

Children's Self-Efficacy Beliefs, Goal-Setting Behaviors, and Self-Regulated Learning

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ABSTRACT

This paper explores the relations among children's goal-setting behaviors, perceived efficacy, and self-regulated learning. Individuals' self-regulated learning comprises three subprocesses: self-observation, self-judgment, and self-reaction. Children's self-efficacy beliefs and goal setting play a significant role in these subprocesses. Students enter learning activities with certain goals as well as perceived efficacy for goal attainment. When working on tasks, children observe their performance, gauge goal process, and continue their work or modify the approach on the basis of the evaluation. Satisfactory goal process heightens feelings of efficacy. Goal attainment further enables children to set new challenging goals. An interactive view indicates that children's self-regulation is a dynamic process in which such variables as perceived efficacy and goal setting influence one another reciprocally. Finally, future research directions which might help further our understanding of the research in this area are suggested.

Key words: Goal-setting, Self-efficacy, Self-regulated learning

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In recent years, researchers of learning and motivation have become interested in students' self-regulation of their academic learning and performance. A prominent feature of self-regulated learning perspective is the shift of the research focus from student learning abilities and environments as fixed entities to students' use of strategies designed to improve learning outcomes and environment (Zimmerman, 1989b). To date, researchers have identified and studied a few key self-regulatory processes by which students direct their own learning. This paper focuses on two self-regulated learning processes: goal setting and self-efficacy. To obtain a clear picture regarding how these processes contribute to children's self-regulated learning, the relations among children's goal-setting behaviors, self-efficacy, and self-regulated learning are explored in this paper. Further, to advance our understanding of the research in this area, a number of suggestions for future directions are provided as well.

DEFINING SELF-REGULATED LEARNING

As a research topic sparking interests among a wide range of researchers, self-regulated learning has been defined diversely on the basis of different theoretical frameworks. By general consensus, self-regulated refers to "the process whereby students personally activate and sustain cognitions and behaviors systematically oriented toward the attainment of academic learning goals" (Schunk, 1991, p. 265). After reviewing the relevant research, Zimmerman (1989a, 1989b, 1990) identified

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three common features of most definitions of self-regulation. First of all, self-regulated learners are assumed to possess the knowledge of the potential usefulness of self-regulation processes in enhancing their academic achievement. Second, self-regulated learning is characterized by a “self-oriented feedback” loop. This loop entails a cyclic process in which students evaluate the outcomes and determine the effectiveness of their learning strategies and respond to this feedback in a variety of ways, ranging from covert changes in self-perception to overt changes in behavior. The third feature is that most of the definitions of self-regulated learning provide an indication of how and why students choose to use a particular self-regulated process, strategy, or response. Within the context of these features, self-regulated learners can be defined as metacognitively, motivationally, and behaviorally active participants in their own learning (Zimmerman, 1990). In terms of metacognitive processes, children who are self-regulated learners plan, set goals, organize, self-monitor, and self-evaluate at various points during the process of acquisition. In terms of motivational processes, self-regulated learners report high self-efficacy, self-attributions, and intrinsic task interest. With regard to the behavioral processes, these learners select, structure, and create environments that optimize learning. Based upon these characteristics, self-regulated learners are those who are aware of functional relationships between their use of self-regulatory strategies and social as well as environmental outcomes. The effective use of self-regulatory strategies plays a critical role in enhancing perceptions of self-control (i.e., autonomy, competence, or efficacy), which are theorized to be the motivational basis for self-regulation during learning.

Subprocesses of Self-Regulated Learning

From a social cognitive viewpoint, self-regulation comprises three subprocesses: self-observation, self-judgment, and self-reaction (Bandura, 1986; Schunk, 1989, 1990, 1994; Zimmerman, 1989a). These performance-related subprocesses are not mutually exclusive, rather, they interact with one another in reciprocal fashion. The person may judge his or her behaviors against standards based upon the observations and react positively or negatively. The evaluations and reactions, in turn, set the stage for additional observations.

Self-observation.

Self-observation refers to the learner's deliberate attention to his or her own performance, which usually involves systematic monitoring (Schunk, 1994; Zimmerman, 1989a). By observing oneself, the student obtains the information concerning how well he or she is progressing toward the goal. Further, the information acquired in the process of self-observation also can motivate students to improve their studying. For example, having students with poor study habits observe themselves enables them to find out that they waste much study time on nonacademic activities (Schunk, 1990). A common way of self-observation is self-recording of one's behavior instances. Systematic recording may faithfully reflect behaviors and thereby, lead to positive self-reactive effects on the student's learning outcomes (Zimmerman, 1989).

Self-judgment.

In the second process of self-regulation, self-judgment, the learner compares present performance with his or her goal. Self-judgment can be affected by such personal processes as self-efficacy, goal setting, knowledge of standards, and self-observed responses (Zimmerman, 1989a). The major determinants of knowledge of standards or goals include social norms, temporal criteria such as previous performance levels, or absolute criteria such as mastery tests or goals (Bandura, 1986). Evidently, the desired goal state plays a critical role in this process. Without a clear goal in mind, self-judgment cannot be executed. In addition to the importance of the goal state, there is evidence that students' use of self-judgment responses is related to their perceptions of efficacy. Collins (1982) studied children's mathematics problem-solving performance and indicated that students with higher self-efficacy showed better self-judgment when solving difficult problems than their counterparts with low self-efficacy did.

Self-reaction.

A third process of the individual's self-regulation involves self-reactions to one's performance. Self-reactions to the learner's goal progress motivate behavior. The combined effects of acceptable progress with anticipated satisfaction of goal accomplishment enhance self-efficacy and motivation (Bandura, 1986). According to Schunk (1990, 1994), there are two major classes of self-reactions, one personal and

the other environmental. Evaluative reactions refer to personal feelings of satisfaction or dissatisfaction. Students are likely to enhance their self-efficacy as well as efforts for continued improvement if they believe that they are making progress. On the contrary, if students believe that they are incapable and more efforts or better strategy use are futile, motivation would not be boosted. The other motivators, tangible reactions, refer to self-administered stimuli or consequences, such as work breaks, food, or new clothes contingent on task progress or goal attainment. Social cognitive theorists suggest that anticipation of consequences of behavior rather than the consequences themselves enhance motivation and self-efficacy (Bandura, 1986). Self-efficacy is substantiated as individuals work on the task and note progress; receipt of the reward further validates efficacy because it is a symbol of the progress made.

Overall, the account of these subprocesses highlights the role of goal setting and self-efficacy in individuals' self-regulation. Children enter learning activities with certain goals as well as perceived efficacy for goal attainment. When working on tasks, children observe their performance, gauge goal process, and continue their work or modify the approach based on the evaluation. Satisfactory goal progress heightens feelings of efficacy. Goal attainment further enables children to set new challenging goals (Schunk, 1990). In other words, the processes of an individual's self-regulation are cyclic.

Triadic Reciprocity

As noted earlier, instead of operating independently, the self-regulatory subprocesses interact with one another as the student engages in the learning task. In accordance with Bandura's (1986) model of self-regulated learning, these personal processes also interact with environmental and behavioral influences in reciprocal fashion. The extent to which a student can use personal (i.e., self-) processes to strategically regulate behavior and the immediate learning environment determines whether self-regulate learning occurs. Hence, according to this triadic analysis of self-regulated functioning, although learning strategies (i.e., the behavioral influence) can be initiated from the environment (e.g., through instruction), they cannot be regarded as self-regulated unless they came under the influences of such personal processes as goal-setting and self-efficacy perceptions. In brief, from a social cognitive perspective, self-regulated learning is qualified only when students employ

particular learning strategies to achieve academic goals on the basis of self-efficacy perceptions. This criterion requires the learner's motivation that is sustained by continuing self-perceptions of efficacy while undertaking a specific task. Therefore, we cannot describe students' strategic actions as self-regulated unless their academic goals and perceptions of efficacy are known (Zimmerman, 1989a).

SELF-EFFICACY THEORY

In the social cognitive view, self-efficacy plays a pivotal role in affecting the student's self-regulated learning (Zimmerman, 1989a). According to Bandura (1982), self-efficacy refers to perceptions about one's capabilities to organize and implement actions in specific situations that may contain novel, unpredictable, and possibly stressful features. Self-efficacy is hypothesized to influence a person's choice of activities, effort expenditure, and persistence (Bandura, 1986). People who perceive themselves as less efficacious for learning may avoid task, whereas those who hold a high sense of efficacy are more likely to participate. When going through difficulties, student who judge themselves efficacious expend greater effort and persist longer than those who are less sure of their capabilities.

The Role of Self-Efficacy in Self-Regulated Learning

According to the triadic model of self-regulated functioning proposed by social cognitive theorists, self-efficacy is the ultimate source of students' motivation. The efficacy beliefs that students develop determine whether they can consistently and effectively apply what they know (Bandura, 1997). Such a supposition has been supported by the research findings that individuals' domain-specific self-efficacy is highly correlated with their actual performance during self-regulated learning (Zimmerman, 1990). For example, Bouffard-Bouchard, Parent, and Larivee (1991) examined the influence of self-efficacy on students' self-regulation and suggested that regardless of differences in school grade and in cognitive ability, self-efficacy has a crucial effect on various aspects of self-regulation. As a consequence, the better performance of students with high self-efficacy may likely result from their better self-regulatory activities. Their study verified the independent contribution of efficacy beliefs to self-regulated processes. Further, path-analysis studies on the

effects of perceived efficacy indicate different paths through which efficacy belief influence academic performance (Schunk, 1984). Perceived efficacy affects students' intellectual performance both directly by influencing quality of thinking and effective use of acquired cognitive skills and indirectly by heightening perseverance in the search for solution (Bandura, 1997).

Reciprocal Relationship Between Goal Setting and Self-Efficacy

Schunk (1990) contended that there exists a reciprocal relationship between students' goal setting and their perceived efficacy. As students set challenging goals for themselves that are specific and proximal in time, they can perceive their learning progress more readily, and this self-satisfaction in performance accomplishments in turn, enhances their self-efficacy. Students with increased self-efficacy are likely to set even more challenging ultimate goals for themselves. Zimmerman, Bandura, and Martinez-Pons's (1992) study on the role of self-efficacy beliefs and personal goal setting also revealed that the high sense of efficacy in their capabilities exhibited by self-regulated learners not only enables them to set challenging goals for themselves but also influences their commitment to fulfill these challenges. These findings again suggest that self-regulation of motivation depends on both self-efficacy beliefs and personal goals. Nevertheless, the effects of perceived goal progress on self-efficacy is mediated by the attributions that students make. Attributions come into play when students compare and evaluate their performances during the self-judgments and self-reactions stages (Schunk, 1989). Whether goal progress is perceived as satisfactory depends on its attribution. Those who attribute their successes to such factors as luck or task ease (i.e., factors over which they have little control) may not feel efficacious when they believe that they cannot succeed on their own. In contrast, students who attribute success to ability, effort, and effective use of strategies should hold higher self-efficacy and, thereby, are motivated to work productively (Schunk, 1994).

Self-Efficacy in the Use of Cognitive and Metacognitive Skills

While understanding the factual knowledge and reasoning operations for activities of a given domain is essential for self-regulation, effective intellectual functioning requires more than these cognitive skills. Metacognitive skills with regard to how to organize, monitor, evaluate, and regulate one's thinking processes are

important as well (Bandura, 1997). As mentioned previously, metacognition plays a vital role in children's development of self-regulation. However, possessing the necessary cognitive and metacognitive skills is only part of the story. Individuals also need a sense of efficacy allowing them to employ these strategies consistently, persistently, and skillfully, especially when they encounter difficulties in the processes of learning and deficient performances bring negative consequences. By making a comparison between students holding a high sense of self-efficacy and those with lower self-efficacy, Bandura (1997) found that when good results are hard to come by, people with a high sense of efficacy keep up strategic thinking in the search for optimal solutions. By contrast, those students with a weak sense of efficacy usually end up directing their efforts erratically and ineffectively. In other words, successful performance is often the joint product of appropriate capabilities and a high sense of efficacy (Bandura, 1997).

In line with Bandura's argument, Pintrich and his colleagues (Pintrich & De Groot, 1990; Pintrich, Roeser, & De Groot, 1994) also found that a higher sense of self-efficacy is positively associated with the use of cognitive and self-regulatory strategies for middle school adolescents. Students who believe that they are efficacious are apt to report that they use more cognitive strategies, are more self-regulating (i.e., more use of metacognitive strategies), and more often persist in difficult or uninteresting task.

In sum, children's self-efficacy is a critical component of their self-regulation. It affects the way in which they set the goals, the willingness to expend effort, and the use of learning strategies. Neither cognitive processing skills nor metacognitive strategies will accomplish much if students lack a sense of efficacy to perform the academic tasks. Hence, cultivating students' self-efficacy should be the first step for fostering autonomous learners.

GOAL THEORY

As discussed above, at its core, the essence of the student's self-regulated learning is his or her commitment to academic goals. Therefore, to facilitate children to self-regulate their learning, we need not only enhance their self-efficacy, but also

assist them to set realistic goals to accomplish learning tasks. To acquire an understanding with regard to how learners decide on specific goals for individual learning tasks, a discussion concerning people's goal-setting behaviors is as follows.

Three Types of Goal Orientation

Goal orientations refer to a set of behavioral intentions that determine one's approach to engaging in learning activities (Ames, 1992; Dweck, 1986; Harackiewicz, Barron, & Elliot, 1998). Research on achievement goal orientations has proposed three types of achievement goal constructs to explain differences in students' achievement behaviors (Ames, 1992; Dweck, 1986; Meece, 1994). The first two sets of goals can be differentiated in terms of whether learning is perceived and valued as an end in itself or as a means to a goal external to the task (e.g., gaining social approval, demonstrating superiority, etc.). On the basis of this distinction, students may engage in tasks either for trying to outperform peers or to impress teachers (i.e., performance goals), or for developing competence by learning as much as they can about a subject (i.e., mastery goals) (Harackiewicz et al., 1998).

Students who adopt a mastery goal hold a belief that effort and outcome covary, and this attributional pattern enables them to maintain achievement-directed behavior overtime (Weiner, 1979, 1986). With a mastery goal, individuals strive to develop new skills, advance their present level of skill or competence, or obtain a sense of mastery based on an internalized set of standards. Learning is considered as an end in itself. In contrast to the mastery goal orientation, the focus of a performance goal is one's ability and a sense of self-worth. As suggested earlier, ability is revealed by outperforming peers, by surpassing normative-based standards, or by achieving success with little effort (Ames, 1992; Meece, 1994). Rather than considering learning as a means to develop competence, individuals adopting performance goals tend to view learning as a way to demonstrate their abilities. They focus their attention on normatively defined success. Students with a performance goal orientation usually derive their self-worth from perceptions of their abilities to perform. Under these circumstances, effort might become a double-edged sword because the expenditure of effort would threaten self-concept if trying hard does not result in success (Covington & Omelich, 1979).

The third type of goal orientation is the work-avoidant goal (Meece, 1991;

Nicholls, Patashnick, & Nolen, 1985). Unlike mastery- and performance-oriented goals, which represent different forms of approach motivation, the work-avoidant goal is characterized by a form of avoidance motivation. Students who adopt this goal orientation seek to get work done with a minimum amount of effort. Such an orientation represents a way of expressing students' negative attitudes toward school work, avoiding failure, or coping with the constraints and demands of the learning situation (Meece, Blumenfeld, & Hoyle, 1988).

What causes students to pursue these different goals? Previous studies suggested that students' achievement goal orientations are related to their beliefs about the causes of successes (Meece, 1991; Nicholl, Cheung, Lauer, Thorkildsen, & Patashnick, 1989). Children with mastery goals hold the belief that effort, interest, and attempts to understand determine success in school. On the other hand, those who adopt performance goals believe that success depends on impressing the teacher and performing better than others. Performance-oriented students express a greater concern with measuring or demonstrating the adequacy of their ability relative to others.

Dimensions of Goal Setting

From the social learning perspective, goal setting is an important means of promoting self-motivation (Bandura, 1977b). A goal is the object or aim of an action. That is, a goal is what an individual attempts to accomplish (Locke, Shaw, Sarri, & Latham, 1981). Social cognitive theorists argue that the goal-setting process relies on internal comparisons of personal standards against present performance level (Bandura & Schunk, 1981; Schunk, 1983). There are several reasons why goal setting is such a powerful tool of enhancing motivation (Graham, Harris, & Reid, 1992). First of all, the anticipated satisfaction and desire of achieving a goal represent an incentive to mobilize and sustain effort until the goal is attained. Second, goals enable people to concentrate on what has to be accomplished and facilitate the development of strategies for obtaining the desired results. Additionally, as mentioned above, goals allow the person to compare present performance against the standard. The comparison serves an informational function for one's further work. Nonetheless, personal goals or standards are not the sufficient conditions under which the individual activates the evaluative processes that affect the level and course of his or her

behaviors (Bandura & Schunk, 1981). It is certain properties of goals that result in enhanced motivation (Locke et al., 1981). These critical goal properties are specificity, difficulty level, and proximity.

Goal specificity.

Goals that incorporate specific standards of performance are more likely to elicit self-evaluative reactions and lead to higher performance than are inexplicit and general goals (Schunk, 1990). Specific goals promote performance because an explicit goal provides a motivating challenge as well as metacognitive awareness, which offers information about possible appropriate strategies for reaching the goal (Ridley, Schutz, Glanz, & Weinstein, 1992). Also, specific goals are likely to enhance a sense of efficacy because progress is easy to gauge (Schunk, 1990).

Goal difficulty.

Goal difficulty refers to how challenging a goal is for the individual (Graham, Harris, & Reid, 1992). Given the situation that children have sufficient ability to accomplish the goal, there exists a positive and linear relationship between difficulty level and task performance (Locke et al., 1981). It is assumed that self-satisfaction is greater when a person aims for and masters a difficult goal as opposed to an easier one. Goals that can be attained with little effort provide little incentive to expend effort. Compared with easier goals, pursuing more difficult goals may generate a higher level of self-motivation. Such heightened motivation propels children to engage in the tasks more actively. Comparison of progress against the goal helps to validate a sense of self-efficacy. Enhanced efficacy, in turn, serves to sustain task motivation as well as leads to greater skill development.

Goal proximity.

Goals also can be differentiated by how far they project into the future. Because proximal goals are close at hand, they can be achieved rather quickly and lead to greater self-motivation directed toward performance accomplishments than more distant goals. Self-motivation is best activated by breaking a long-term goal into a series of attainable subgoals to guide and sustain the efforts during the process (Bandura, 1997). Proximal goals are particularly influential in young children, because they have short time frames of reference and may not be entirely capable of representing distant goals in thought (Schunk & Gaa, 1981).

In addition to serving as cognitive motivators, pursuing proximal subgoals also boosts self-efficacy. As children monitor their progress toward a proximal goal, they begin to acquire a sense of efficacy, which may sustain motivation and foster skill development. In contrast, because progress toward a distal goal is more difficult to gauge, children may receive less-clear information about their capabilities (Schunk, 1984).

Although to a large extent, these three properties determine the effects of goals on behavior, successful goal setting depends on factors such as feedback of progress and participation in goal setting.

Feedback of progress.

It is important to let learners know how well they are doing when pursuing the desired goals. Self-efficacy is instilled and verified as children observe goal progress, which indicates that they are becoming skillful. Furthermore, feedback may prompt individuals to increase effort when progress is lagging or to establish new goals when they have achieved the old one. Undoubtedly, explicit goals make students more successful in evaluating their progress (Graham, Harris, Reid, 1992).

Participation in goal setting.

One of the strategies employed by the self-regulated learner when directing their learning processes and attainment is setting challenging goals for themselves. There are at least three ways that participation in goal setting can affect performance (Locke et al., 1981; Steers, 1975). First, participation may lead to self-set goals that are more difficult to attain and thus more motivating than assigned goals. Second, self-set goals enlist the enduring involvement in activities needed to build competence. That is, participation in goal setting can result in a high degree of goal commitment, which promotes performance. Another strength of participative goal setting is that participation may be especially beneficial for persons who initially hold low expectations for success.

To involve children in participative goal setting, the first step is to cultivate their interests in the learning activities. It is evident that children's goal-setting behaviors are influenced by the perceived value of the task. When children find a particular achievement task interesting, important, or useful, they are more likely to set specific, challenging goals for their performance on the task. Because they enjoy the task,

instead of being concerned about outcomes, they are more focused on improvement (Wigfield, 1994).

Based upon the above discussion, self-regulated learning requires an individual valuing the task and setting specific as well as challenging goals. It also depends on obtaining unambiguous feedback about one's performance on the task. Further, self-set goals can be best achieved by dividing the long-term goals into a series of proximal goals. If either of these variables is missing, the student's self-regulation of performing the task would be severely affected (Ridley, Schutz, Glanz, & Weinstein, 1992).

SUGGESTIONS FOR FUTURE RESEARCH

The research reviewed in this paper has broadened our horizon with respect to the relations among children's goal-setting behaviors, self-efficacy, and self-regulated learning. However, there still are uncharted territories in this field. To further our understanding of these constructs, a few suggestions for future directions are given in the follows.

First, there is a need for intervention researches with children in actual educational settings (Schunk & Zimmerman, 1994). In most of the self-regulation research, students are simply required to complete questionnaires regarding their self-regulatory activities. We need more information on the extent to which students who report that they use particular self-regulatory strategies (e.g., goal setting) which actually engage them during learning. Such a shift of research focus requires increased collaboration with teachers, because creating an autonomous atmosphere in classroom that allows students making choices on their own is critical for developing self-regulated learners.

Next, there is a need to investigate how goal-setting behaviors, attributions, and self-efficacy interact with one another in the learning process and how these variables change as students acquire skills (Schunk, 1994). In this regard, think-aloud protocols might be an effective research method. By using this technique, children's verbalizations can be classified based on the type of self-regulatory process they reflect.

Another suggestion for future research is the transfer of self-efficacy. Self-efficacy researchers usually view this construct as domain-specific (Bandura, 1986). In new learning situations, however, students' initial judgments of efficacy for learning might be influenced by their aptitudes and previous experiences (Schunk, 1991). In other words, depending on the extent to which the new domain builds on prior skills, self-efficacy might transfer from one domain to another. Since self-efficacy plays a significant role in children's self-regulated learning, the issue of self-efficacy generality is an important research topic as well.

Finally, longitudinal studies are strongly suggested. Most goal-setting research studies effects over short period. As a consequence, it does not fully capture the nature of academic motivation. We need studies that investigate goal-setting behaviors over lengthy periods (Schunk, 1991). Studying children's goal setting over longer periods can shed a light on how they self-regulate their motivation and how their efficacy is altered as they proceed toward long-term goals.

CONCLUSION

In the past few years, the role of individuals' personal attributes and psychological processes underlying their self-regulated learning has received greater attention. The initial research findings have shown a fascinating but complex picture of the processes through which students become capable of self-regulating their academic achievement (Zimmerman, 1994). In this paper, two of the key self-regulated processes, self-efficacy and goal setting have been discussed. The relations among these processes and children's self-regulated learning have been clarified. Clearly, a person's self-regulation is a dynamic process in which many variables interact with one another. This interactive view of self-regulation implies that it is necessary to address various dimensions (i.e., personal, environmental, and behavioral) of children's learning simultaneously as we try to cultivate self-regulated learners. By assuming a proactive role of students engaging in learning, self-regulation researchers believe that instead of something that happened to students, learning is something that happens by students (Zimmerman, 1989). The advent of the information era signifies the necessity of developing life-long learners. To

provide direction and insight to educators into the processes of self-regulated learning, this line of research warrants our further efforts.

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兒童的自我效能信念、目標設定 行為、以及自律學習之探討

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摘 要

本論文旨在探討兒童的目標設定行為、自我效能、與自律學習三者間之關係：個體的自律學習通常包含自我觀察、自我判斷、以及自我反應三個子歷程，而自我效能信念與目標設定則在兒童自律學習的歷程中扮演極為重要的角色。學生往往帶著特定的目標以及有關達成該目標的效能信念來從事學習活動，當進行某項學習作業時，兒童會觀察自身的表現以估量目標之進程，並根據評量的結果繼續該作業或修正作業的方式。一般而言，令人滿意的目標進程可以提昇個體自我效能感，而目標的達成則驅使兒童進一步設定更具挑戰性的新目標。本論文從交互作用的觀點指出兒童之自律學習乃一動力之歷程，而自我效能與目標設定

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等變項則於歷程中交互影響。論文最後並對未來相關研究提出建議，以供有興趣者參考。

關鍵詞：目標設定、自我效能、自律學習