Hemant Lata Sharma
Former Head & Dean,
Department of Education,
M.D. University, Rohtak,
India

Leena Sharma
Research Scholar, Department
of Education, M.D. University,
Rohtak, Haryana, India

Believing is achieving: Ways for improving self-efficacy of students

Hemant Lata Sharma and Leena Sharma

Abstract
The authors review the research regarding self- efficacy and its application in academic settings. Based on the relevant published findings, the authors discuss the implications of the research for Teacher Education. Because of Teacher Education's core values for Teachers, Learners, Research Applications, Innovations, and Empowerment of Individuals, Families, and Communities. Teacher Education is an ideal vehicle for the implementation of instructional methods aimed at increasing students' self-efficacy.

Keywords: Self-Efficacy

1. Introduction

Few people outside the profession are fully aware of the range of responsibilities of teachers in Family & Community. In addition to having knowledge and experience in all of the areas that Family & Community encompasses, a teacher is a manager, educator, and motivator of students. The teacher sets the tone and tempo of the classroom, and a motivating teacher means a motivating teaching environment. In order to be effective, a teacher must learn instructional and management skills developed through training in educational theory and practice and enhanced by years of experience with students. Teacher educators strive to incorporate into their teaching innovative strategies that have their foundation in both theory and research. Through this constant process of innovation and application, Teacher educators shape and empower students to strive for their goals and become productive members of their families and society. Some of the most challenging aspects of teaching involve developing and encouraging student motivation, goal setting abilities, and independent problem solving skills. Furthermore, the nature of these challenges varies from topic to topic and from student to student. Some students have not been exposed to a good model for problem solving, whereas others simply lack the self-confidence to try things on their own. One means of fostering students' motivation to learn independently is through building the students' sense of self-efficacy. Self-efficacy simply refers to a judgment a student makes about his or her ability to accomplish a specific future task (Bandura, 1986) [2]. Educators nurture students' self-direction and sense of self- efficacy by providing them with opportunities to exercise at least some degree of control over their own learning. Thus, in addition to teaching basic concepts or skills, teacher educators must also focus on teaching students strategies that allow them to learn skills more effectively and to develop the self-confidence needed for success in school and in all aspects of life. First in this article is a description of the theoretical foundations of self-efficacy theory, then a review of the literature that supports the role of self-efficacy in supporting educational achievement. Specific examples are provided to illustrate how the techniques demonstrated in prior research can be used effectively in a family and community. In particular, Bandura's instructions regarding the development of self-efficacy scales are emphasized as an important component of an educational strategy to enhance the self-efficacy of students in family and community

Theoretical Underpinnings of Self-Efficacy

Bandura is well known for his social learning theory and his ideas about modelling as an important means by which children learn. Over time, Bandura further developed this theory,

Correspondence
Hemant Lata Sharma
Former Head & Dean,
Department of Education,
M.D. University, Rohtak,
Haryana, India

Adding cognitive components such as motivation and self-regulation, ultimately renaming it social cognitive theory. In 1986 [2], Bandura added the self-efficacy component to his theory, which holds that people possess a "self system" that enables them to exercise control over their thoughts, feelings, and actions. This self system is comprised of cognitive and affective components including the ability to symbolize, learn from others, plan alternative strategies, regulate one's own behaviour, and engage in self-reflection. Bandura (1986, 1997) [2, 5] also proposed the concept of reciprocal determinism, which is essentially the notion that how learners interpret the results of their performance informs and alters their environments and self-beliefs, which in turn alters their subsequent performances. According to Bandura (1995) [4], "People differ in the areas of life in which they cultivate their sense of efficacy….Teachers must have some knowledge of students' perceived strengths and weaknesses not simply in general learning, but in very specific learning tasks. The efficacy belief system is not a global trait but a differentiated set of self-beliefs linked to distinct realms of functioning" (p.1). Self-efficacy judgments are both task and situation specific; students use their judgments about their abilities in reference to a specific task or goal. Thus, having high self-efficacy in a specific area or domain does not imply that a person will have high self-efficacy in a different domain. For example, a student in a food preparation skills class who is learning to make emulsions may attempt to make vinaigrette and experience little difficulty. This same student may nevertheless have difficulty acquiring another similar skill—making mayonnaise, for example. The point is that the teacher should not make generalizations about students' sense of self-efficacy across situations; a student's sense of self-efficacy is likely to vary from one situation to the next, even when those situations seem similar in some regard. Self-efficacy beliefs are developed by four sources: mastery experience, vicarious experience, verbal persuasion, and physiological state (Alderman, 1999; Bandura, 1986; Dweck & Leggett, 1988) [1, 2, 10]. Mastery experience, the most influential, refers to the student's subjective evaluation of his or her past experience with regard to a particular task or skill. Mastery experience leads to two possible outcomes that influence self-efficacy: the perception of success or the perception of failure. An outcome perceived by a student to be a success brings about a greater sense of self-efficacy. The outcome believed to be a failure lowers it. This is a powerful determinant of future success, especially "…if failure occurs early in the learning experience unless it is attributed to an internal-unstable factor, such as lack of effort" (Alderman, 1999, p.57) [1]. According to Bandura (1986, 1997) [2, 5], a person's attributions about his performance are related to his motivation to achieve. There are three attributional dimensions that influence a person's success or failure in learning:

- Locus of Control (Internal vs. External causes),
- Stability (long-term vs. short-term effects), and
- Controllability (controllable vs. uncontrollable).

The locus of control dimension refers to beliefs about whether a given outcome was caused by the individual or by some external factor outside of his control. For example, some students attribute their failure on exams to luck. Other students believe that factors such as effort or their level of knowledge of a particular area are responsible for their grades. Thus, students in the latter group will try harder if they are dissatisfied with their performance. The stability dimension refers to a cause being attributed to either temporary (unstable) or permanent (stable) factors that lead to positive or negative results. For example, a student may attribute poor performance to an illness that came on suddenly before an exam. On the other hand, another student might attribute poor performance to factors that the student perceives as beyond his or her control. Some will say that the task is just too difficult, for example, which can actually lead to a decrease in the student's efforts to improve his or her performance on that task. The third dimension, controllability, refers to whether or not a person feels that he has control over a given outcome. Research has demonstrated that perceptions of control can influence learning. For example, a student who attributes failure to uncontrollable factors may decide that the teacher creates biased and confusing exam questions that are designed to promote student failure; thus, expending a great deal of effort would be a waste of time. On the other hand, a student who attributes success to controllable factors might decide that his or her performance was due to methods of studying, and would be more likely to feel motivated to change. Teacher Educators nurture students' self-direction and sense of self-efficacy by providing them with opportunities to exercise some control over their own learning.

Vicarious experience, or the observing of others performing a task, is the second type of experience affecting self-efficacy beliefs. According to Bandura (1986) [2], "…observing that others perceived to be similarly competent fail despite high effort lowers observers' judgments of their own capabilities and undermines their efforts" (p. 399). Even though the effect of this type of experience is not as strong as the mastery experience, it can be a useful educational tool. For example, some factors may make students more sensitive to the influence of vicarious experience such as:

a) Uncertainty about one's capabilities;
b) Lack of prior experience with a subject; and
c) The criteria by which the ability is evaluated.

"Because most performances are evaluated in terms of social criteria, social comparative information figures prominently into self-efficacy appraisals" (Bandura, 1997, p. 399) [5]. Many times, students express relief when they know they are not the only ones who are having difficulty with a given skill or concept. Vicarious learning can be especially effective when the person demonstrating is a peer or coping model to which the student can relate (Bandura).To be a good coping model, of course, the peer must be at least somewhat more skilled at the specific task. For example, if a student feels uncertain about his ability to use a knife correctly, another student in the class who has succeeded at this task could demonstrate the steps he went through in learning to use knives correctly. Verbal persuasions or verbal judgments are comments by significant others that develop beliefs in self-efficacy (Bandura, 1986; Alderman, 1999) [2, 1]. Bandura believed that verbal persuasion "can contribute to successful performance if the heightened appraisal is within realistic bounds" (p. 400). Negative comments are more effective in lowering self-efficacy than positive comments are in increasing self-efficacy (Alderman, 1999) [1]. When giving students feedback; teachers often concentrate on the

students' weaknesses in order to justify the points deducted from their grades. Doing so can result in students feeling negatively about their ability to perform a given task. A better way to motivate students is to point out the areas where progress has been made, and then give students clear, concrete feedback about what they need to do to continue this improvement and ultimately conquer the skill they are attempting to learn. A learner's physiological state can also affect self-efficacy; for example, anxiety, fear, fatigue, or pain can all affect self-efficacy beliefs (Bandura, 1997) [5]. Anxiety in particular can interfere with self- efficacy, ultimately interfering with a student's performance. A student with severe test anxiety, for example, may be attentive in class and study diligently, but nevertheless perform poorly on in- class examinations. Anything a teacher can do to lower anxiety about evaluations of student performance could help to raise the students' sense of self-efficacy and thus improve their concentration and performance. Recommending study groups, sharing personal learning and test- taking strategies and recommending methods of relaxation are just a few examples of ways that teachers can directly influence their students' anxiety. Teachers can also attempt to create a friendly and non-threatening classroom environment that helps students to feel generally more relaxed.

Research Findings (Self-Efficacy and Learning)

The importance of Bandura's self-efficacy concept for education is clear. The judgments a person may make about his or her abilities can lead a person to decide which activities to try or not to try, how much effort to give, or how persistent he or she will be when challenged. Highly efficacious students set higher goals, try harder to reach their goals, improve upon existing efficacy as they make progress, use critical thinking skills and strategies, and do not give up as easily (Bandura & Schunk, 1981; Bouffard-Bouchard, 1990; Lent) [6, 8].Thus, the highly efficacious student is more likely to succeed. It has been about two decades since Bandura first introduced the concept of self-efficacy and described its importance as a component of social cognitive theory. Thus, the research on self-efficacy is relatively new. Recently, there has been increasing attention in educational research on the implications of self-efficacy for education. The results of the research on self-efficacy affirm the importance of having high self-efficacy when faced with new and challenging skills (Bandura, 1995; Bandura & Schunk, 1981; Schunk & Hanson, 1985) [6]. For example, Bouffard- Bouchard, Parent, and Larivee (1991) found that students with high self-efficacy engaged in more effective self-regulatory strategies. This study also supported Bandura's contention that self-efficacy enhances students' persistence, and ultimately their memory performance. Zimmerman, Bandura, and Martinez-Pons (1992) used path analysis to show that self-efficacy improves students' performance directly and indirectly; not only do students' with high self-efficacy perform better academically, but they also set higher academic goals for themselves. Strategies to Improve Students' Self-Efficacy Researchers typically have assessed self-efficacy beliefs by asking students to report the level, generality, and strength of their confidence in their ability to accomplish a task or learn a skill. Studies regarding the relationship between self-efficacy and academic performance have been conducted in the areas of mathematics (Hackett & Betz, 1989) [15],

reading and writing tasks, and the use self-regulatory strategies (Bandura, 1989) [2]. Other tests of self-efficacy in academic settings include assessments of students' expected performance in a given subject (Meece, Wigfield, & Eccles, 1990) and whether students believe that they are good at a given academic subject (Marsh, 1990; Meece, Wigfield, & Eccles) [16]. If one accepts that students' self-efficacy is related to their academic performance, then the question remains: What educational practices enhance students' self-efficacy? Alderman (1999) [1] discussed strategies that can build up students' self-efficacy towards learning. Some of these strategies include modelling, sharing of self-efficacy stories, constructive feedback, goal setting, rewards, and estimating student self-efficacy by using a scale.

Modelling

Modelling refers to the process of demonstrating and describing the process of mastering a new skill to a novice. Modelling is effective in increasing self-efficacy because it can provide explicit information about how to acquire a skill and can raise the student's expectation that he can master the skill (Schunk, 1989, 1991). There are two types of models that can be used in a classroom situation to enhance the student's sense of self-efficacy: mastery and coping models. Mastery and coping models are both good models to observe, and both should be used in the classroom when the opportunity presents itself. A mastery model is someone who is an expert at the task. A coping model would be someone who may still have some difficulty with the task but can teach and demonstrate the task successfully to someone who is just acquiring the skill. Both peers and teachers can serve as mastery or coping models. In order to raise students' self- efficacy, many researchers believe that doing the task with a more capable peer can lead to task accomplishment (Alderman, 1999) [1]. Often, peers are more able to assess what sort of explanation another student would best understand. Many teachers who are "expert" in their field have difficulty relating to the point of view of a novice, and thus have a more difficult time explaining concepts in terms that the students can understand. Small group projects in which students help guide each other through a complex task are therefore a desirable strategy to enhance the students' sense of self-efficacy (Schmuck & Schmuck, 1992).

Feedback

Teachers should always make an effort to give students clearly defined assignments and clearly articulated constructive feedback (Schraw, Dunkle, & Bendixen, 1995). Giving the student clear and constructive feedback may be the most over-looked strategy that an instructor can utilize (Schraw & Brooks, 2001). For example, if a student needs more practice with one topic, an instructor can point out that the student did a fine job selecting a variety of topics, but this topic should be more uniform. The teacher can make these instructions clearer by either demonstrating the skill or having another more skilled student demonstrate for the student.

Goal setting

When setting goals, make sure that they are proximal and not distal to insure students' success in reaching them. Proximal goals are goals that one can easily reach but are still challenging. For example, a teacher who is attempting

to teach, it may want to take the students through the steps one by one, guiding them along as they work. Simply running through the list of steps and telling them what the end goal should be is not enough for many students, and can lead to frustration and disappointment. Giving instructions should serve as a road map to success. Goal setting can be applied to other, more general goals, such as enhancing a student's problem solving skills. A teacher can accomplish this using several methods. First, it is important to discuss the importance of self-reflection and the role it plays in self-regulated learning (O'Neil & Abedi, 1996) [17]. A teacher may also attempt to enhance a student's self-knowledge through encouraging or requiring scrupulous documentation of study strategies over time. Such documentation could become part of the student's routine class activities or out-of-class assignments, and may include notes regarding the relative effectiveness of learning strategies. This can lead to enhance regulatory skills in the student, who will see that some strategies are more effective than others in attaining specific, clearly defined academic goals. This can lead to a greater feeling of self-efficacy that comes from enhanced regulatory skills; self-regulatory skills tend to generalize to other learning situations (Schraw, 1998).

Rewards
Rewarding students is another method that has been used to increase self-efficacy. It should be cautioned, however, that this method of raising students' self-efficacy is considered to be the least effective (Alderman, 1999) [1]. Allowing the students to take home something that they have created to share with friends and family is a reward for the students and shows appreciation for their hard work. Rewards can also involve praise or enjoyable in-class assignments. Rewards are best used on a group basis, rather than on an individual basis. Rewarding students as a group will help to ensure a more cooperative atmosphere, which is essential if peers are to serve as effective models.

Self-Efficacy Assessment
It is important that the teacher first assess all the students by administering a task-specific self-efficacy questionnaire at the beginning of the semester or course. Such information will allow the teacher to tailor strategies to meet the needs of the individual students. Bandura's (1995) [4] guide for constructing self-efficacy scales was used as a basis for the scale shown in Figure 1 for students learning food preparation skills. The domains assessed in this scale are specific to the goals of the particular course. According to Bandura, the construction of sound efficacy scales relies on a good conceptual analysis of the relevant domain of functioning. In short, self-efficacy scales must be tailored to activity domains and assess the multifaceted ways in which efficacy beliefs operate within the selected activity domain. Scales of perceived self-efficacy must be tailored to the particular domain of function that is the object of interest.

Conclusion
Among the many goals that family and community share are promoting a positive self-image, developing personal and career skills, enhancing communication skills such as conflict resolution, and acquiring related "real life" skills such as budgeting and financial literacy. Because of its mission and the nature of the discipline, Teacher educators are uniquely prepared to help students enhance their sense of self-efficacy. Research on the effects of domain specific

feelings of self-efficacy supports the notion that high self-efficacy promotes student learning (Pajares, 1996) [18]. Students who have a higher level of self-efficacy should be better able to learn new skills and concepts needed to succeed. Family and consumer sciences classrooms often involve the continuous bombardment of new concepts, skills, and procedures that a student must learn in order to be successful in the profession. Students must have the confidence necessary to cope and problem solve in the classroom and in all other aspects of life. Through goal-setting, feedback, modelling, rewards, and self-efficacy assessments, family and consumer sciences can empower students to become more independent learners as future professionals that embody the discipline's core values.

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