IS IT REALLY POSSIBLE? CAN STUDENTS WITH LEARNING DIFFICULTIES EVER ACHIEVE HIGHER LEVELS OF SELF-EFFICACY?

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ABSTRACT
Current literature on self-efficacy is extensive while at the same time confusing, possibly because of the sheer volume available. This paper presents a description of the self-efficacy construct and discussion of research that has been undertaken into the mediating variables. Interestingly, research that involves students with learning difficulties is relatively scant. The available research on self-efficacy among those who have learning difficulties will be situated within a model of human motivation provided by Schunk (1989). Implications from the research as well as techniques that can be employed to improve students' self-efficacy are proposed.

Description of self-efficacy
Historically, the focus on student achievement in school has been from the vantage of environmental influences or cognitive functioning and the way information is processed. Bandura's social learning theory views human functioning in terms of reciprocal interactions among behaviours, environment, cognition, and other personal motivating factors (Bandura, 1997). Pintrich, Marx, and Boyle (1993) elaborate four personal motivational factors to include: goals, values, self-efficacy and control beliefs. Schunk (1989) organises these constructs in terms of elements brought to the task by the student and task engagement in the activity that can affect the outcomes of motivation and self-efficacy (see Figure 1).

Albert Bandura introduced the concept of perceived self-efficacy in 1977. It is an individual's sense of competence and confidence related to performance in a given...
domain (Bandura, 1997; Kinzig & Nakai, 1995). It is a personal belief about one's capability of performing an action. Self-efficacy beliefs contribute significantly to the level and quality of human functioning as they influence how people feel, think, motivate themselves, and behave.

Much has been written on self-efficacy in recent years. Studies have included areas such as teacher training (Dunkin, 1995; Imants & Tillema, 1995), persistence with high school (Hardre, 2003) and academic abilities (Fulk, 1994; Linnenbrink & Pintrich, 2003; Pajares, 2003; Walker, 2003). Although much has been written about self-efficacy in general, self-efficacy involving students who have learning difficulties has received comparatively little attention (Pintrich & Schunk, 2002). The reason for this is unclear; perhaps teachers and researchers did not really believe it was possible to have an impact with these students.

For the purpose of this paper, students who have learning difficulties are those with normal intelligence but often have cognitive processing difficulties. Learning difficulties (LD) refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition of listening, speaking, reading, writing, reasoning or mathematical skills (Board of Studies, 2002; Wong, 1997). Students with LD are often both low achieving and labelled; recently they have been identified as having lower levels of self-efficacy in comparison to other students (Tabassam & Grainger, 2002).

This paper will situate the available research on self-efficacy among those who have learning difficulties within a model of human motivation provided by Schunk (1989). Implications from research and techniques to improve student's self-efficacy are proposed under each of Schunk's headings. Schunk's model provides a framework that enables us to visualise the interaction between the many contributing factors that impact on self-efficacy. Teachers need to take all of these factors into account.

Elements brought to the task by the student

1. Personal qualities, such as abilities, attitudes and attributions, effort and persistence

Students acquire some information about their self-efficacy from elements they bring to a task, including their performance accomplishments; attitudes towards learning based on performance outcomes; attributions of a causal nature and amount of effort or persistence one is prepared to expend on a task. Information acquired from these sources does not automatically influence self-efficacy but rather the student cognitively appraises it first (Bandura, 1993, 1997). The resulting appraisal then becomes a mediating factor for new information, and so
Elements brought to the task by the student

1. Personal qualities
   Abilities
   Attitudes
   Attributions
   Effort
   Persistence

2. Prior experience
   Failing history
   Choice of activity

Task engagement in activity

3. Personal influences
   Goal setting

4. Situational influences
   Rewards
   Feedback given
   Models provided
   Strategies used to enhance self-efficacy

Outcome

Motivation

Self-efficacy
Increased outcome expectation based on success

Figure 1. Model of human motivation—adapted from Schunk (1989)

the cycle goes on. For example, if a student has high self-efficacy they will be prepared to try new tasks. They will be prepared to expend effort, and persist with the task, even if it is not immediately achievable.

Many studies involving students who have LD have obtained significant and positive correlations between measures of perceived self-efficacy and skilful academic performance (Borkowski, 1992; Chapman & Tunmer, 2003; Linnenbrink & Pintrich, 2003; Pajares, 1996; Schunk, 2003; Walker, 2003). These studies indicate that students who perform poorly do so either because they lack the skills, or they have the skills but lack the sense of self-efficacy to use them well, or don’t know when to use the skills they have.

Although low self-efficacy may be detrimental, effective learning and achievement in school does not require that self-efficacy be extremely high. Salomon (1984, cited in Schunk, 2004) found that lower self-efficacy might lead to greater mental effort. If learners felt efficacious enough to surmount difficulties, having some doubt may mobilise effort and effective use of strategies more than feeling overly confident.

In a number of studies, students with LD had very high self-efficacy and, in fact, overestimated their abilities, in spite of their relatively poor performance in academic areas (Walker, 2003; Zimmerman, 2000; Zimmerman & Martinez-Pons, 1990). Graham, Schwartz, and MacArthur (1993) found that even though students with LD had less mature conceptualisations of writing than their normally achieving peers, they were generally positive about their writing skills. Klassen (2002) refers
to this as “optimistically miscalibrated self-efficacy” (p. 88). The danger of having inflated self-efficacy is that it could be more resistant to change through strategy instruction and failure may become self-perpetuating. These apparently conflicting findings may simply be, as Page-Voth and Graham (1999) suggest, a reflection of items included in the self-efficacy questionnaire scales that produce these results. It is beyond the scope of this paper to discuss the validity of scales used, but these issues should be kept in mind.

It is not clear why low achieving students overestimate their abilities. Usually children become more accurate regarding their abilities with age (Borkowski, 1992). Adults faced with a task can clearly imagine themselves doing or not doing the task. Young children or those with LD may not have developed the cognitive skills necessary for such imagery or task anticipation. Academic performance may also be more difficult to imagine or anticipate than other types of behaviour. It is even possible for young students whose capabilities are just beginning to develop; unrealistic pre-task self-efficacy may perform an important, positive and adaptive function by allowing persistence despite poor performance (Sawyer, Graham, & Harris, 1992).

To strike a balance between overestimation and accurately assessing one’s own capabilities, especially to know that one has a problem, is a very important metacognitive skill. When students with LD overestimate their capabilities (Sawyer et al., 1992; Zimmerman, 1992) educators need to find a way to assist students to make appraisals that are more realistic (Graham et al., 1993; Page-Voth & Graham, 1999). Self-evaluative opportunities should be built into everyday instructional programs so that students can perform the self-regulatory processes of self-observation, self-judgment, and self-reaction. Students initially would need to be explicitly taught how to engage in these processes. They have to learn how to self-monitor their own performance, their self-efficacy, and their attributional beliefs, to judge whether performances are acceptable and whether their beliefs match their performance level.

Schunk (2004) proposed that such competence could be developed through self-regulation of attributions (i.e., beliefs about the causes of outcomes). Positive attributions promote perceptions of confidence and sustain motivation directed towards learning. Even though Schunk (1989) distinguishes individual’s perceptions about their ability to perform a task (self-efficacy) from their outcome expectations, clearly they are related. Pintrich et al. (1993) and Pintrich and Schunk (2002) propose three general control beliefs: internal, external and unknown control. Schunk (2004) further elaborates these dimensions to incorporate: internal or
external, stable or unstable, controllable or uncontrollable by the individual. Success ascribed to stable causes (i.e., internal and controllable events such as effort and persistence) results in higher expectancies of success and self-efficacy than does attributing it to unstable causes (i.e., external and uncontrollable events such as luck, task difficulty, or teacher bias). It is generally agreed that students who have internal control over their own learning and performance perform better at school than those who have external or no control (Alderman, 1999; Borkowski, 1992; Mushinski Fulk & Mastropieri, 1990; Pintrich & Schunk, 2002; Walker, 2003; Zimmerman, 2000).

Helpful attributions associate success with stable and controllable factors such as effort, persistence, and correct use of strategies. Perhaps an appropriate sequence for learning objectives would be to achieve mastery of a particular skill, then work towards overt use of positive attributions about the result. Students need many opportunities to practise the strategy as well as the attribution sequence (Margolis & McCabe, 2003). It seems imperative that teachers assist students to make more helpful attributions.

2. Prior experiences, such as failing history, and choice of activity
In an educational context, self-efficacy beliefs refer to judgments about cognitive capabilities to accomplish specific learning outcomes (Pajares & Kranzler, 1995). Hardre (2003) describes self-efficacy as one of “the internal motivational resources” needed by students (p. 347). As students work on tasks they compare their performance to goals that have been set for them. Self-evaluations of progress enhance self-efficacy and keep students motivated to improve (Bandura, 1993; Schunk, 1989, 2004). Self-efficacy is said to be tied to particular task demands rather than being global. “It is not static or fixed but rather dynamic and malleable, subject to change in a situation, social context, and individual’s development” (Bandura, 1993, p. 118).

Closely related to the construct of self-efficacy are “outcome expectations”. These are beliefs about the outcomes that might result from the actions. For example, a student might believe that a positive outcome would result from extensive reading and analysis of literature about self-efficacy. This would be a positive outcome expectation. At the same time, a low level of self-efficacy might exist if the student believes that they do not have the capability of extensive analysis. The student would not expect to achieve the outcome in the first place, even though they understand it to be true for others.

Students who struggle in school give up easily on tasks they have previously failed (Margolis & McCabe, 2003). They do not believe they can succeed even when they expend great effort, so they avoid tasks
they perceive to be out of their range. When students who are accustomed to failure bring negative attitudes to a task, it can be a very difficult to find any strategies that will make a difference and provide a measure of control (Jinks & Morgan, 1999).

Attributional retraining may be a way of changing negative attributions to those that will better assist students with new learning. Licht (1983) described a treatment process involving attribution retraining. The treatment components included intermittently exposing the student to failure, and the second component involved teaching the student to attribute these failures to insufficient effort. Anderson and Pichert (1978) also suggested attributing one’s failure to ineffective strategies in order to counteract the notion that effort alone was sufficient, but at the same time allowing attribution for events that were controllable by the student.

Task engagement in the activity. (The following are taken from the mid section of Figure 1.)

3. Personal influences on self-efficacy, such as goal setting

In addition to teaching students to make facilitative attributions, another way to assist the development of self-efficacy is to identify “personally important” short-term goals (Zimmerman, 1992). These are goals that students need and want to achieve. Goals need to be realistic: if they are too difficult students will give up, and if they are too easy it will lead to boredom. Zimmerman (1992), Pajares and Kranzler (1995), and Schunk and Swartz (1993) found that perceived efficacy motivates academic achievement both directly and indirectly by influencing personal goal setting.

Performance mastery is enhanced if very specific short-term goals are provided so clear direction for learning is the result. Short-term goals make smaller steps seem more achievable than the overall long-term goal, and content will be more appropriate in difficulty (Ferretti, MacArthur, & Dowdy, 2000). Schunk and colleagues (Schunk, 2003; Schunk & Swartz, 1993) utilised short-term goals in order to teach students paragraph writing. Self-efficacy, strategy use, and skill were positively correlated and gains were maintained for six weeks after completion of the instruction. Similar findings are evident in the study by Ferretti, MacArthur, and Dowdy (2000) when investigating the effects of providing elaborated goals to improve persuasive writing skills amongst older students. In 1992, Sawyer, Graham, and Harris devised a strategy to improve student ability with comprehension skills. The strategy comprised goal setting, self-instructing, self-assessment and monitoring, self-reinforcement and direct teaching. Following instruction, comprehension skills improved to the extent that they did not differ significantly from normally achieving
peers. In this instance, no differences were found, however, in the level of student self-efficacy. Perhaps improved performance has to be in place for considerable time before it will have a flow-on effect on self-efficacy. As you would expect, outcome expectations take a while to change when students are accustomed to failure.

Self-regulation is a process whereby students learn to direct cognition, motivation and behaviours towards the attainment of academic goals and tasks. One way to enhance this is by teaching students to monitor their own progress towards goals by frequently utilising think-aloud strategies. Margolis and McCabe (2003) provide a think-aloud checklist related to the task of reading paragraphs.

4. Classroom situational influences on self-efficacy such as (a) rewards, (b) feedback, (c) models, and (d) strategies taught to enhance self-efficacy

(a) Rewards
Explicit instruction may lack sufficient power by itself to alter low self-efficacy (Margolis & McCabe, 2003). Students who have a long history of failure may need access to extrinsic rewards as well (Alberto & Troutman, 1999). However, students are less able to take responsibility for their own outcomes if extrinsic rewards are used to excess and overemphasised in the classroom (Kinzig & Nakai, 1995; Swanson, 2000). There is a need for caution when distributing rewards so that they in fact have a positive effect. This is well documented in the behavioural literature (see, for example, Alberto & Troutman, 1999) in terms of schedules and intensity of reinforcement. Intrinsic rewards are seen to be far more beneficial than external rewards in the end and would be the ultimate aim. This is not to suggest that external rewards should not be used at all in initial stages of new learning. Receipt of rewards may contribute to self-efficacy as this symbolises initial progress.

Rewards need to be tied to actual performance and contingent upon successful performance. When they are not tied to actual performance, they lose value and they may be negative. Kinzig and Nakai (1995) found that offering performance contingent rewards did in fact promote task accomplishments, self-efficacy and skill development far more than offering effort contingent rewards. Performance is easily measured where effort tends to remain somewhat elusive and subjective.

(b) Provision of feedback
Feedback given by teachers has a powerful effect on student motivation as well as progress. Ability feedback promoted self-efficacy and skill more than effort feedback. Schunk and Swartz (1993) found that effort feedback given during the early stages of a lesson was more beneficial when learning is being introduced than effort feedback
given in the latter part of a lesson. Perhaps the type of feedback can be more decisively tied to the particular stage of learning in which the student is engaged. It would be more appropriate in the acquisition stage of learning when skills may be just developing. Once mastery is achieved in the acquisition stage, there is simply a broader skill base to provide feedback during fluency and generalisation stages. However, as stated earlier, effort is more subjective and therefore difficult to gauge.

Effort feedback may be credible during skill acquisition. However, effort feedback will not be effective when students are already working hard and still failing. As skills develop, teachers might introduce ability or performance feedback. Schunk (1995) suggests that one needs to ensure that the feedback they give is credible. The attributions (reasons for failure or success) stressed to students must match their own perceptions of the factors contributing to their performances. When feedback stresses two or more attributions (i.e., ability and effort for success), students may assess their credibility and accept the most credible and discount the least credible.

Peers can also provide feedback as well as fulfilling the role of a model. Schunk (2004) and Wilhelm (2001) suggested verbalisation and modelling of appropriate strategies by both the teacher and other students to assist those having difficulty.

(c) Provision of models and vicarious learning opportunities to enhance self-efficacy
Some students with LD have had so much failure in their lives that effort to reverse this trend may take considerable time and a coordinated approach from teachers and family (Margolis & McCabe, 2003).

Peers may be effective in helping students who have LD and low self-efficacy. Peers that are models for other students may fall into the category of mastery or coping models. The peers that are only “just coping” with the work themselves (coping models) have the advantage of showing students how others, similar to themselves, can overcome mistakes and acquire new skills. There is some experimental evidence that students observing a coping peer model are more efficient than using just a mastery model only (Schunk, 2004, p. 166). It is important to only ask peers to provide practice skills already mastered to assist maintenance and fluency. Teachers still need to provide a “mastery model” (i.e., as a skilful role model) during acquisition stages of learning. Modelling by “coping peers” has also been proposed by Schunk (2004), with increased self-efficacy validated when success follows. Coping models can illustrate how determined effort and positive self-thoughts can overcome difficulty. The number of models used might also be considered. When multiple models are used, there is increased likelihood that students will identify with at least one of them (Schunk, 2004).
(d) Strategies teachers can utilise to enhance student self-efficacy

A variety of studies have linked self-efficacy beliefs for a task to cognitive engagement (Griffin & Griffin, 1995; Kinzig & Nakai, 1995; Mager, 1992; Pintrich, et al., 1993; Schunk & Swartz, 1993; Zimmerman, 2000; Zimmerman & Martinez-pons, 1990). In a meta analysis of effective instructional strategies, Swanson (1999) found two important components of instruction that help improve outcomes are controlling task difficulty and sequencing tasks from easy to difficult.

By using Curriculum Based Assessment (CBA) the teacher can control task difficulty as well as link new work to recent successes and sequence from easy to difficult. Using CBA is a way to identify the student’s correct instructional level. The literature differs on the exact criteria needed for success for tasks ranging from 80% needed to demonstrate mastery to 95% suggested in the reading recovery material. Instructional levels might be different for different tasks, and they need to be specified for each of the levels of learning. For example, there needs to be criteria set for mastery of content at the acquisition stage as well as for fluency, maintenance and generalisation (Alper, Ryndak, & Schloss, 2001; Fewster & MacMillan, 2002; Idol, Nevin, & Paolucci-Whitcomb, 1999; Spinelli, 2002).

Self-efficacy is task specific so teachers need to focus on the tasks and academic subjects in which students with LD are struggling. For example, students may have low self-efficacy in reading but not in maths. A finer distinction may also exist where students may have low self-efficacy in comprehension but not in decoding (Margolis & McCabe, 2003). It is most important to determine the instructional level at which the student is operating in each specific task.

Schunk and his colleagues (1989, 1993, 2003) have consistently shown in experimental studies that changing levels of self-efficacy can also lead to better use of cognitive strategies and higher levels of academic achievement in mathematics, reading and writing. It should be noted that self-efficacy appraisal does not typically occur for habitual routines or tasks requiring skills that are well established. In school, self-efficacy beliefs are likely to be more salient and influential when new learning is involved (Schunk, 1989). Pintrich et al. (1993) and Shell, Colvin, and Brunning (1995) found that students self-efficacy beliefs about their reading and writing skills were positively related to use of cognitive strategies and actual achievement on a reading or writing task. Pajares and Kranzler (1995) and Randhawa (1993) found that ability and self-efficacy had strong direct effects on maths performance.

Schunk (1989) described several of his studies relating to verbalisation of strategies. Strategy verbalisation led to higher reading comprehension, self-efficacy, and ability attributions across
children with LD in grades 2 to 5 and promoted higher performance among the 3rd, 4th and 5th graders. Perhaps the demands of verbalisation were too complex for younger students (Schunk & Rice, 1984, 1985, cited in Schunk, 1989). Schunk and Cox (1986, cited in Schunk, 1989) compared the effects of different forms of verbalisations among students with LD during mathematics instruction. Continuously verbalising a strategy while solving problems led to higher self-efficacy and skill compared with discontinued or no verbalisation of strategies (Wilhelm, 2001). This may also be interpreted as appropriate fading of a scaffold used to ensure maintenance (Alberto & Troutman, 1999).

As well as knowing how to apply strategies, there is widespread agreement that each student also needs to know when to apply strategies (Zimmerman & Martinez-Pons, 1990). This knowledge is referred to in the literature as metacognitive knowledge. It allows the student to maintain awareness and control of their learning. This control, in turn, enhances self-efficacy further than cognitive strategies alone, as they assist in transferring control over learning to the student. Attributions are part of an important executive or self-regulatory process used during academic activities. Pintrich et al. (1993) and Hardre (2003) strongly advocate environments that enable children to perceive themselves as successful and facilitate positive feelings. Butler (1995) investigated an intervention for older students with LD. Results revealed that students’ task performance improved; there were also gains in metacognitive knowledge about tasks and strategies, increased perceptions of self-efficacy, and shifts in attributional patterns. The students became more self-regulated in their learning, active in developing and modifying strategies; they transferred strategies across contexts, and began to work on non-instructed tasks. Perhaps strategy and attribution instruction has a greater effect on self-efficacy as age increases.

Characteristically, students with LD do not know how to approach learning tasks (Morgan & McCabe, 2003). They don’t know what strategies to use or when to use them. Explicit and systematic instruction and sequencing of materials to be learnt is essential. Unfortunately, the complex components of self-regulation are not easily acquired and generally are not the explicit focus of classroom instruction. Teachers would do well to actively develop working models of strategy-based approaches to enhance students’ self-efficacy (Borkowski, 1992; Pintrich, et al., 1993). In 1999, Alberto and Troutman suggested teaching the strategies as well as teaching how to apply them in an overt way so that it can be monitored.

Situational influences, such as those listed above, have been well documented to have a positive effect on self-efficacy. The assumption is that when these strategies are
successful, they will have a flow-on effect to personal influences such as student goal setting and information processing abilities. The goal of self-regulatory strategies is surely to allow students to monitor their own progress toward goals and thus have greater control over their own learning. Fasko and Fasko (1998) suggest that more use can be made of school counsellors to help address difficulties of low self-efficacy in remote and rural areas. If teachers and school counsellors combined efforts the result could be quite potent.

CONCLUSION
When we elaborate on Schunk's model, it is clear there is a need to examine interactions between the learner, the learning environment, and the task, in order to identify the variables and conditions under which learning becomes problematic (Bandura, 1997; Hardre, 2003). In order to increase self-efficacy, teachers need to take into account all variables noted by Schunk (1989).

The research on self-efficacy has centred on all of these variables, such as instructional strategy, feedback, models, goal setting, attributional feedback, and use of rewards (Chapman & Tunmer, 2003; Fulk, 1994; Pajares, 2003; Schunk & Zimmerman, 1997). Even the elements brought to a learning task by the students can be altered with a carefully structured learning environment. Prior history of academic failure can be redirected with careful assessment of current instructional levels and sequencing of skills. Students can be taught to set relevant and achievable goals. Teachers make informed decisions and judgement about cognitive and metacognitive strategies they use after careful and ongoing monitoring of student work. This, after all, is what good teaching is all about.

Teachers already use many of the strategies reported above; they are not new to the teaching profession. Schunk's 1989 model provides a framework to help synthesise the strategies for maximum benefit for those who have difficulty learning. This paper has attempted to synthesise available research within the framework of Schunk’s model with a particular focus on LD students. All children differ along a continuum of intellectual, physical and psychological characteristics; not only those with LD. Because different strategies work for different learners, a wide variety of teaching strategies must be employed.

It is clear that Schunk's model cannot be viewed as linear in nature. Through careful monitoring of personal and situational influences, teachers can have a positive effect on student self-efficacy, and this in turn will change attitudes students bring to the task in future. Yes, it is possible to help students with LD achieve higher levels of self-efficacy, and surely they are owed the opportunity. It will not happen, however, until teachers are aware of ways to achieve this end with the learning environments they create.
REFERENCES


