students choose for their own motivation and for their future teaching?
- 2) What themes emerged from their choices and what do these themes indicate about the level of students' understanding?
- 3) From this application assignment, what are the possibilities for transfer of motivation concepts to practice?

METHOD

Mode of Inquiry

This study employs descriptive and exploratory methodology in an attempt to understand the preservice teachers' application of motivation concepts for practice. Merriam (1988) explained that descriptive research is used when description and explanation rather than prediction are sought.

Participants and Course

The students in this study were admitted to various accreditation/licensure areas in the College of Education by meeting minimum requirements of 30 credit hours earned with a GPA of a least 2.5 and acceptable scores on Praxis I. The theme for

the teacher education program at our College is the “Educator as a Decision-Maker.” The participants were enrolled in a course called Teaching and Learning Strategies, which is blocked with a second course, Characteristics of Learners. These two courses are required in the first phase of the undergraduate teacher education program. The Teaching and Learning Strategies course has three units -- information processing, motivation, and teaching models and strategies--and includes classroom observations. The toolbox assignment was designed for the information processing and the motivation units as an attempt to get students to transfer learning in more applicable ways.

As stated above, this study focused on the motivation unit of the course; one of the authors was the instructor for the sections in which data were collected. The content for the motivation unit primarily reflected topics from a social-cognitive perspective (e.g., attribution, self-efficacy). According to Pintrich (2003), these social-cognitive constructs are assumed to be much more situation- and domain- specific, in contrast to constructs from theories that focus on general needs and motives, and therefore more applicable to motivation in the classroom. *Motivation for Achievement: Possibilities for Teaching and Learning, 2nd Edition* (Alderman, 2004) was the text for the motivation unit.

A variety of instructional approaches were used for the unit. Cooperative learning in various forms was frequently used. Classroom assignments focused on application of the content to themselves as students and as future teachers. (e.g., creating and analyzing examples of concepts, explaining their own attributions for an exam outcome, reflecting on their beliefs about the role of ability and effort in student learning). The classroom observations included specific assignments from the motivation content (e.g., reporting and explaining attributional statements and describing teacher expectations). The major assignment designed to help these preservice teachers apply motivation concepts was to create a “toolbox” composed of both personal and professional strategies.

The toolbox assignment was a decision-making task, requiring the student to make choices about strategy use. The task required students to choose five personal motivational strategies or tools for themselves as learners and five for their role as future teachers from the course content to include in their toolboxes. The choices were unlimited, except that only two tools could be used for both personal and professional use, and students were required to use either teacher expectations or

teacher efficacy as a tools in their professional toolboxes. Five tools for each category seemed to be a reasonable number that would provide decision-making opportunities, but not overwhelm the students. For each tool, students were required to include a paraphrased definition/explanation of the strategy with citation, explain the purpose and rationale for their choice; and give a concrete example or strategic use of the tool. A rubric was constructed to reflect the criteria for this assignment, with four levels used to evaluate each element of the toolboxes. Potential achievement levels ranged from Level I, the most proficient, to Level IV, not acceptable (See Appendix A for the assignment and rubric.). Upon the completion of the course, the instructor asked students to volunteer their toolboxes for this research.

Seven students (out of 48) volunteered their motivation toolboxes for this study by completing an informed Institutional Review Board (IRB) consent form. Six of the seven participants were female, all were of European American ethnicity, and they represented both nontraditional and traditional age groups. Pseudonyms have been used to protect the identities of the participants. The participants and their intended licensure areas are: Amy, secondary English; Carl, special education; Jennifer, middle school mathematics; Kim, early childhood; Marcia, middle school social studies; Pam middle school math and science; and Sue, middle school special education. Although the sample is small, it does represent a typical range of teaching areas for this class. Five of the seven participants also volunteered for a follow-up interview in the following semester.

DATA ANALYSIS AND FINDINGS

The toolboxes volunteered by the participants served as evidence, or artifacts of work, produced by the students. All the volunteered toolboxes were completed at Level I (highest) proficiency according to the rubric. In the first step of data analysis, we tabulated the type and number of tools chosen for personal and professional use to form a frequency distribution (LeCompte, 2000).

Frequency Distribution

The frequency distribution of tools revealed that a variety of tools were chosen for personal and professional use (See Table 1). The tabulation of personal tools revealed that the seven students chose a total of 16 different motivational tools for their own learning. The most frequently chosen were: self-efficacy (6), goal-setting (5), and time management (3). Fourteen different tools were chosen for professional use in their future

Table 1. *Frequency of Tools Chosen*

Personal Tools	n	Professional Tools	n
Self-efficacy	6	Student attributions and attributional feedback	7
Goal setting	5	Teacher efficacy	5
Time management	3	Teacher expectations	5
Attributions; attribution training	3	Goal setting	4
Self-regulation	2	Cooperative learning	3
Self-monitoring	2	Extrinsic, effective verbal praise	2
Test anxiety reduction	2		2
Learned helplessness	2	Student motivational manual	1
Motivational situational interest to suit personal interest	1	Test anxiety reduction	1
Shifting extrinsic to intrinsic	1	Self-efficacy for students	1
Failure avoidance	1	IDEAL decision making	1
Help-seeking	1	Informational feedback	2
Learning goal orientation	1	Time management	1
Intrinsic motivation	1	Help seeking	1
Metacognition	1	Learned helplessness	1
LINKS model	1		

classrooms. Some aspect of attribution (e.g., feedback, effort attribution retraining) was chosen most frequently (7). Three students chose cooperative learning, and two chose extrinsic motivation. Half of the students chose teacher expectations and half of the students chose teacher efficacy (recall that one of either was required), with one student choosing both. Two choices were unique: One student developed a motivational manual for students and another used the IDEAL problem-solving model (Bransford & Stein, 1994) applied to a specific motivation problem in math.

Following the frequency tabulation, each of the seven toolboxes was independently read and reread by the researchers to discover a deeper understanding of students' purpose of each tool and its personal or professional application. Artifact analysis was used to examine the personal and

professional tools (Burnaford, 2001). The protocol for artifact analysis recommends examining pieces of student work and asking the questions, "What do we see?" and "what does it mean?" (Burnaford, 2001, p. 61). We began this examination step with questions such as: Why did they choose a particular strategy? What does a good application look like? How specific are the professional applications?

The frequencies of the strategies chosen provided the initial grouping for possible themes. As we further examined the rationales, purposes and uses of the tools, more underlying patterns began to emerge from items that kept repeating themselves (Lecompte, 2000; Mills, 2003). The initial themes were refined through continued reading and rereading, and three themes for personal use and four themes for professional

application emerged. The personal themes were self-awareness, confidence, and adaptive strategies for achievement. The professional themes were the role of teacher expectations/efficacy, student beliefs about ability and effort, cultivating a sense of membership and belonging, and adaptive strategies for achievement.

Themes from Tool Analysis

A general perception expressed by the preservice teachers was that the motivation toolbox was more difficult than the information processing one. The difficulty seems to have been that the motivation concepts were not as visible as the information processing ones (e.g. concept map). For example, Sue described motivation as abstract concepts with concrete tools stating, "The tools are not as easy to explain or to implement with (sic) a proper understanding of the ways that attribution, self-efficacy, and teacher expectations affect learning." Similarly Pam stated, "By doing this toolbox it has made me realize the importance of motivation. When I was in school motivation seemed to be something you did either on your own or parents enforced it through rewards and punishment." Thinking about motivation from a social cognitive process was a new perspective for some students.

Personal Tools

Our first research question was about the tools students chose for their personal use. What do the purposes and examples of the tools used by the students reveal about their understanding of motivational concepts and their application? A description/explanation of each of the three themes follows.

Self-awareness of Motivation. This theme reflected the students' perceptions of their own strengths and weaknesses and their personal experiences. The participants often drew on past and current experiences, relating these to the motivational tools they had chosen. Although the introduction to the toolbox asked students to reflect on their past motivation, this was more often revealed in their concrete examples. Jennifer reflected self-awareness when she stated that she was "never the smart girl, but a girl who knew effort went further than ability. I have learned to not be afraid to tell others that I study hard." Carl became aware that, "I'm not lazy, but have gone to extraordinary lengths to avoid failure. . . . I recognize that I have always operated with performance goals, but want to change." Amy identified failure avoiding-strategies that she used most often and has "begun to think of ways to battle these...in my own life."

Of the three personal application themes, perhaps self-awareness was the most important category. Paris, Byrnes, & Paris (2001) explain that "students understand themselves partly in relation to their own histories and anticipated futures" (p. 257). The above examples also reveal students' integration of motivation concepts from the course as they reflect on their own experiences.

Confidence. Students expressed varying levels of confidence in completing tasks or undertaking tasks. These expressions of confidence frequently related to past experiences where they had not been successful or had harbored doubts about their ability, then gained confidence. Confidence was most frequently expressed as a sense of self-efficacy in attaining goals or tasks. As such self-efficacy is a judgment about their capabilities for accomplishment.

Six of the seven students in the study chose self-efficacy as a tool for personal learning. Such choices led participants to examine their feelings of confidence and consequently if they judged themselves as having low confidence, to choose strategies to address this issue. As Pam stated, "By using self-efficacy, I will be able to do more because if I believe I can do something, I will expend more effort on the task and be less likely to give up. . . . I will set higher goals, use more metacognitive strategies." Issues around confidence were also expressed as a threat or fear of failure or, alternatively, a sense of efficacy. Marsha realized the important role that a sense of efficacy plays in her path towards goal accomplishment. "Coming back to school after twenty years was a bit intimidating. I felt as though I wouldn't be able to achieve my academic goals and thus wanted to avoid failure. This strategy taught me to redefine difficulties as challenges." Jennifer explained that her self-efficacy has been developed through task accomplishments, but she sometimes "struggles with efficacy because I do not believe I can accomplish certain tasks."

All three students made judgments about their confidence in different situations. As Bandura (1997) explained, the judgments people make about their capabilities are important factors affecting motivation and whether or not they will marshal strategies to accomplish a task.

Adaptive Strategies for Achievement. This theme encompassed tools that would help the participants be successful in their own endeavors as students in the preservice program. Goal setting was the dominant choice of strategy within this theme.

Carl chose goal setting "because I continue to struggle with keeping current my responsibilities."

He used the proximal goal-setting format from the text to set goals for his performance in the course. Sue found that “as a student and mother it is easy for me to get behind in my school work, but using proximal goal setting helped me not to lose sight of my long term goal of graduating from college and to complete assignments daily and weekly to keep track for the current semester.” Amy chose “making situational interest suit personal interest” as a strategy. “I had a difficult time in the past making my personal interests coincide with what teachers have found necessary to follow (high stakes standards). Even in college, I have trouble making projects coincide with my personal interest.” For her example she constructed a matrix of her projects and illustrated ways to tie these to her personal interests.

Learning goal orientation was chosen by Sue, who stated that it was “probably the most important motivation tool I have learned this semester. . . . All of my previous experience had been performance goal oriented, and I had failed miserably [with examples]. I need to keep a goal orientation with a learning focus by always keeping in mind that I need to learn to be a teacher, not just get an “A” in the class. . . . Each time that I do a field report and am able to apply knowledge from the class to things that I observe, my learning goal orientation is reinforced, and I feel motivated to continue to strive toward my goal of becoming a teacher.”

Tools to balance the roles and responsibilities in their lives seemed particularly important to these students. Tools they used to increase success included self-regulation singularly or components such as goal setting, time management, self monitoring, and learning goal orientation (Zimmerman, 2001).

Professional Tools

What motivation concepts did students envision as professional tools that would be useful in their future classrooms? The tools chosen by the students represented a variety of licensure areas and subjects: PK-3, middle school science, ninth grade English, and middle school special education. The students envisioned the importance of: 1) the role of teacher expectations or efficacy in practice; 2) understanding students’ beliefs about their performance (e.g., self-efficacy and attribution in various forms); 3) cultivating a sense of membership and belonging; and 4) strategies to help students be successful.

Role of Teacher Expectation/Efficacy.

Students were required to choose either teacher expectations or teacher efficacy as a professional tool because teacher beliefs are increasingly important for motivation and learning in the

classroom (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998; Weinstein, 2002). Half the students chose expectations and half chose efficacy and one student, Marcia, choose both, while Amy integrated efficacy and expectations into one tool.

Amy created a vignette of a teacher demonstrating key components of high teacher efficacy and expectations in a student behavior context. She acknowledged that while student behavior can be problematic, especially with students from various backgrounds, she declares her responsibility to establish clear expectations and guidelines at the beginning of the year. She expressed her belief that she will have high teacher efficacy and that she can help all students learn, regardless of the roadblocks.

Three other students, Sue, Marcia and Jennifer, planned to communicate their expectations at the beginning of the year in various ways: discussing with students what is expected of them; letting students know how they should perform classroom activities and assignments, and what their responsibilities are; and communicating expectations at a floor level that is the minimal achievement expected of all students (Alderman, 2004). In addition Sue gave a specific set of rules and procedures and responsibilities (e.g., “respect one another,” “turn all work in all time”).

Carl, on the other hand, described an excerpt from an ongoing tutoring experience to illustrate the importance of teacher expectations:

“I chose this professional tool because of the positive impact it can have on my students. . . . I want to communicate my beliefs in students’ ability to achieve and my ability to help them so that we all realize our best. . . . To use this strategy with K-3 students with LD, I would concentrate on material that needed to be learned and express my expectations for progress and achievement. A 1st grade student with LD whom I was tutoring at an inner city public school consistently was inattentive and engaged in baby talk and immature behavior. I was informed he was permitted this behavior without challenge or pressing for improvement.

I began expressing to this student and the others, as well, that I wouldn’t accept less than they were capable of and that together we would work to accomplish mastery of their writing their names neatly, reading their Dolch words, and counting and ordering of numbers. The effect was almost immediate and then persisted. My students sat up straighter, worked harder

and performed better than I had witnessed in the preceding month.

In summary, the students envisioned communicating high expectations and/or teacher efficacy as important in their future classrooms, and one student had already taken the opportunity to put in practice high expectations, with positive results.

Understanding Student Beliefs about Ability and Effort. The choice of this tool reflected preservice teachers' beliefs about the importance of a teacher being able to interpret students' beliefs about their ability and effort. The participants generally looked to attributions in various forms -- interpreting student attributions, attributional feedback -- to address their students' beliefs.

For example, Amy, Jennifer, Marsha, and Kimberly envisioned using the attributional rating form (on which students give their reasons for success and failure) to understand their students' attributions for success and failure. Amy went further by adapting the form to include more specific information and creating an example by completing it as if she were the student, then writing feedback for "the student" as if she were the teacher. She explained, "This will help to change students' detrimental attributions and foster increased effort."

Kimberly chose attribution information because she thought it was essential for learning about her kindergarten students. She would ask questions about why they felt good about something they did, followed by having them keep a record of their performances. Similarly, Marsha believed that recognizing her students' attributional thought processes was essential in order to focus them on more positive attributions. Jennifer sought to use student attributions both to understand their lack of persistence and to identify strategies to help them. Sue was concerned that her special education students may have adopted a learned helpless attitude, based on beliefs that they lack ability: "The students need to believe that they be academically successful. . . ."

These teacher candidates recognized that understanding student beliefs is important for providing the support students need to succeed. This, in turn, will help them as teachers to understand students' motivations and effectively assist their students. Pajares and Schunk (2002) concluded there is sufficient evidence "that students' academic behaviors and achievement are directly influenced by the beliefs they hold about themselves and their academic potentialities" (p. 16-17).

Cultivating A Sense Of Membership And Belonging. This concept refers to the importance of creating a social context where students feel a sense of belonging in the classroom and school (Goodenow, 1993). Tools chosen to support a sense a sense of membership were cooperative learning and help-seeking. Sue, Carl, Jennifer, and Amy each addressed this concept in some way.

In a middle school class with special needs students, Sue saw cooperative learning as way to "get students to be supportive of one another," by heterogeneously grouping the students for a science fair project. "Their group efforts would be evident in their finished projects, contributing to the sense of group membership and teamwork that was the goal of using cooperative learning." Carl would also use cooperative learning with students with exceptionalities to help them as students, citizens, and future workers. "Successful achievement by one person in a group, particularly when overcoming an obstacle, will encourage and can build the remaining students' confidence and self-efficacy."

Jennifer and Amy would use cooperative learning for high school students. Jennifer sought to build a sense of membership among a diversity of students in math. Similarly, Amy planned to use cooperative learning for eleventh grade students in classes where there is much competition for grades, and to help students gain diverse perspectives of the meanings of novels.

Kimberly thought it was important to make every student feel involved and accepted, and that they are in the classroom to learn and succeed. One way she planned to do this was by providing a list of goals and having students write about the tasks they wished to accomplish during the school year.

Cooperative learning was most frequently chosen to promote a sense of membership and belonging. This was applied in a variety of classroom situations and subject areas.

Adaptive Strategies for Achievement. Similar to personal adaptive strategies for success, the preservice teachers chose a variety of strategies to assist their students to become more successful. When preservice teachers think about strategies to address motivation in their future classrooms, they also set in motion strategies they believe students can continue to use for the long term. Goal setting was the most frequent strategy chosen to address student achievement. Other strategies in this theme were attribution and informational feedback.

Jennifer, Marcia, Kimberly, and Pam used goal setting to increase student accomplishment in a

variety of ways. Jennifer thought “goal setting in a classroom is a good way to let a student have a feeling of accomplishment when a goal is finished.” Marcia believed proximal goals could be used to increase students’ self-efficacy and help them recognize their achievements. For kindergarten students, Kimberly developed a personal organizer for students to check off assignments as completed according to a schedule she would post. This would increase student success and organization in the school setting. Pam used goal setting as both a short term and long term strategy. In the former, by having students set short-term goals, she believed they would see their own progress and wouldn’t need extrinsic rewards as much. Setting long-term goals would help them be “focused” on their learning. Similarly, Carl thought time management was important as a tool because it would benefit students from kindergarten through adulthood. Teaching students effectively would contribute to their success in life and school.

Another adaptive strategy was attribution. Sue planned to use effort attribution in her special education classroom because she wanted her students to know that effort is essential to their success. She planned to collect their attributions for performance by helping them fill out the attributional rating form. Then she would draw connections between their efforts and how they prepared and completed their assignments during individual conferences, and finally suggest strategies for the next assignment. Amy would also collect attribution information; she then gave a specific example of the feedback she would give to shift a student’s attribution from ability to effort.

Informational feedback was still another adaptive strategy used by Pam and Amy. In her science class, Pam would praise students for things they did correctly and allow students to correct mistakes and to understand what is expected of them. Amy also planned to give feedback through effective verbal praise for student improvement and thus support intrinsic motivation. Amy illustrated her understanding by giving contrasting examples of effective and ineffective praise. An example of effective praise was, “You have shown improvement since the last test. I can tell you are putting forth more effort both in and out of class. The improved score is a testament to all of your hard work.”

In one sense, of course, all the professional tools chosen by the preservice teachers would be adaptive for student learning and achievement. Each was a reflection of their own decision-making, as they envisioned motivation strategies would be needed in their classrooms.

Follow-Up Interviews

To extend this inquiry into transfer of learning to another level, follow-up interviews were conducted in the next semester, after the class concluded, by a graduate assistant who contacted the students who had given prior permission for interviews. The interview questions developed by the researchers included asking, “if they had thought about the toolboxes, under what circumstances, and what tools they had used, and which were most helpful?”

These interviews revealed the number of preservice teachers who were applying the tools from the toolbox in their field experiences and tutoring (4) and next classes (1). Themes that emerged include: general usefulness of tools; personal and professional use of tools; and tools to further extend knowledge or add new tools.

All five students interviewed indicated a general usefulness of the toolbox by stating they had thought about their toolboxes and had applied a variety of the tools therein. Although three students expressed fearfulness or dread of the toolbox assignment when it was initially introduced, in retrospect they came to realize the usefulness of the tools. Sue stated that she was mortified and overwhelmed by the assignment at first, but she came to realize that “teaching is about strategy. . . . It (the assignment) laid the groundwork for what I needed to do later.” Similarly, Pam thought the toolbox assignment was tedious initially, but eventually found it to be beneficial for her own learning.

In response to the question, “How have you changed as a learner?” Amy said, “Motivation has changed me the most, as it seemed [initially] so abstract and unable to control (sic). The motivation section made me realize that there are concrete approaches and solutions to helping people to learn; it gave me further reason for why I am doing what I’m doing.”

The preservice teachers all indicated they continued to use personal and professional tools in various ways. Time management was mentioned most frequently as a personal tool they continued to use. Carl responded, “I am a work in progress in terms of assimilating the tools into habit and being a more productive student.” He uses a daily planner to complete and keep track of all his assignments. He also found it helpful to distribute his assignments across time and prioritize his responsibilities. Pam stated that time management has been the most beneficial, and she had used it in all her courses. Other personal tools used by the interviewees were goal setting, goal orientation, and attribution theory.

We were particularly interested in the extent to which the students used the tools in their professional experiences (e.g., service learning, other field experiences, and further courses). Among the students, seven strategies were listed that had been used in some type of professional experience. These included: effective praise with appropriate feedback, teacher efficacy, proximal goals, attribution and attribution with effort, mnemonics, metacognition, and teacher expectations.

For example, Carl stated, "When I am tutoring, I look at teacher expectations, encouragement and expectations that are communicated to the students and not expecting less than what they are capable of, concentrating on what needs to be learned, and expressing expectations of progress." Kim gave this example for teacher efficacy: "I used teacher efficacy when I shared a story in the classroom using objects and believed it would be possible for each student to be successful."

Amy used positive reinforcement and praise for effort when teaching dance. "I find that I tend to be more specific with details regarding effort that I have noticed in the progress that is made vs. a general 'good job'."

Finally, what aspects of motivation did students want to learn more about, to extend their toolboxes? Attribution was an area Carl, Pam, and Sue wanted to learn more about or master. Sue wanted to learn more about the application of attribution for the classroom because she saw it as so important, while Amy wanted to do more with the tools as a whole to help students overcome blocks for essay writing. She would add prewriting goals and strategies to help them organize and tie their ideas together. Kim perceived herself as confident at this stage in using the tools she had chosen for her toolbox.

DISCUSSION

The "toolbox" of motivation strategies was an assignment deliberately constructed to help preservice teachers acquire and transfer motivation strategies. The first research question asked what motivation strategies students chose for their personal use and for use in their future classrooms. The distribution of tools indicated that the preservice teachers displayed an awareness of a variety of motivation strategies that predominately represent a social cognitive perspective (e.g., attribution, self-efficacy, goal-setting). This is in contrast to the findings by Newby (1991) that the majority of strategies used by first year teachers were based on "extrinsic satisfiers." With a larger repertoire of strategies to choose from, these

preservice students would not need to rely on extrinsic motivation.

Research question two asked what themes emerged from students' choices of tools, and what these choices indicated about their level of understanding, for their own motivation and for their future teaching? There was overlap or consistency among the tools chosen for personal and professional use. Both tended to reflect a social cognitive perspective, with an emphasis on self-regulatory mechanisms. Pintrich (2003) identified social cognitive constructs as the main focus of current motivational research because these constructs are assumed to be more situational and domain specific for classroom practice.

Personal Tools

The preservice teachers chose personal tools to directly apply to their lives as learners both for understanding and improving their motivation. Self-awareness is an important aspect of social-cognitive beliefs and self-regulation (Bandura, 1986; Zimmerman 2001). Bandura explained that the capability for reflective self-awareness is inherently human. These students explicitly demonstrated self-awareness when they looked back at learning experiences from a motivational perspective. Among examples of self-awareness expressed by preservice teachers were awareness of how they responded to past failures and recognition of when they had adopted a performance goal orientation and how that differed from a learning goal in an achievement context.

Self-awareness was frequently related to the theme of confidence through self-evaluation. Self-efficacy beliefs are one aspect of self-evaluation (Zimmerman, 2001) and were chosen as a tool in some form by all but one of the preservice teachers. Students' beliefs about confidence were often illustrated in self-evaluation of their past experiences such as an awareness of a situation when they had low confidence and a current understanding that they could increase their confidence by using self-efficacy as an adaptive strategy. Self-efficacy was an important choice for a personal tool because as Pintrich (2003) concluded, "adaptive self-efficacy and competence perceptions motivate students" (p. 671).

In the theme 'adaptive strategies for achievement,' the students became agents in their own behalf. The strategies chosen reflected self-regulatory beliefs and actions to enhance their motivation in learning, work, or other areas. Goal-setting as a strategy for self-enhancement was important for the majority of students, while other strategies appeared to reflect the students' individual needs. An important aspect of self-

regulation, according to Boekaerts (2002), is making choices based on personal needs. For example, one student took the initiative to regulate her interest where she perceived the course to be uninteresting. Another regulated her goal orientation by recognizing a performance goal orientation and moving toward a learning goal.

Professional Tools

As stated previously, students were required to choose either teacher expectations or teacher efficacy for inclusion in the professional toolbox because teacher sense of instructional efficacy partly determines how much their students learn (Bandura, 1997). Perhaps the strongest evidence of the use of expectations and efficacy was students' frequent use of the term "responsibility." This ranged from stating a teacher's responsibility to establish clear expectations to setting the framework for appropriate student responsibilities. In both efficacy and expectations, the preservice teachers were in a sense saying, "I'm responsible for my students' learning." Taking responsibility also indicates an internal attribution. In terms of purpose and examples, these preservice teachers recognized that setting expectations is a role of the teacher at the beginning of the year that is influential across the year. Weinstein (2002) asserted that expectations are more important than ever because "too many children are at special risk for low expectations and less than rigorous teaching even in the face of higher standards" (p. 84).

An important finding was the participants' emphasis on student beliefs about the role of ability and effort. Dweck (2000) explained that beliefs about ability, success, praise and confidence can be adaptive or maladaptive for student learning. For example, children's beliefs about ability and effort are predominant influences on children's perceptions of their competence according to Paris, Byrnes, and Paris (2001). The influence of ability and effort perceptions is important because student perception of low ability is a serious motivation problem for educators (Graham & Weiner, 1996), stemming from distorted views about ability and effort (Paris et al.).

Attribution was the framework that most often reflected participants' concern with beliefs. What did the students think was important about attribution as a professional tool? Their choices indicated that this theory would help them understand their students' thought processes about ability and effort. Furthermore, these preservice teachers felt that if they understood their students' beliefs, they could identify strategies to help them in areas such as learned helplessness. The importance of attribution was further emphasized in the follow-up interviews.

Once the preservice teachers recognized the importance of beliefs about ability and effort, this opened up a repertoire of strategies they could use to address motivational challenges. They generally chose strategies that were specific to specific characteristics of their future students, including content area, grade level, and special needs. Similar to personal choices, goal setting was chosen to help students in a variety of areas, such as providing a mechanism for students to recognize their achievement and diminish the need for extrinsic rewards. Goal setting is important for academic achievement because goals help establish a purpose and set in motion other strategies such as self-monitoring and self-efficacy (Locke & Latham, 2002).

Another adaptive strategy was a sense of belonging or membership. Goodenow (1993) described a sense of school membership as the "extent to which students feel personally accepted, respected, included, and supported by others in the school environment" (p. 80). Participants most frequently conveyed this understanding through the choice of cooperative learning as a way to cultivate an inclusive classroom: an important aspect of a classroom sense of identity. Clark (1991) emphasized that social interactions can have positive or negative effects on student inclusiveness, especially for minority students. Positively they can provide a protective mechanism for students. A sense of school membership is an important theme with our schools' increasingly diverse population of students.

LIMITATIONS AND RECOMMENDATIONS FOR RESEARCH

We recognize that their intentions and applications at this level do not demonstrate what these preservice teachers might do as student teachers or as beginning teachers. Although the sample size is small, it is likely that the toolboxes used for analysis were representative of all toolboxes adjudged to be Level I according to the rubric. The students were constrained in their choice of strategies for tools by the course content from the class. In addition, they were required to choose either teacher expectations or teacher efficacy for a professional tool. A possibility for future research would be to have the students choose from a list of strategies suggested by the instructor rather than allowing such open-ended choices.

CONCLUSION

Research Question 3, based on this toolbox assignment, asked: what are the possibilities for transfer of motivation concepts to practice?

Although teacher education as a whole has been described as a weak intervention in terms of transfer of learning (Richardson, 1996), this study found some evidence of transfer. Students reflected a more complex understanding of motivation by using terms and constructs from the class to interpret their behaviors and beliefs as they built their toolboxes. In addition, there was some evidence that at one semester past the course, students were using their chosen strategies for personal learning and in professional situations.

One aspect of the toolbox assignment that we believe especially supported the use of strategies in a different context was what Oettingen, Honig and Gollwitzer (2000) referred to as "implementation intentions." This term refers to thinking about the implementation of a strategy, and then specifying a concrete situation for the intended strategy. The preservice teachers did this when they devised a concrete example for each personal and professional tool. That students reported using strategies for themselves and for their anticipated real world of practice shows that these motivation concepts were learned beyond the level of inert knowledge (Bransford, et al. 1991).

This toolbox assignment required that the preservice teachers apply the tools to their own motivation. For PK-12 reform, Dembo (2004) advocated that we not forget the student; instead we need to ensure that we teach students self-regulatory strategies. The same can be said for preservice teachers. Randi (2004) developed an approach to prepare preservice teachers as self-

regulated learners by using literature to develop lessons that emphasized self-regulation. Based on our experience we believe it is essential that students be encouraged to use the strategies for themselves as learners. When students do not apply motivation, we may not be emphasizing the aspects of motivation that is most relevant or useful for preservice teachers as learners or for their future classroom.

The theoretical and empirical knowledge base in motivation offers opportunity and hope that our efforts to facilitate student motivation can pay off (Pintrich, 2000). To do this we must teach for transfer of learning. McCaslin (2006) argued that in the context of school reform, student motivation needs to be integrated and some strategies may have to be taught. Although motivation theories provide a strong knowledge base relevant for practice, Dembo (2004) pointed out that a recent yearbook by The National Society for the Study of Education (Furhrman, 2001) on standards-based education made no mention of motivation. In contrast to the NSSE, Bartholomew (2007) argued that teacher education programs should offer substantially more motivation topics, along with opportunities for practice and reflection to give a better chance of application. This is consistent with the suggestion that transfer of learning requires more time (Alexander, 2006). The motivation strategies selected and applied by these preservice teachers illustrate one level of possibility for transfer of learning to practice at the beginning phase of the teacher education program.

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APPENDIX A

Designing a Strategy Toolbox: Guidelines and Rubric 5050:211

Purpose and Objectives

The purpose of this assignment is to **apply** the concepts of information processing and learning strategies and motivation. In order to use the information from this course for yourself personally and for students in your future classroom, you must begin to use the concepts and strategies NOW.

In this course, you will build two toolboxes. The first is from Unit 1 on Information Processing; the second is from Unit 2 on Motivation. The tools themselves may be (a) key concepts from the course or (b) specific strategies. The objective is that you understand key concepts and strategies well enough to apply them in actual school and assignment situations. In each toolbox you build, the tools you choose to include will fall into two categories:

- **Personal Use.** You choose these tools because you think they will help you in day to day college studies as you pursue this teacher education program and as you continue as a lifelong learner after graduation.
- **Professional use.** These are tools that you anticipate using with students in your licensure area when you're on the job as a contract teacher. You choose these tools because you think they'll help the students you're responsible for become capable learners.
- **Each toolbox will have a total of 10 tools – 5 personal and 5 professional**

Your Task

Begin by identifying and making a list of potential tools from the Unit we're currently on. Then at the conclusion of the Unit assemble a set of five tools for your Personal Use and five for your future Professional Use. To help you decide which tools to include, think "What strategies are important for my own learning and success as a college student? At the grade/content level, I teach, what tools will help my students be capable learners?"

Components and Format

The required format is one appropriate for a three-ring binder. Each toolbox will have the following components:

1. **Introduction.** (On a separate page.). This might include your background as a learner, your thinking as you chose tools, your overall goal or purpose the relationship of these tools to the course questions and objectives (see syllabus). The relationship of these tools to your vision of yourself as a teacher/learner (from the first Clinical assignment). Something unique to you that you've included. Anything I should know about your Toolbox that will help me assess it.
2. **Each Tool.** (Each on a separate page.). Each tool has three components that must be included:
 - a. **Heading** (e.g., Professional Use Tool #2: Underlining, a Rehearsal Strategy)
 - b. **Definition/Explanation with citation.** The tool that you have chosen is either a key concept or a strategy. If the tool is a key **concept**, paraphrase the concept which you've chosen from course-assigned texts, STEPS manual, lecture, handouts, videos, clinicals. How does this concept fit in with other concepts in this unit (information processing; motivation). Provide a **citation** of the source, including a page number. This definition must be at least three sentences long. If the tool is a **strategy**, paraphrase the definition, relate it to a larger concept and/or say how it fits in with the present unit, and outline and describe the steps. Provide a **citation**, including a page number.
 - c. **Purpose.** Explain why this key concept or strategy is a good choice for you in your personal study (Personal Use) for students of a *specific age/grade/subject* which you mention (Professional Use). Include literature purpose from literature. This purpose statement must be at least three sentences long.
 - d. **Example.** Draw a word picture for me as you describe yourself actually using the tool in your personal study or as you teach it to students. Show the example as required. For example, if you choose mapping, include the completed map or the completed goal.

3. **Conclusion to Toolbox** (Separate page). Possible items to include: Impressions about information processing (Toolbox 1) now that you've written up your tools. Links that you now see between a tool or tools to Characteristics of Learners. Links to your experiences/observations in schools. New interests and/or questions that you have now. Reactions to the assignment.
4. **Reference page.** The final page is the list of references using APA style.

Example of a Tool

Professional Use Tool #1: Outlining

Definition with citation [paraphrased]

Outlining is a written map of key ideas or topics and their subtopics using numbers and letters, along with indentations, to indicate development from general to specific (Arends, 1997, p. 258). It is an organizational strategy the purpose of which is to impose a structure on subject matter and thereby make it more meaningful. The outline is organized by placing a very brief (two-three words) description of a topic as a heading beside a Roman numeral. Then upper and lower case letters of the alphabet and Arabic numbers are used to develop the main heading beside these letters or numbers. This process is repeated as necessary to give a framework to that which is to be outlined (the key topic-s or idea-s).

Purpose

This tool is a good choice for any student from preschool through adulthood. It is an excellent way to organize and categorize material. In the process of organizing and categorizing, the student thinks about the material in a new way and thus processes and learns it. As an educator of young children, I would introduce this strategy of organization at the preschool level. Outlining at this level can be accomplished with pictures and discussion. Outlining should be guided by the teacher through second grade. Perhaps, at the end of the second year, the student could try a small independent assignment. In third grade, I would begin teaching this strategy in earnest because assignments from subject books become a part of school life, and students are expected to acquire larger and larger amount of information.

Example

To use this strategy with preschool, I would model outlining with pictures and, with kindergarten or lower first grade, pictures and words. For example, pictures of young children would be placed under pictures of adults (parents) which, in turn, would be placed under pictures of adults (grandparents). For upper grade and beyond, I would model with words only (unless pictures were needed for inclusion students). Group discussion would be my medium for arriving at the headings and subheadings. An example of this would be if a preschool with three and four year olds made a field trip to an apple orchard, I would sketch a few simple trees with apples on them as the main heading, using no numbers or words. Then, using only indentation to indicate subtopics, I would lead the students to discuss what they saw, sketching pictures as needed. (The example of this outline is shown on next page).

Rubric for Toolbox

Categories of Tools	Level I - 3 points	Level II - 2 points	Level III – 1 point	Level IV – 0 points
Tool Definition/ Explanation	Full and accurate explanation/definition of tool, expressed in your own words with citation from texts, handouts, etc., including page number.	Full and accurate definition/explanation of tool with citation , but not in your own words.	The definition is partial, verbatim with citation or incomplete	Does not meet previous level
Purpose/ Importance/use	Explanation of why you chose this tool for personal or professional, supported by the literature. It is appropriate for age/grade/type of learning.	Purpose is appropriate to the tool, but is more general than specific to your personal or professional use	Purpose is somewhat unclear or inaccurate	Does not meet previous level
Example/appliation	The example is specific or concrete and detailed enough to show understanding, of the concept, including the context for use.	Example is appropriate, but is more general or drawn from the text with limited explanation of how you will use.	Example is appropriate but not concrete, or lacks detail to show understanding or “cut and pasted from text”	Does not meet previous level