CHAPTER FOUR

THE RELATIONSHIP BETWEEN PERSONAL VARIABLES AND SELF-REGULATED LEARNING AND ITS INFLUENCE ON ACADEMIC ACHIEVEMENT

4.1 INTRODUCTION

The purpose of this chapter is to view the relationship between personal variables and self-regulated learning and its influence on academic achievement. Self-efficacy is an important variable in understanding motivated learning, which refers to the motivation and attribution necessary for acquiring skills and knowledge or mastering material (Schunk, 1994c:84). Self-efficacy is first defined in paragraph 4.2, followed by a discussion of the sources of self-efficacy in paragraph 4.3. The influence of self-efficacy on academic achievement is discussed in paragraph 4.4, and the relationship between self-efficacy and self-regulated learning in paragraph 4.5. Attributions are defined in paragraph 4.6.1, followed by a review of the dimensions of the perceived causes and failures of learning outcomes in paragraph 4.6.2 and the perceived causes of outcomes in paragraph 4.6.3.

The relationship between ability, effort and learning is explained in paragraph 4.6.4, whereas the influence of attributions on academic achievement is discussed in paragraph 4.6.5, and the relationship between self-efficacy and attributions in paragrph 4.6.6. The relationship between self-efficacy, attributions and self-regulated learning is elucidated in paragraph 4.6.7.

4.2 A DEFINITION OF SELF-EFFICACY

Self-efficacy is defined as a student's personal beliefs about his capabilities to organize and implement actions necessary to attain designated performance levels (Bandura, 1982:123; 1986:391; Schunk, 1985:208; 1994c:84). Bandura (1986:401) maintains that self-efficacy is an inferential process in which the relative contribution of ability and nonability factors with regard to performance successes and failures must be weighed. Students, for example, alter their perceived efficacy through performance experiences depending on the difficulty of a task, the amount of effort expended, the amount of external aid received, the circumstances under which the task is completed, and the temporary pattern of successes and failures (Bandura, 1986:401; Schunk, 1994b:3).

Person ————▶ Behaviour ————▶ Outcome

| Efficacy expectations | | Outcome expectations |

FIGURE 4.1: A diagrammatic representation of the differences between efficacy expectations and outcome expectations (Bandura, 1977a:79).

A distinction is made between outcome and efficacy expectations (see figure 4.1). An outcome expectation refers to a student's belief that a particular course of action (i.e., behaviour) will lead to certain outcomes (Bandura, 1986:391; 1977a:79). A student may thus know that the application of certain learning strategies together with a certain amount of effort and dilligence will result in obtaining a distinction in a test or exam. The question is whether the student believes in his capability to comply with these requirements. Such beliefs refer to efficacy expectations which are defined as the conviction that one can successfully execute the behaviour required to produce the outcomes, e.g, to obtain a distinction (Bandura 1977a:79; 1986:391). There is thus a difference between efficacy and outcome expectations.

Outcome and efficacy expectations are differentiated because individuals can believe that a particular course of action will produce certain outcomes (i.e., outcome expectations) but question whether they can perform those actions (i.e., efficacy expectations) (Bandura, 1977a:79). The strength of people's convictions in their own effectiveness (i.e., self-efficacy) determines whether they will try to cope with difficult situations or not (Bandura, 1977a:79). Self-efficacy is thus concerned not with the skills one has but with one's judgments of what one can do with whatever skills one possesses (Bandura, 1986:391; 1982:123).

The consenquences of one's own actions are important and very influential indicators to students of their self-efficacy (Schunk, 1991:87). Students are generally more motivated to learn academic content if they believe in positive outcomes such as the teacher's praise and good grades, than if they expect negative outcomes such as failure or poor grades.

Corno and Snow (1986:607) report that the value students place on outcomes or their perceived importance is influential in learning motivation. Students who see little value in learning a particular content may not be motivated to learn such content even if they feel efficacious about learning and believe that positive outcomes will result.

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Bandura (1986:391) maintains that outcome-expectations and self-efficacy are related because students who perceive themselves as capable of performing well expect positive reactions from their teachers following successful performances, which in turn promote self-efficacy (Schunk, 1985:211).

Self-efficacy expectations are thus based on the belief that one possesses certain prerequisite skills and capabilities to execute the courses of action which are required to overcome problems in order to succeed in situations which, in some respects, may be daunting and stressful. Students are more comfortable when they attempt tasks and activities in which they believe they have the capabilities to perform (Bandura, 1977a:193). $\big)$ MB

Self-efficacy judgments are functionally related to students' actions. Students with high self-efficacy beliefs will choose difficult courses, such as mathematics and physics, while those with low self-efficacy beliefs avoid them (Scott, 1991:35). High self-efficacy stimulates effort and persistence when problems are encountered, while low self-efficacy leads to doubts, avoidance techniques and a lack of effort (Schunk, 1991:121).

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4.3 SOURCES OF SELF-EFFICACY

According to Bandura (1986:399), knowledge about one's self-efficacy, whether accurate or false, is based on certain sources of information. These sources of information contribute to the development of one's judgments of one's self-efficacy (Nisbett and Ross, 1980:101; McCombs, 1988:144). Bandura (1986:399-401) and Schunk (1989a:84) maintain that self-efficacy is based on the following major sources of information: viz., enactive experiences, the physiological state, vicarious experiences, verbal persuasion, self-regulation, instruction, strategy training, rewards, attributional feedback, academic achievement, and goal setting. These sources of self-efficacy can be differentiated into sources internal to the learner and sources external to the learner.

4.3.1 SOURCES INTERNAL TO THE LEARNER

Enactive experiences, physiological state and self-regulation can be considered to be sources internal to the learner.

4.3.1.1 Enactive experiences

Enactive experiences refer to performance outcomes resulting from one's own actions (Schunk, 1991:103). Enactive experiences are important because they convey feedback about personal efficacy to the learner about consequences of his/her learning (Schunk, 1991:103; Bandura, 1986:28). For example, a student who tries very hard to solve a maths problem and fails several times no matter how much effort he puts in, may come to believe that he is not good at solving maths problems.

Feedback plays an important role in learning as it makes a student aware whether he/she is making progress or not. When and how students receive performance feedback influences their self-efficacy beliefs (Schunk, 1988:11). Feedback can result from one's own actions or can be given by another person (Schunk, 1985:216; Zimmerman, 1989:335). For example, the teacher can give the feedback to students and explain shortcomings and improvements in an academic task. Similar to the teacher, an intelligent or good student can also explain the shortcomings of and improvements in his fellow students' learning tasks, by comparing their performance outcomes, such as the mistakes they have made, with the memorandum provided by the teacher, and explaining their shortcomings to them in a reciprocal fashion. And lastly, a textbook itself could provide answers to questions and/or solutions to problems at the end of chapters to which students can refer to check their answers or solutions. According to Schunk (1985:216), teacher feedback is not so important when students can receive feedback from their fellow students because seeing a peer performing a task enhances self-efficacy more because that person may think that he/she can perform as well as the peer.

Students are given feedback so that they may know whether they are progressing or not. If they are progressing well, they would continue to work that way, but if they are not progressing, they would try to work harder. Students benefit from positive feedback as it heightens the self-efficacy for learning (Schunk, 1985:216; Zimmerman, 1989:335). During a' subtraction training programme, Schunk (1985:216) found that explicit performance feedback enhanced self-efficacy. Elementary school children who lacked subtraction skills received instruction and individually solved problems in a training course over several sessions. At the end of each session, some children recorded the number of pages of problems they had completed successfully; others had their pages recorded by an adult proctor; and children in a third condition worked on the problems without receiving explicit feedback. Both forms of feedback were equally effective and led to higher self-efficacy and skilful performance compared with the no-feedback condition (Schunk, 1984:50).

After a teacher has finished marking a learning task, he or she should provide the students in class with feedback as soon as possible, by, amongst others, discussing their shortcomings in performance with them and how to improve their performance. The teacher's immediate feedback about students' performance would improve their self-efficacy for learning more than delayed feedback as they (students) will see progress or not. Students who experience progress will then be more interested in learning and expend more effort on their learning task (Schunk, 1988:12).

4.3.1.2 The physiological state

The physiological state can be defined as the emotional experiences that one goes through while busy with a task or on approaching a task (Bandura, 1986:401). Emotional reactions such as trembling and sweating while engaged in a task or before tackling a learning task, may be an indication that one does not consider oneself to be capable of performing the task at hand or that one is not self-efficacious (Schunk, 1988:8).

The information conveyed by physiological arousal affects the perception of self-efficacy (Bandura, 1986:406). For example, when a student in an examination room is handed a question paper, his physiological state may be aroused and be visible in his rate of perspiration, heavier breathing, heightened heart rate, and muscular tension which would indicate symptoms of anxiety for fear of failure if he should answer the questions incorrectly.

Students, though, who ascribe their sweating to the physical discomforts in the learning situation read their physiological state quite differently from those who view it as distress reflecting personal failure (Bandura, 1986:407). For example, a student who is uncomfortable in a test situation because of heat or cold could still feel self-efficacious to persist and perform well while one who is uncomfortable because of anxiety that he might fail, may be so negatively affected that good performance will be inhibited.

Bandura (1985:277) maintains that the anxiety felt by people before performing any activities may sometimes raise efficacy beliefs. For example, the anxiety, fear and uncertainty that students experience during the last weeks before sitting for their final examination, may motivate them to work harder to make sure that they perform well.

4.3.1.3 Self-regulation

Self-regulation refers to the process whereby students activate and sustain cognition, behaviour, and affect, which are oriented toward the attainment of goals (Zimmerman, 1989:332). Attending to and concentrating on instruction, organizing, coding, and rehearsing information to be remembered; establishing a productive work environment, using resources effectively; holding positive beliefs about one's capabilities and experiencing pride and satisfaction with one's efforts, are conducive to academic achievement and affect self-efficacy in a positive manner (Schunk, 1994b:2; see paragraph 2.2).

Self-regulatory activities thus affect self-efficacy (Zimmerman, 1989:330; Schunk, 1991:89; Paris and Newman, 1990:89). As students work on tasks, they observe their performances, compare them with their goals and judge and evaluate their progress (Meece, 1991:263). Students' judgments and evaluations enhance self-efficacy and motivation if progress is evident, because progress is an indication that the student has the necessary knowledge and skill to perform a task (Salomon, 1984:684).

4.3.2 SOURCES EXTERNAL TO THE LEARNER

Sources external to the learner can be considered as: vicarious experiences, verbal persuasion, instruction, strategy training, rewards, attributional feedback, academic tasks, and goal setting.

4.3.2.1 Vicarious experiences

Students can profit from their own experience, i.e., enactive experience (see paragraph 4.3.1.1) as well as from the successes and mistakes of others i.e., vicarious experience (Bandura, 1977a:170). Vicarious experience involves observation of the actions and outcomes of such actions in others (Bandura, 1985:277). An observed outcome can alter behaviour in much the same way as directly or personally experienced consequences.

In everyday situations, numerous opportunities exist to observe the actions of others and the occasions on which such actions are rewarded, ignored, or punished (Palincsar and Brown, 1984:119). For example, seeing that behaviour is successful for others increases the tendency to behave in similar ways, while seeing behaviour punished decreases the tendency to behave in similar ways (Schunk, 1991:103).

Schunk (1991:103) states that much of human learning occurs vicariously by observing models, for example, by observing other people perform or listening to others on TV or radio, videotapes, slides, filmstrips and by reading. These vicarious sources accelerate learning as students would like to emulate the situation, or imitate what has been done by others (Schunk, 1988:8).

Models provide an important vicarious source of self-efficacy information (Bandura, 1986:399). For example, by observing models perform actions that result in success, observers gain information about the sequence of actions one should use to succeed. Schunk (1989b:180) points out that modelled displays convey that observers are capable of learning the task if they follow the same sequence of actions, which would raise self-efficacy, because the observers would know what to do to perform a task (Shell, Murphy and Bruning, 1989:94).

Schunk (1991:103) distinguishes between live and symbolic models. Live models involve people who appear in person such as teachers, supervisors, subject advisors, or any other person including a fellow student. For example, at school, students observe teachers explain, read, and demonstrate skills. Through observation of their teachers, students may learn the components of complex skills (Bransford, Vye, Kinzer and Risko, 1990:397). Students' practice of the components of complex skills, also give teachers the opportunity to provide corrective feedback to help students perfect such skills (Bandura, 1986:51; Schunk, 1991:103).

According to Schunk (1991:105), symbolic models involve people who are presented via oral or written instructions or in pictures, TV, radio, films or other audiovisual displays, in order to inform students of new practices and their likely benefits or risks (Bandura, 1977b:51; Robertson, 1971:102). For example, a televised person reciting a poem, or debating a topic helps students to emulate the actions. Students who have to prepare for a speech or debate, for example, can thus acquire important information about needed changes in posture, voice level, gestures, presentation and response styles. Written instructions also save students from experiencing negative consequences (Schunk, 1989a:85). For example, students learn that poisonous snakes are dangerous by reading books, watching TV, and studying videotapes or films on snakes without experiencing the unpleasant consequences of their bites (Schunk, 1991:103).

In a study of mathematical division Relich, Debus and Walker (1986:200-202) found that exposing low-achieving children to models explaining mathematical division and providing them with feedback stressing the importance of ability and effort had a positive effect on self-efficacy. Relich *et al.*, (1986:203) further found that information gained

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from the division achievement test and their performance in tackling persistent problems, increased self-efficacy for students. The level at which each subject was to enter work on the division problems was analysed. For the first 5-10 minutes of each session, the children observed an experiment which solved at least two division problems taken from the training course. Solution strategies used to arrive at the correct solutions were verbalized aloud and subjects were required to listen carefully but could interrupt the proceedings at any time to request clarification. The next 5-10 minutes were spent on a practice phase of problem solving in which a minimum of six problems could be attempted. The only feedback given with regard to the accuracy of the solution was "Yes, that's right", or "No, that's wrong". With relation to the number of problems designed for use in the study, a consistently steady ascendency in performance could be regulated through achievement in the problem types (Relich *et al.*, 1986:203).

According to Schunk (1987:150), the perceived similarity to the models is an important attribute affecting self-efficacy. Persons or models who are similar or slightly higher in ability provide the most informative comparative information for gauging one's own capabilities (Rosenthal and Zimmerman, 1978:103; Vernon, 1974:795; Schunk, 1985:220). For example, observing others succeed can raise observers' self-efficacy and motivate them to try the task because they are apt to believe that if others similar to themselves can succeed, they can as well (Schunk, 1993b:4). Observing others fail can lead students to believe that they lack the competencies to succeed and can dissuade them from attempting a task (Woolfolk and Hoy, 1990:85). Similarity may be especially influential in situations where individuals are uncertain about their performance capabilities, such as when they lack task familiarity and when they have little information to use in judging self-efficacy (Wurtele, 1986:295; Suls and Miller, 1977:107).

After judging their self-efficacy in a study on solving anagrams (Brown and Inouye, 1978:904), the students were told that they had performed better than the model. Students then observed a model which failled, judged their self-efficacy, and attempted the anagrams again. Telling students that they were more competent than the model led to higher self-efficacy and persistence than telling them they were equal in competence to the model.

Schunk (1987:162) differentiates between mastery and coping models. Coping models demonstrate the fears and deficiences of students but they aid them to gradually improve their performances and gain self-confidence, while mastery models demonstrate the faultless performance of students from the outset. Coping models may be especially beneficial for students who have previously encountered difficulties in learning (Schunk,

1989a:162). Coping models illustrate how determined effort can overcome difficulties. Coping models are partly beneficial because they stimulate increases in self-efficacy. Thus, the observation of coping models increases self-efficacy more than mastery models (Vernon, 1974:795).

According to Schunk (1987:162), in five different studies investigating the effects of mastery and coping models, three found benefit in coping models, whereas two found mastery and coping models equally effective. In a study of mastery and coping models (Schunk and Hanson, 1985:315) children observed a mastery and a coping model, respectively. The mastery model easily grasped subtraction with regrouping and verbalized positive achievement beliefs which stressed high self-efficacy. For example, "I know I can do this one," whereas coping models were hesitant, made errors, and verbalized negative achievement beliefs. "I am not very good at this," after which they verbalized coping statements such as "I'll have to work hard on this one" (Schunk, Hanson, and Cox, 1987:57). Mastery models never verbalized negative beliefs. Observing coping models has led to the highest self-efficacy for skills improvement. With relation to mastery and coping students, mastery students perceived themselves as equal in competence to the model, whereas coping students viewed themselves as more competent than the models (Schunk, 1987:164). The belief that one is more talented than an unsuccessful model can thus raise self-efficacy and motivation (McCullagh, 1987:450).

According to Dorwick (1983:106), the highest degree of model-observer similarity is attained through self-modelling. Self-modelling is also a self-regulated learning strategy (also see paragraphs 2.5). Self-modelling refers to videotaping the performance of a task and subsequently viewing the tape. Self-model tapes allow for reviewing and are informative (Hosford, 1981:47). For example, tape reviews help to prevent performers from becoming discouraged if the performance contains errors. Tapes can convey to observers that they are becoming more skilful and can continue to make progress, which raises self-efficacy (Schunk, 1993b:5). Schunk and Hanson (1989b:156) in one study videotaped children solving problems and showed them their tapes. Self-modelling benefits were obtained as children displayed higher self-efficacy and motivation than children who had been taped but did not view their tapes.

4.3.2.2 Verbal persuasion

According to Bandura (1986:400), verbal persuasion involves trying to talk students into believing that they possess capacities that will enable them to achieve their goals. For example, telling students that they can achieve better results through hard work may

motivate them because such positive information conveys that they may possess the necessary capabilities to perform well (Harari and Covington, 1981:16).

Schunk (1988:10) asserts that verbal persuasion can facilitate learning because it directs students' attention to important task features. Students who are persuaded verbally that they possess the capabilities to master given tasks, are likely to mobilize greater sustained effort because they gain courage from their teacher's persuasion that they can do better, than if they harbour self-doubts (Bandura, 1986:400; Schunk, 1988:10). Verbal persuasion thus boosts self-efficacy which motivates students to try harder to succeed, and promotes the development of skills and a sense of personal efficacy (Schunk, 1988:10).   According to Bandura (1986:400), verbal persuasion has the greatest impact on students who have some reason to believe that they can produce effects through their actions.

Raising unrealistic beliefs of personal competence though, invites failure that will discredit the persuaders as the student becomes discouraged and his perceived self-efficacy will be further undermined in a negative way (Bandura, 1986:400). The more believable the information about one's peformance capabilities and task demands, the more the judgments of personal efficacy are likely to change as a learner will have more courage to perform his or her academic task (Schunk, 1988:10).

4.3.2.3 Instruction

Instruction such as strategy instruction, comprehension instruction, classroom instruction etc., focuses on events that may directly influence an individual's learning (Silver and Marshall, 1990:270).   Joyce, Weil and Showers (1992:1) define instruction as a set of external events designed to support the processes of learning which are internal to the learner (Silver and Marshall, 1990:270).   According to Gunter, Estes and Schwabs (1990:1), instructions should be systematically designed, organized and carefully planned to influence student learning as much as possible.

Students who readily comprehend a teacher's explanations and demonstrations are apt to feel more efficacious for learning or completing a learning task than those who experience less understanding and find it difficult to grasp the task. Schunk and Rice (1992:4) report that instruction in a comprehension strategy can promote achievement in learning and improve reading achievement. Providing students with a goal of learning a comprehension strategy and feedback on their progress in using the strategy to answer questions led to higher self-efficacy beliefs than in students with no goal of learning a comprehension strategy (Schunk and Rice, 1992:4).

4.3.2.4 Strategy training

Strategy training refers to teaching students to use learning strategies which include the understanding and application of learning strategies (Schunk, 1985:215; 1989a:35). Schunk (1985:209) asserts that strategies regulate student behaviour and facilitate learning. Students who use strategies when reading a text, improve their reading skills more than those who do not use them (Schunk, 1988:11). Students may experience a heightened sense of learning efficacy though strategies which direct students' attention to important task features, assist encoding and retention, and help students work in a systematic fashion (Schunk, 1985:213).

According to Schunk (1988:18), training in the use of strategies fosters students' acquisition and utilization of strategies and helps to develop self-efficacy for learning because effective strategies make it easier to complete a learning task. For example, as students apply strategies to a comprehension text by underlining the main ideas, it will be easier for them to answer the questions asked on the comprehension text because underlining will help them recall important information. The belief that one understands and can apply a strategy effectively can lead to a greater sense of control over learning outcomes, and should promote self-efficacy (Paris *et al.*, 1984:1240).

Remedial readers, for example, often lack conditional knowledge about when and why to apply strategies (Licht and Kistner, 1986:227). Teaching students to use learning strategies can therefore improve their performance in the task at hand and generally extend it beyond the learning context (Schunk, 1989a:280). In a study strategy information, Graham and Harris (1989a, 1989b: quoted by Schunk and Swartz, 1993b:338) found that teaching a strategy for writing essays or stories, to learning-disabled students, improved self-efficacy and writing skills. The use of strategies was maintained after training and also extended to other contents and settings.

4.3.2.5 Rewards

Rewards refer to incentives that motivate students to perform well in their learning tasks (Bandura, 1977b:123; Schunk, 1985:219). Rewards enhance self-efficacy when they are tied to students' actual accomplishments. Telling students that they can earn rewards based on what they accomplish, can instil self-efficacy for learning, because students would expend more effort in learning to attain those rewards (Schunk, 1985:219).

As students work on a task, they learn what kind of behaviour leads to desirable outcomes and what results in undesirable ones (Bandura, 1977b:192). When a student,

for example, receives rewards for his/her achievement in a learning situation, he/she may continue to do his/her best, and discard the behaviour that would fail to gain a reward as it would be wasting his/her time and energy. Receiving a reward further validates self-efficacy because it symbolizes progress to the student when he/she manages to score a high percentage in his/her academic task. Furthermore, the anticipation of attaining desirable outcomes can motivate students to engage in a task and persevere in the learning situation (Schunk, 1989a:30).

4.3.2.6 Attributional feedback

Attributional feedback, which answers the question: (why did I do well or badly?) involves a persuasive source of self-efficacy information that a student can gain from himself or from another person (Schunk, 1985:216; 1989a:19). Positive feedback on prior successes supports students' perceptions of their progress in learning, sustains motivation, and increases efficacy for continued learning (Schunk, 1985:216; Andrew and Debus, 1978:157; Zimmerman and Schunk, 1989b:97; also see paragraph 4.5).

Schunk (1989a:19) states that linking children's prior achievement with effort (e.g. "You 've been working hard") leads to higher task motivation, self-efficacy and subtraction skills because students realize that there are people who recognize them as hard workers or as best students (Schunk and Cox, 1986:203). When compared with linking future achievement with effort ("You need to work hard"), ability feedback for prior successes ("You're good at this") enhances self-efficacy and skill more than effort feedback or ability plus effort feedback (Schunk, 1983a:849).

Goal-progress feedback provides information about progress toward goals (Schunk, 1989a:175). Such feedback raises self-efficacy, motivation, and performance as it convinces individuals that they are competent and can continue to improve by working diligently (Duda, 1993:425). Higher self-efficacy sustains motivation as students believe that with continued effort they can attain their goals. Once goals are attained, individuals are likely to adopt new, challenging goals (Elliot and Dweck, 1988:7).

Goal-progress feedback also provides information about the usefulness of a strategy (Paris, Lipson and Wixon, 1983:295). From a self-efficacy perspective, positive strategy value information may lead learners to believe they are learning a useful strategy, which raises self-efficacy and motivates them to continue applying it (Barkowski, Weghing and Carr, 1988:109).

In support of learning a useful strategy, Schunk and Rice (1991:355) taught remedial readers a strategy to answer reading comprehension questions about main ideas. Students were given a comprehension text to read and answer questions on it. Goal-progress feedback was conveyed to students indicating that they were making progress toward their learning goal by using the strategy to answer questions. Students who received the goal-progress feedback demonstrated higher self-efficacy and reading performance than students who did not receive any goal progress feedback (Schunk and Swartz, 1993a:339; 1993b:228).

4.3.2.7 Academic tasks

At the outset of learning tasks, students vary in their learning, or beliefs about their capabilities to effectively apply their knowledge and skills to learn academic content. As students work on tasks, they derive cues from task engagements that indicate how well they are learning and that they use to assess their efficacy for continued learning (Schunk, 1988:2). Students who experience a low sense of efficacy in accomplishing a task may attempt to avoid it, whereas those who have self-efficacy and believe they are capable, would increase their participation to attain their learning goal (Schunk, 1988:4).

According to Blumenfeld, Mergendoller and Swarthout, (1987:136), students engage in numerous tasks within the classroom. They complete worksheets, read books, complete projects, watch films, write reports, participate in discussions, listen to lectures and respond to teacher's questions. All these tasks combine in various ways to shape students' way of thinking and working and by determining how information is obtained and presented to the teacher for evaluation (Doyle, 1979:286).

Blumenfeld *et al.*, (1987:136) assert that students ask themselves questions such as "What do I have to do?", "Can I do it?" and "Do I want to do it?" The answers to these questions influence students' perceptions of the purpose of the task, their understanding of the procedures to be followed, their perceptions of task-specific abilities, and their interest in completing the task (Blumenfeld *et al.*, 1987:136). For example, if the answer to the question "can I do it?" is "Yes I can do it," students may feel efficacious to work hard and persist in their academic task to achieve their goal. When students pursue a goal, they may experience heightened self-efficacy in attaining it when they observe their goal progress, which helps to sustain task motivation (Schunk, 1988:13).

Doyle (1987: qouted by Blumenfeld *et al.*, 1987:136) differentiates between the content and form of a task.
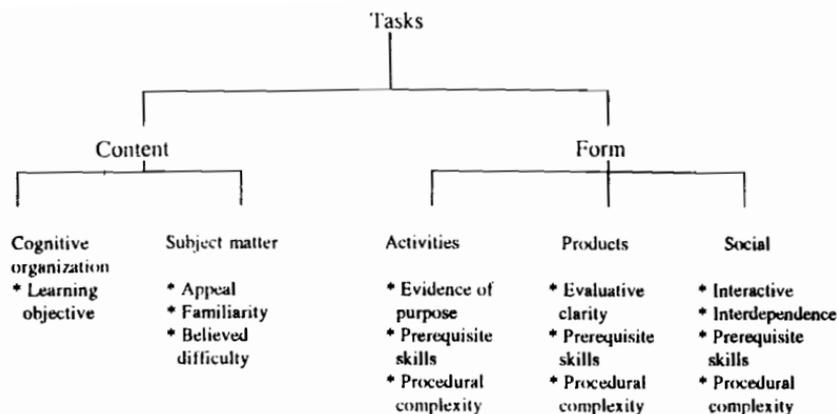
Tasks

Content   Form

Cognitive   Subject matter   Activities   Products   Social
organization
* Learning   * Appeal   * Evidence of   * Evaluative   * Interactive
  objective   * Familiarity   purpose   clarity   * Interdependence
                   * Believed   * Prerequisite   * Prerequisite   * Prerequisite
                     difficulty   skills   skills   skills
                                       * Procedural   * Procedural   * Procedural
                                         complexity   complexity   complexity

FIGURE 4.2: Task elements (Blumenfeld *et al.*, 1987:138).

* **TASK CONTENT**

Task content includes the objectives students are expected to attain as well as the subject matter they have to learn. Both objectives and subject matter vary in the difficulties they present for students (Blumenfeld *et al.*, 1987:137). The difficulty of task content affects student learning and behaviour (Johnson, Johnson and Scott, 1978:210). For example, some students are highly resistant to engaging in assignments where the content requires high-level thinking processes, e.g., mathematics and physical science. They (students) may even become confused when the answer is not readily available and may not know what to do (Blumenfeld *et al.*, 1987:137).

Students' reactions to content are also influenced by their beliefs about its inherent appeal, its difficulty, and their familiarity with the topic (Pintrich, 1989:125; Blumenfeld *et al.*, 1987:137). Students, for example, are challenged by the familiarity of the content and as their self-efficacy increases they (students) may concentrate to complete the task.

* **TASK FORM**

Task form can be characterized according to the purpose, the complexity of procedures, the social organization in which it is carried out, and the products that result (Blumenfeld *et al.*, 1987:138). For example, students can attain learning objectives by completing worksheets or by doing experiments. The number of materials necessary for task completion also affects how students work and what they learn. Certain tasks are likely

to require more procedural complexity than others (Blumenfeld *et al.*, 1987;139). For example, completing worksheets requires fewer materials and fewer steps than conducting experiments in a science class or solving maths problems.

Task form also varies in social organizations and to the degree in which tasks are interactive and interdependent (Posner, 1982:346). Blumenfeld *et al.* (1987:140) assert that when students are jointly responsible for discussing and demonstrating information, the social arrangement of the task is both interactive and interdependent. Working together on a science experiment can enhance self-efficacy by discussing and solving the problems of the experiment together.

4.3.2.8 *Goal setting*

Goal setting refers to the quantity, quality or rate of performance (Schunk, 1991:91). According to Bandura (1988:38), goals can motivate and inform students about their capabilities. Schunk (1990:76) maintains that goals raise self-eficacy as they convey progress in their attainment. When students establish or are given a goal, they may experience a sense of efficacy in attaining it, and engage themselves in appropriate activities, persist and expend effort in attaining their goals (Bandura, 1988:38).

Students can set their own goals or goals can be established for students by teachers, parents, counselors, or supervisors (Schunk, 1991:91). Self-set goals refer to students setting their own goals (Schunk, 1990:77; 1991:99). Allowing students to set their own goals enhances their self-efficacy for learning more than when students do not set themselves goals (Schunk, 1991:92).

In a study designed to assess the effects of self-set goals, learning-disabled sixth graders received subtraction instruction and practiced over a series of sessions (Hom and Murphy, 1985: quoted by Schunk, 1990:77). Some set goals for themselves, others had comparable goals assigned, and those in a third condition worked without goals. Self-set goals led to the highest self-efficacy and performance, and the children who had self-set goals showed more confidence in attaining their goals than those with assigned-goals and the no-goals subjects.

Bandura (1986:471) asserts that the attainment of challenging goals creates self-satisfaction and a sense of fulfilment. The level of self-satisfaction tends to be proportional to the discrepancy between valued aims and actual attainments; that is, the closer the attainments match the goal-intentions, the greater the positive self-satisfactions will be (Bandura and Cervone, 1986:99).

Goals vary according to their properties, such as goal-specificity, goal-proximity, goal-challenge, goal-commitment, goal-difficulty, and goal orientation.

* GOAL-SPECIFICITY

Goal-specificity can be defined as the specification of the amount of effort required for success and the self-satisfaction anticipated (Schunk, 1990:74). Goal-specificity is an important goal-property that influences performance and self-regulation (Schunk, 1991:97). For example, a statement such as "You can attempt to solve 25, 30, or 35 problems", made by a teacher may enhance students' self-efficacy because it conveys that the goal is specific and attainable rather than when a student is merely told to solve as many problems as possible. Goal-specificity leads to higher self-efficacy and students who attain such goals demonstrate the highest self-efficacy and skill (Schunk, 1990:74). Goal-specificity thus serves to motivate students and to foster positive attitudes toward learning activities (Dweck, 1985:289).

Schunk (1990:76) discusses a study in which children were given a specific goal (i.e., a number of problems to complete) or general goal (i.e., to work productively). Within each situation, half of the children were given additional information on the number of problems which others with the same session goal had completed in order to convey that goals were attainable. Goals raised self-efficacy, and children who received goals and comparative information, demonstrated a higher self-efficacy and skills than those who were not given a goal and not provided with comparative information on the number of problems. Thus, providing children with a goal and information that it is attainable, may increase self-efficacy for learning, which in turn, can raise performance and lead to a greater skill acquisition (Schunk, 1991:97).

In a study on comprehension-strategy training, Schunk and Rice (1989:280) taught remedial readers a comprehension strategy for identifying main ideas. Some subjects received a specific product goal to answer the questions while others were given a specific process goal to learn to use the strategy, and subjects in a third condition were told to work productively (general goal). The two specific goal conditions led to higher self-efficacy and skills than the general goal condition.

Pursuing a specific goal thus indicates progress because students can compare their performances against the goal (Schunk and Rice, 1989:281). As children experience a higher sense of efficacy in learning, they are apt to sustain task motivation and work systematically, which can produce greater skill acquisition. In the absence of a specific goal, children may wonder whether they are making progress, which may not raise self-efficacy (Schunk and Rice, 1989:281).

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* GOAL-PROXIMITY

Proximal goals refer to goals which are closer at hand than distant goals which lie further into the future (Bandura, 1977a:162; Bandura and Schunk, 1981:587). Proximal goals result in greater motivation and enhance achievement as they (proximal goals) convey more reliable information about one's knowledge and skills than distant goals (Schunk, 1984:50; 1991:97). As students observe their progress toward a proximal goal, they develop a sense of self-efficacy for learning, because progress in learning is easy to gauge (Schunk, 1984:52).

Compared with distant goals, proximal goals heighten children's task motivation, self-efficacy, interest and skilful performance because proximal goals mobilize effort and direct what one does in the present time (Schunk, 1988:15). Young children, for example, have short time frames of reference and may not be capable of envisaging distant goals (Schunk, 1984:52).

During a subtraction competency-development programme, Schunk (1984:52) tested the idea that proximal goals constitute an important influence on self-efficacy. Children were given a written packet consisting of seven sets of training material and were told they would work on it over seven sessions. Some children pursued a proximal goal of completing one set each session while a second group pursued a distant goal of completing all sets by the end of the last session. Children who pursued the proximal goal demonstrated a higher rate of problem solving during training than those who pursued the distant goal. Proximal goals also led to higher levels of subtraction skill and self-efficacy than the distant goals which resulted in no benefits (Schunk, 1984:53; 1990:76).

* GOAL-CHALLENGE

Goal-challenge refers to the effort that a student expends in learning and the self-satisfaction gained from the performance. The amount of effort and satisfaction depends upon the level at which goals are set (Baron and Watters, 1981:164). For example, when self-satisfaction develops in the attainment of challenging goals such as completing mathematics problems and physics assignments, more effort is expended on a task and self-efficacy for learning increases as students try to work even harder for success, than if easy tasks are accepted as sufficient. For learning activities that are readily amenable to voluntary control, the higher the goals the higher the self-efficacy performance level (Baron and Watters, 1981:164; Garland, 1984:79-84).

* GOAL-COMMITMENT

Goals do not automatically affect performances. The effectiveness of any goal derives from making a commitment to attain it, because goals do not influence behaviour when students do not commit themselves to attain them (Schunk, 1991:92). Goal-commitment is defined as the resolve to pursue a course of action that will lead to selected outcomes or performance attainments (Bandura, 1986:477). Goal-commitment is affected by a number of factors, including evaluation of the academic task, the perceived attainability of the goals, and binding pledges (Meece, Blumenfeld and Hoyle, 1988:517). When students pledge themselves to some future action or goal, the commitment to goal attainment also creates self-efficacy for academic achievement and motivational inducements because it enlists self-evaluating influences (Schunk, 1991:92). A self-efficacious student, for example, who is committed to a learning task, will evaluate his/her own task after writing an assignment to make sure that spelling, construction of sentences and punctuation are in order.

Goal-commitment determines the amount of effort expended on a learning task (Bandura, 1986:478). When the level of commitment to learning is low, students have difficulty in sustaining their efforts and enhancing their self-efficacy, unless conditions are arranged to increase their commitment (Locke, Frederick, Lee and Bobko, 1984:244). When the level of commitment is high, students will sustain their effort and enhance self-efficacy as they will work harder and commit themselves to attain it.

* GOAL-DIFFICULTY

Goal-difficulty can be defined as the level of task proficiency required when assessed against a standard (Schunk, 1991:92). The effort learners expend to attain a goal depends on the level at which it is set. Students expend greater effort to attain a difficult goal than when the standard is lower (Covington, 1984:80). Although students may doubt whether they can attain goals which they consider as difficult, working toward difficult goals can build a strong sense of efficacy because progress conveys that one possesses the necessary skills to overcome obstacles (Dweck, 1986:1040). When learners believe that they possess the ability to attain a goal, they are likely to hold high expectations for success and commit themselves better to the academic task (Schunk, 1991:93).

Schunk (1990:77) set some children a difficult goal by giving them a number of problems to complete. To preclude the children from perceiving the goals as too difficult, half in each situation were told they could attain the goal, i.e., "You can solve 25 problems". The other half were not told that they could attain the goal. According to

Schunk (1990:77), the children worked on the problems and tried to solve them. Those who were told that they could attain the difficult goals achieved greater self-regulated learning and displayed a higher self-efficacy and skill than those who were not told that they could attain the goals.

*   GOAL-ORIENTATION

Goal-orientation influences students' cognitive task engagement (Meece, Blumenfeld and Hoyle, 1988:517). All motivational theories posit some type of goal, purpose, or intentionality to human behaviour, although these goals may range from social cognitive proposals of relatively accessible and conscious goals to psychodynamic proposals of relatively inaccessible and unconscious goals (Pintrich and Schrauben, 1992:155). Goal-orientation thus refers to a student's rationale or reasons for engaging in a task. Researchers distinguish between intrinsic and extrinsic goals (Pintrich, 1989:121; Pintrich and Schrauben, 1992:155-156).

Goal-orientation distinguishes between intrinsic and extrinsic-orientated students. Intrinsic-orientated students offer various rationales for learning such as mastery, challenge, learning, and curiosity. Extrinsic-orientated students are more oriented to extrinsic considerations such as grades, rewards, and approval from others (Pintrich and Schrauben, 1992:155). Students operating with an intrinsic goal-orientation are assumed to be approaching a task with a focus on learning and mastery, while students operating with an extrinsic goal-orientation are assumed to be approaching a task with a focus on performance or pleasing others (Pintrich and Schrauben, 1992:155).

Intrinsic goal-oriented students use deeper processing strategies such as summarizing and paraphrasing (Pintrich and Schrauben, 1992:156). Extrinsic goal-orientation students use surface processing strategies (see paragraph 3.2.2) such as rehearsal which leads to a rote learning. Students who endorse intrinsic goals for a specific class, rate their interest and show a higher self-efficacy for a course than students who do not endorse intrinsic goals (Pintrich and De Groot, 1990a:34).

4.4   THE RELATIONSHIP BETWEEN SELF-EFFICACY AND ACADEMIC ACHIEVEMENT

Schunk (1985:208) reports that students who have a high sense of self-efficacy for learning expend greater effort and persist longer when studying and achieve better in learning than those who doubt their capabilities. Students who judge themselves more efficacious participate more readily in academic study and alter their environmental

events as they make use of learning strategies. For example, they alter their study environment and the learning situation as they learn, approach academic tasks with more confidence and diligence and utilize learning strategies better than those who have a low sense of self-efficacy (see paragraphs 4.2 and 4.3).

Zimmerman (1989:331) has found that demonstrations of mathematical problem-solving strategies by a teacher affected fourth-grade students' perceptions of efficacy and division skills. Students with a background of low arithmetic achievement received strategies to address division operations. Students exposed to strategies for correct solutions during training displayed a significantly higher self-efficacy and more accuracy in division during post-testing than students in a control group.

Zimmerman (1989:331) assumes that students' self-efficacy beliefs can affect their manipulation and choice of learning environments. Zimmerman (1989:331), for example, reports evidence that experimental efforts to change elementary school pupils' perceptions of efficacy affected their choice of learning tasks. In this investigation, verbal rewards were given to indicate efficacy (i.e., for performing better than most pupils in their class), or non-efficacy (i.e., for merely working) on a block design task of the Wechsler Intelligence Scale for Children (WISC). From this experiment, Zimmerman (1989:331) concluded that rewards for efficacy increased pupils' self-efficacy perceptions and their free choice and value ratings of the task more than rewards for non-efficacy. For pupils given rewards for efficacy, the increases from pretesting to immediate posttesting were approximately 48% for self-efficacy, 46% for task choice, and 29% task interest. The corresponding changes for students given non-efficacy rewards were a 16% increase in self-efficacy, a 39% decrease in task choice, and a 12% increase in task interest.

In the context of classroom learning, for example, students develop a higher sense of efficacy for learning as they work and experience some success in acquiring knowledge (Schunk, 1985:209). The belief that they are making progress validates their sense of self-efficacy and maintains their productive pursuit of goal attainment. The perception of minimal progress need not affect academic activities negatively if students believe they are capable of making progress, i.e., by using a better strategy or working harder (Schunk, 1991:94). Self-efficacy students react to their progress judgments, and set new challenging goals for themselves once original goals have been attained (Schunk, 1991:94).

4.5 THE RELATIONSHIP BETWEEN SELF-EFFICACY AND SELF-REGULATED LEARNING

Social cognitive theorists assume that self-efficacy is a key variable that affects self-regulated learning (Zimmerman, 1989:331). Students' self-efficacy perceptions for example, have been found by Zimmerman (1989:331) to be related to students' use of learning strategies and self-monitoring. Students with high self-efficacy display a better quality of learning strategies and more self-monitoring of their learning outcomes than students with low self-efficacy (Zimmerman, 1989:331). As students learn, they compare their performances with their goals, and goal effects also may depend on whether the goal denotes a learning or performance outcome (Schunk, 1994b:8).

According to Zimmerman (1989:331), researchers have found that students' perceptions of self-efficacy are positively related to such learning outcomes as task persistence, task choice, effective study activities, skill acquisition and academic achievement. Schunk (1994b:4) asserts that effective self-regulation depends on holding an optimal sense of self-efficacy for learning during task engagement.

Students' behavioural performance influences their perceptions of self-efficacy. In support of this hypothesis, Zimmerman and Ringle (1981: quoted by Zimmerman, 1989:331) found that the failure of elementary school children to solve a puzzle influenced their estimates of self-efficacy during testing. The task used in this study involved separating two interlocking wires. The wires were bent closed enough to prevent the puzzle from being solved. This feature made the puzzle a demanding test of the children's motivation to achieve a solution. The children were pretested with a rating scale on which faces depicted varying degrees of self-efficacy. After attempting to separate the wires for up to 15 minutes, the pupils were posttested for efficacy. Pupils in a control group (who were not exposed to any form of modeling treatment before trying to solve the puzzle themselves) displayed lower self-efficacy during posttesting than during pretesting. Other pupils were exposed to an adult model who expressed optimism about solving the puzzle despite failing during an attempt. The model's verbal optimism about solving the puzzle increased elementary school children's perceptions of self-efficacy about solving a similar puzzle from pretest levels. Thus, the model's optimism sustained their self-efficacy.

4.6   ATTRIBUTIONS

4.6.1   DEFINITION OF ATTRIBUTIONS

Attributions can be defined as a student's interpretation of the causes of his successes or failures, or his endeavour to understand the environment and himself (Weiner, 1985:548). Such understanding is functional, since it enables the student to determine whether he/she himself/herself or external causes have been instrumental in causing the results. Although a virtually infinite number of causal ascriptions are available, only a relatively small number tend to be salient within the academic achievement domain (Weiner, 1985:548; Scott, 1991:4). Of these, ability, effort, environmental variables (such as social comparison, and teaching and evaluation methods) luck and the level of task difficulty are the most salient, meaning that students use them most often to explain learning performances (Reuman, 1989:180; Wolf and Savickas, 1985:473).

4.6.2   DIMENSIONS OF PERCEIVED CAUSES OF SUCCESS AND FAILURE

Humans conceive the causes of their successes and failures as located on a bipolar continuum anchored with the labels internal, external, stable, unstable, or controllable-not controllable. However, it has also been contended that humans think of these causes in terms of dichotonomous constructs, rather than continua (Weiner, 1986:44). According to Weiner (1985:548), the perceived causes of success and failure, ability, effort, task difficulty, and luck vary along with the dimensions of locus, stability and controllability (see figure 4.3).

Stability   Locus of control

	Internal	External
Stable	Ability	Task difficulty
Unstable	Effort	Luck

FIGURE 4.3: The dimensions of attributions (Weiner, 1986:46).

With relation to the dimension of locus, Weiner (1985:548), reports that ability and effort are perceived as being internal causes as they reflect characteristics of people, whereas task difficulty or help/hindrance from others and luck are causes external to the actor.

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The second dimension, stability, distinguishes stable causes (e.g., aptitude) from unstable ones (e.g., luck) (Weiner, 1986:112). Aptitude, for example, is perceived as relatively fixed, whereas effort and luck tend to be construed as unstable because they might vary from one time to another.

The third dimension, controllability, reflects causes that are under the control of the learner (e.g., effort) or other people (e.g., help) versus causes that are totally uncontrollable (e.g., luck) (Weiner, 1985:551).

According to Newman and Stevenson (1990:199), research has provided evidence of relationships between causal attributions and achievement expectancies, task persistence, and task outcomes. Attributions for success to stable causes (such as ability) and for failure to unstable and potentially changeable causes (such as effort) are associated with high expectancy for future success that, in turn, is associated with successful task performance, including school achievement. Attributions for success to unstable causes and for failure to stable causes, on the other hand, are associated with a low expectancy for future success and poor task perfomance including school achievement (Newman and Stevenson, 1990:199).

4.6.3 THE PERCEIVED CAUSES OF OUTCOMES

The perceived causes of outcomes such as ability, effort, task difficulty and luck influence academic achievement.

4.6.3.1 Ability

Ability is conceived as a capacity - an underlying trait that is not observed directly, but is inferred from both effort and performance in a context of social comparison (Nicholls, 1982:41). Ability is viewed as internal, stable and uncontrollable (Weiner, 1974b:52; 1979:5; Schunk, 1994c:81). Ability inferences are determined primarily by information of previous successes and failures. Repeated successes or failures indicate whether an individual "can" or "cannot". High grades are often accepted as evidence that a person is "smart". Winning games are proof of a "good" team. Outcome information considered in conjuction with social norms is used to infer the ability level (Weiner, 1974a:8; 1972:357).

According to Weiner (1974b:53), attribution of "can" to the person rather than to the environment is determined primarily by ability cues considered in conjunction with task difficulty information (Weiner, 1972:362). When an individual consistently succeeds at

a task while others fail, then his successes are self-attributed. On the other hand, repeated success when others also succeed is attributed to the task, rather than to the individual (Weiner, 1972:362).

Marsh, Cairns, Relich, Barnes and Debus (1984: quoted by Newman and Stevenson, 1990:198) provide evidence that certain attributions (such as the belief that an outcome is due to ability) are specific to academic content, whereas other attributions (such as the belief that an outcome is due to effort) are generalized across academic content. Students who believe that success in math, for example, is due to ability do not necessarily make the same causal ascription for success in reading, but students who believe that success in math is due to effort generally make the same causal ascription for success in reading.

4.6.3.2 Effort

Students who take responsibility for outcomes are those who believe that their successes are due to effort and their failure due to a lack of effort (Weiner, 1974a:53). Effort is inferred from a number of observables, such as the time spent on a task and persistence in performance to do well (Weiner, 1974a:53).

Effort is considered to be an internal, and unstable cause (Weiner, 1985:551; Bandura, 1986:231; Schunk, 1994c:81). Effort, which is under volitional control, maximizes positive and negative effects for success and failure (Weiner, 1985:551).

Although effort is internal and unstable, one can control it, as an individual can increase or decrease effort expenditure, for example, adopting a deep-learning strategy (see paragraph 3.2.1) which requires more effort rather than a surface strategy (see paragraph 3.2.2) which requires less effort, with the hope that the former will improve outcomes better than the latter (Weiner, 1986:193).

Individuals who succeed in academic tasks, perceive themselves and are judged by others as having put in more effort than those who fail (Weiner, 1974b:9). In addition, concerning the effects of patterns of performance on effort attributions, descending performance is sometimes ascribed to a lack of effort, while increments in performance level are believed to be due to an increase in motivation (Weiner, 1974b:9).

4.6.3.3 Task diffuculty

Task difficulty is external, stable and uncotrollable (Weiner, 1974a:52). Weiner (1974a:53) contends that task difficulty is inferred from social norms and from objective

task characteristics, such as the steepness of a mountain about to be climbed or the complexity of a puzzle. Task difficulty is defined with reference to the performance of one's peers (Nicholls, 1982:47).

The objective characteristics of the task, such as the length, complexity, and novelty, influence initial judgments of task difficulty (Weiner, 1972:362). Difficulty level implies how difficult the students perceive the task to be in relation to his competence and ability. The greater the percentage of others succeeding at a task, the more likely that a given success will be ascribed to the ease of the task. In a similar manner, the greater the percentage of others failing at a task, the more likely that the task will be considered to be difficult and that a given failure will be attributed to the difficulty of the task (Weiner, 1974a:53; 1972:362).

Success with a difficult task is perceived to require both ability and effort, because ability inferences are determined by information of previous successes and failures, whereas effort is controllable and an individual can increase efforts in order to succeed in task difficulty (Weiner, 1974a:52).

4.6.3.4 Luck

Luck is an external variable and not controllable (Weiner, 1972:52). Luck is inferred from an apparent lack of personal control over the outcome and variability in the outcome sequence. Independence and randomness of outcomes indicate that luck is a causal determinant of outcomes despite the learning task (Weiner, 1972:362). When little effort is required, success in an examination may be attributed to luck: i.e., when one gets an easy question paper, or gets the questions that one spotted when preparing for the examination or test.

4.6.4 THE RELATIONSHIP BETWEEN ABILITY, EFFORT AND LEARNING

Both ability and effort are required for success in learning (Weiner, 1974b:15). Although ability and effort are both classified as internal, ability is stable and uncontrollable, while effort is unstable and controllable (Weiner, 1972:356). Weiner (1974b:15) asserts that both ability and effort are required for success because each of them is capable of producing an effect in learning.

Kelly (1972: as quoted by Weiner, 1974b:15) reports that success with an easy task will be perceived as due to the presence of one of two variables, i.e., ability or effort. On the other hand, success at a difficult task will be perceived as caused by the presence of

both ability and effort. Failure at an easy task is likely to be perceived as caused by the absence of both ability and effort (Schuster *et al.*, 1989:195).

An activation of the different conceptions of ability also involves different perceptions of the purposes of students' learning (Nicholls, 1982:43). If students are task involved, they seek to improve their learning and attempt to learn if they see an opportunity to do so, and feel satisfied as they learn of own volition. Nicholls (1982:43) contends that students must calculate whether learning will serve their goal of demonstrating high rather than low capacity, so that when they demonstrate low capacity, they should increase effort (also see paragraph 6.4.5.4).

In the face of mounting uncertainity about their ability status and due to many failures, some students adopt a strategy of not trying hard to protect their sense of worth (Weiner, 1974b:16). In effect, they reason that if they cannot avoid failure, at least they can avoid the implication of failure, i.e., that they lack ability, by not trying hard enough or by creating excuses for why their efforts were futile (Weiner, 1974b:16).

4.6.5   THE INFLUENCE OF ATTRIBUTIONS ON ACADEMIC ACHIEVEMENT

According to Weiner (1985:550), attributions influence academic achievement in an indirect way, since attributions impact on expectancy for success and effect, which in turn, instigate learning action leading to academic achievement (Platt, 1988:569).

Positive attributional feedback such as success attributed to high effort (see paragraph 4.3.2.7) coupled with learning skills training, improves self-perceptions of efficacy and relieves learned helplessness (Relich *et al.*, 1986:195). Perry and Magnusson (1989:164) report that positive attributions also enhance personal responsibilty for failure, increase motivation, improve attention and reduce feelings of threat. These are all factors that heighten the benefits students gain from good instruction. Positive causal attributions thus have an impact on achievement-related behaviour, which in turn, affects achievement (Platt, 1988:569).

Attributions influence achievement-related behaviour, such as the individual's choice of tasks, as well as the intensity and persistence of achievement-motivation (Perry and Magnusson, 1989:164).

According to Relich *et al.*, (1986:196), the premise of the attributional approach to motivation has been the assumption that causal attributions are primary mediators of achievement. Several studies have focussed on this premise through the modification of attributions which inhibit task performance. These studies though, have not provided

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conclusive support for the contention that achievement and behavioural change are mediated by attributional change as it has been said. Intervention studies have produced mixed results with regard to attributional change that has been measured by specific attribution measures, and have shown no change on the intellectual achievement Responsibility scale (IAR) (Relich *et al.*, 1986:196).

In a series of studies on the influence of attributions on academic achievement Relich *et al.*, (1986:196) and Schunk (1981:94) were also unable to show any relationship between attribution and achievement change. Relich *et al.*, (1986:196) and Schunk (1981:94) demonstrated the complexities of attributional feedback on self-efficacy and achievement outcomes. These studies highlighted the differential effects of effort feedback, for example, feedback based on future achievement "You need to work hard" was less effective than feedback based on past achievement "You've been working hard".

4.6.6 THE RELATIONSHIP BETWEEN SELF-EFFICACY AND ATTRIBUTIONS

According to Schunk (1990:3), there is a direct relationship between self-efficacy and attributions. Attributions mediate the influence of self-efficacy on academic achievement, motivation and learning (Schunk, 1988:208). Attributing success to ability and failure to lack of effort stimulates high self-efficacy, while attributing success to external help, and failure to lack of ability, leads to decreased self-efficacy (Weiner, 1985:560).

Controllability is a binding factor between self-efficacy and attributions. If a learner can control his effort, then he can persist longer when studying and enhance self-efficacy perceptions (Van Overwalle, 1989:400). Bandura (1977a:123) and Schunk (1984:121) found that students who have a high sense of self-efficacy for learning, expend greater effort and persist longer when studying than those who doubt their capabilities (see paragraph 4.3.2.7).

According to Schunk (1994c:82; 1983:850), many studies showed that attributional feedback influences students' self-efficacy. Schunk (1994c:83) provided children deficient in subtraction skills, with instruction and self-directed problem solving. Children were assigned to one of four feedback conditions: viz., success due to ability, success due to effort, success due to ability-plus-effort, and a condition of no feedback. During problem solving, ability-feedback children periodically received verbal feedback linking successful problem solving with ability (e.g., "You're good at this"). Effort-feedback children received effort statements (e.g., "You've been working hard").

Ability-plus-effort children received both forms of feedback, and no-feedback children did not receive attributional feedback. Self-efficacy and subtraction skill were assessed after the last session of instruction. Children judged the amount of effort they had expended during the sessions, which reflected the extent that children believed their successes were due to effort.

Ability feedback promoted self-efficacy and subtraction skills more than the other conditions. The effort and ability-plus-effort conditions outperformed the no-feedback group. The three treatment conditions solved more problems during self-directed practice than the no-feedback condition (Schunk, 1994c:83).

These findings support the point that the same degree of success attained with less effort strengthens self-efficacy more than when greater effort is required (Schunk, 1994c:83). Ability-plus-effort subjects have discounted ability information in favour of effort, and have wondered how good they were if they had to work hard to succeed. By the third grade, more children use inverse compensation in judging ability from effort information (i.e., more effort required to succeed implies lower ability) (Schunk, 1994c:83).

4.6.7 THE RELATIONSHIP BETWEEN SELF-EFFICACY, ATTRIBUTIONS AND SELF-REGULATED LEARNING

Schunk (1994c:75, 81) asserts that self-regulation depends on students feeling efficacious about performing well and forming attributions that sustain learning efforts during engagement.

Students' motivation to self-regulate their learning is also related to their attributional processes (Zimmerman, 1994:13). Students who attribute luck in goal progress to ability, are unlikely to feel self-efficacious or motivated to continue learning. Zimmerman (1994:13) argues that providing feedback to students that improvement is contingent on perseverance, can instill confidence in their ability to succeed, and can enhance their motivation to persist, and increase efficacy for further learning.

According to Zimmerman (1994:13), teaching students to use self-regulatory or metacognitive strategies can improve the effectiveness of their learning methods. Learning-disabled students, for example, who were taught a reading strategy together with attributional statements about its effectiveness, showed reliable improvements in a reading comprehension text from pre- to posttesting. They also surpassed control group students on an inferential subset of the Stanford Reading Test (STR) (Zimmerman, 1994:13).

The belief that one is making progress during task engagement, along with the anticipated satisfaction of goal accomplishment, enhances self-efficacy and sustains motivation (Schunk, 1994a:2). Attributions thus influence self-regulation through their effects on perceptions of self-efficacy as students use learning strategies for effective learning and successful problem solving (Borkowski and Thorpe, 1994:50).

Schunk (1989b:84) substantiates the idea that self-regulation depends on students forming attributions that sustain learning efforts and promote feelings of efficacy about performing well (Zimmerman and Martinez-Pons, 1992:186). Attributions enter into self-regulation during the self-judgment and self-reaction stages when students compare and evaluate their performances (Schunk, 1994b:3). Students who attribute success to factors over which they have little control, may hold low expectancies for success if they believe they cannot succeed on their own (Licht and Kistner, 1986:227).

To determine the operation of self-efficacy and attributions during self-regulation, Butkowsky and Willows (1980: quoted by Schunk, 1994b:6) assessed good, average, and poor readers' initial expectancies for success in solving anagrams, after which subjects attempted to solve anagrams and were also given a line-drawing task. Following the tests, children made attributions for their performances and judged self-regulated learning for success. Good and average readers held higher learning for success and persisted longer on the tasks than poor readers (Schunk, 1994b:6).

4.7   CONCLUSION

This chapter focussed on the relationship between motivational variables such as self-efficacy, goal setting and attributions and self-regulated learning. In a nutshell, the literature review revealed that self-efficacy and attributions influence academic achievement. Students who have a high sense of efficacy for learning, tend to expend greater effort and persist longer than those who doubt their capabilities (Schunk, 1985:208). Students who judge themselves more efficacious, for example, participate more readily in academic study and approach academic tasks with confidence, and diligence (also see paragraph 4.4). Attributions also enhance a sense of personal responsibility for failure, and increase motivation, heighten attention and reduce threat in academic tasks (Platt, 1988:569). Positive causal attributions have an impact on achievement related behaviour, which in turn, affects achievement (Platt, 1988:569) (also see paragraph 4.5.8).