Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol 3, No.8, 2012

The Importance of Intervention in Developing Self-regulated Learners

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Abstract

In academic and educational field, self-regulated learning has been viewed and still being considered as essential learning procedures that could influence students learning behavior and their achievement levels. Most research findings have proven that students who are self-regulated learners perform better than students who are not. However, research on self-regulated learning in Malaysia mainly focuses on investigation of self-regulated factors that affect students learning. The purpose of this study is to investigate students' motivational level and use of learning strategies in learning History before and after the intervention program. In order to attain comprehensive picture and rich information for teachers and policy makers to design appropriate learning contexts in schools, self-regulatory strategies used in this study has been integrated into Secondary Four History. Sequential quantitative and qualitative data collections were engaged to obtain a deep insight of the findings results. Convergence and divergence data emerged between students' responses on the questionnaire and interview for particular constructs within self-regulatory strategies in the intervention. Distinctive data should be considered as the pointer to new theoretical insight.

Keywords: self-regulation learning, learning behavior, motivational level, use of learning strategies

1. Introduction

Self-regulation is one of the most attractive areas in psychology and numerous researches have been conducted to study self-regulation (Ng, 2010). In educational and academic field, self-regulated learning has been considered as an important process that could help to explain different achievement levels of students and help them to improve their achievement (Boekaerts, Pintrich, & Zeidner, 2000). Pintrich (2000) describes self-regulated learning as "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (p.453). Intensive literature reviews reveal that the researchers in the area of self-regulated learning in Malaysia are more likely to examine the factors that affect students' self-regulation behaviors. However, they do not integrate self-regulatory strategies in specific subject content and examine the effectiveness of these strategies to improve students' motivation, learning strategies and achievement for that subject, especially in conventional learning environment.

In order to be aware of their general academic strength and weaknesses, students need to self-regulate their cognition, metacognition, motivation, learning resource and environment. Students may have certain level of self-regulative knowledge, but they may not know how to sufficiently implement self-regulatory strategies in their learning process. Thus, they must be taught knowledge and skills on how to regulate their engagement in tasks to optimize their learning processes and outcomes.

In theories of self-regulated learning, students' motivation and learning in classroom are two interdependent components and the learning process might not be fully understand if they are treated apart from each other (Zimmerman, 1989a). Many educational psychology researchers emphasizes that self-regulated learning actually required both *will* and *skill* of a learner in order to have significant achievement (Blumenfeld and Marx, 1997; McCombs and Marzano, 1990).

In Malaysia, History is a primary subject taught in the secondary level. It is a pass-required subject in lower secondary national examination called Lower Secondary Assessment (PMR) and higher secondary national

examination known as Malaysian Certificate of Education (SPM). According to Tor (2004), Secondary Four students face difficulties and troubles when come to this subject, as they do not go through deep learning and logical thinking process. They eventually show superficial understanding towards this subject and behave passively during History class. Students do not have effective learning strategies to master History learning materials and thus, they encounter difficulties to memorize and elaborate important facts of History. Recent data indicates that students low achievement in this subject. According to the report of Ministry Of Education, urban areas students achieved 71.9% in the year 2008 and 73.0% in the year 2009 of passing rate; whereas students of sub-urban areas achieved even lower passing rate; that was 68.2% in the year 2008 and 68.8% in the year 2009 (report of MOE, 2010).

Difficulties faced by low achievement students in History should be taken into consideration. Effective learning in History requires serious effort with strong will and skill. These assumptions are found in self-regulated SRL which emphasizes students' motivation and effective learning strategies to learn a subject. Students' motivation of learning is regarded as learning will, and effective learning strategies that pursued by students to learn a subject are treated as skill. Students need to invest sufficient effort to self-monitor self-control and self-evaluate their learning process, to decide and choose how and why to use specific learning strategy in order to attain the desire goals. A more proactive learning method would be able to help students to understand thoroughly the content of History taught in the classroom, to enhance their learning motivation and strategies for this subject and eventually perform better in their learning.

To overcome the personal weaknesses as well as other inter-related factors in the learning process, Self-regulated learning could be an effective strategy to enhance students' learning of History, a subject often perceived as boring and difficult. When students master effective learning strategy for this subject, they will become more motivated to learn. Motivation in learning is important because motivation and affection play an essential role in self-regulated learning.

Previous research evidences show that when students were given proper and adequate training in self-regulated learning techniques, all students can improve their learning, including the degree of control over learning process and performance, in all subjects. Self-regulation training would increase students' self-efficacy for subject performance (Schunk, 2005). Thus, students' self-efficacy to learn History must be enhanced before they can perform better for this subject. This is because students who believe they use effective strategies help them to learn more, perform better and more efficacious when choosing and applying strategies to accomplish their task.

Implications of this study propose that History teachers should be trained on self-regulated learning dimensions so that they can deliver effective self-regulatory strategies and techniques to students. Better understanding to self-regulated learning approach help History teachers to structure their teaching methods (Paris & Winograd, 2001) and deliver authentic work to students (Paris & Paris, 2001). Besides deliver History content, teachers should encourage students to set learning and performance goals that they desire to attain, to perceive the difficulties and the value of the task, self-belief of their ability to accomplish the task, self-evaluate the learning resources to assist them when they encounter difficulty, self-adjust the learning strategies and finally, self-reflect on the quality of their work before hand-in to the teachers.

Students who exercise self-regulatory strategies are proactive learners. Proper implementation of self-regulatory strategies helps students to train their mind and also cultivate positive mindset in the process of learning (Yong & Yeo, 2012).

2. Objectives and Research Questions

This study mainly designs self-regulatory strategies to integrate with the content of Secondary Four History subject as intervention program in helping students to improve their motivation and learning strategies to learn the subject. Eventually, the effectiveness of the intervention program is also determined using quantitative method. After intervention, interview is conducted because researcher is interested to further understand students' application of learning strategies. Questions in interview protocol were created to compare, correlate, and consolidate with quantitative findings. For examples, do they plan for the desired goals of learning? Do they self-monitor, self-evaluate, self-control, and self-reflect the difference between the desire goals and contemporary stage of their learning? Do they realize the appropriate choices of strategies enhance their learning? Do they effectively manage

the time and effort of learning History subject? Do they seek help when they encounter learning difficulties? Is peer learning sufficiently help them to revise their learning material and complete the task?

3. Theoretical Framework

There are various theories interrelated to self-regulated learning, such as social cognitive, operant, volition, Vygotskian, cognitive constructive, and phenomenological. Among the theories, social cognitive theory had been widely used and it has guided comprehensive research on self-regulation in the field of educational psychology (Ng, 2010). Different self-regulated learning models propose distinctive constructs and approaches in academic areas. However, these models share some basic common assumptions about learning and regulation behaviors. Pintrich (2000b) had synthesized various assumptions and recommended a framework for categorizing and sorting the areas and different phases of self-regulated learning.

Pintrich's self-regulated learning model is grounded based on Bandura's (1986) social cognitive theory. This theory emphasizes that most human actions are goal directed and views human functioning as interactions between behavioral, environmental, and personal factors. Therefore, self-regulatory processes such as self-observation or behavioral monitoring, self-judgment or self-evaluation of progress, and self-reaction, including both affective and tangible self-initiative consequences, are influenced by personal and environmental factors.

Pintrich's (2000b) self-regulation learning model has been taken as the foundation of this study. This model encompasses four phases of strategies implementation in the learning process. These four phases of strategies are planning, monitoring, control, and reflection. Each phase involves four general domains that students can try to self-regulate; they are cognition, motivation, behavior, and the environment domain (Figure 1). However, metacognitive strategies have become an independent domain in the Motivated Strategies for Learning Questionnaire (MSLQ) because of its importance to instill awareness to students. The four phases of self-regulatory strategies were inserted in the intervention program which designed based on the four self-regulation domains. For example, students were taught to plan, self-monitor, control and reflect on their choices of cognitive learning strategies to grasp the content of learning materials.

The four phases of strategies represent a general time-ordered sequence and should be treated as suggestions when learners go through their task and learning, there is no strong assumption that the phases are hierarchically constructed as such that earlier phases must take place before the later phases. In History class, teachers and students should apply the strategies according to the needs of the task and learning. The effectiveness of particular strategies in helping students to enhance their understanding of learning materials and improve their performance should be considered.

4. Research Methods

This was a quasi-experimental design with basic pre and posttest to determine on students' changes before and after intervention. Sequential explanatory design (Creswell et. al., 2003) was used whereby quantitative questionnaire is implemented followed by qualitative interview for data collection and data analysis. Both quantitative and qualitative results have been integrated and discussed in a triangulation manner.

4.1 Participants

Two similar classes of Secondary Four students, whose age was ranging from 16 to 17 years old, were selected as participants for this experimental research. These students were from existing classes and it was not practical to assign them randomly for treatment. However, these two classes were taught by the same History teacher. One of these classes was assigned as experimental group with 30 students, and the other class was assigned as control group with 28 students. Statistically, it has been proven no significant differences in their motivational level and their use of learning strategies to learn History before the intervention program started. (Table 1)

4.2 Research instruments

This was a mixed methods research design, and thus involved quantitative questionnaire and qualitative interview protocol. Motivated Strategies for Learning Questionnaire (MSLQ) is a 7-likert self-report instrument which contains two sections (Pintrich, et. al., 1991). First section is motivation section and there are 31 items to evaluate students' motivational orientations to learn History. The other section includes 50 items to assess students' application of learning strategies in learning this subject. Motivation section involved sub-components such as expectancy, value, and affective. Sub-scales of expectancy components are control of learning beliefs, self-efficacy; whereas value components consists of intrinsic, extrinsic goal of learning, and task value. Test anxiety is treated as sub-scale under affective component.

There are two components in the section of learning strategies; 31 items that assess students' use of different cognitive and metacognitive strategies, and 19 items regarding students ability to manage different study resources.

Self-regulative Learning Interview Schedule (SRLIS) was used as guideline for quantitative interview protocol in this study. SRLIS was developed by Zimmerman and Martinez-Pons (1986) and has been widely used since then. However, the learning scenarios in the initial SRLIS have been linked to the History learning contexts in Malaysia which could easily understand by Secondary Four students. A question related to test anxiety has been added to the protocol after the analysis of MSLQ. In short, data driven approach has been taken and thus questions and scenarios created on SRLIS used in this study were specifically designed to meet the requirement of the research questions.

4.3 Research procedures

Research procedures focus on data collection. First part of this research emphasized on conducting intervention program for students in experimental group. Pre and posttest were administrated to determine the effectiveness of intervention helping students to improve their motivational level and usage of learning strategies in History. Collection data through interview sessions was the other part of research.

4.3.1 Pre and posttest

Pretesting students was an important process to establish group equivalence and also for comparison of students' achievement between pre and posttest to determine their improvement after intervention program. During the first meeting, students in experimental and control group were required to answer questions on MSLQ for 40 minutes.

After 15 sessions of intervention program, MSLQ was administrated again for both groups of students. The gap between pre and posttest was nine month. It was sufficient to prevent practice effect that makes students more proficient in subsequent test performance (Best & Kahn, 1998).

4.3.2 Intervention program

Fifteen sessions of intervention program with integrated content of History has been designed. In the intervention, students were coached on techniques of planning, self-monitoring, self-control, and self-reflect on their motivation, cognition, metacognition, behavior, and also learning environment. They were taught through the following methods:

i. planning- use examples to guide students do planning for targeted goal, includes intrinsic and extrinsic goal of learning History; make daily, weekly and monthly learning time table, plan appropriate cognitive learning strategies for task accomplishment, and also set a conducive learning place outside the classroom

ii. self-monitoring- encourage and guide students to be self-initiated, aware and monitor of various aspects of cognitive learning strategies, metacognition self-regulation, task value, control of learning beliefs, monitor and self-record of their performance for all tests and exam, self-monitor and manage all aspects of resources, and the appropriateness of the study place

iii. self-control- teach students to sufficiently select cognitive learning strategies by using examples, motivation managing strategies, increase or decrease time and effort to study History, how and where to seek help when learning difficulties appear, change or leave disturbance when study History outside the classroom

iv. self-reflection- teach students how to make judgments and evaluation of their completed task, exam performance, reflect on the effectiveness of cognitive strategies to grasp the learning content, enhance their resource management skills, evaluation of learning context, and also make positive attributions for their success and failure

Every session of intervention took 60 minutes. Appropriate learning materials were designed to enhance students' learning throughout the intervention, such as examples of study schedule, charts for them to self-record their marks on tests and exam, self-monitor and self-reflection questionnaires, work sheets and so on.

Instructions of intervention, such as direct teaching of strategies, modeling, examples, autonomous practice using strategies, feedback from researcher, self-observation and self-judgment, were written clearly in the module of intervention.

Encouragement and motivational talk were given to students throughout the intervention program to inculcate positive mindset to students. Activities, skills and strategies taught in intervention program emphasized students' intrinsic development and overt learning behavior in History.

Appropriate respondents were selected from students who indicated great improvement in their motivational level and usage of learning strategies on MSLQ. Thirteen students had been indentified and individually interviewed after post testing process.

5. Findings of the Research

5.1 Quantitative results

Dependent and independent *t*-test was used as quantitative data analysis methods to compare the mean scores achieved by same groups of students and between two groups of students respectively. Statistic results discussed below were all significantly different at the two-tailed 5% level unless stated otherwise.

T-test results showed that students who have undergone intervention program displayed significantly difference in their motivation of learning History before (Mean=4.79, SD=.50) and after (Mean=5.5, SD=.45) intervention. In this case, sig. = .003. They also indicated significant differences of their use of learning strategies before and after intervention program (sig. = .007). The mean scores of the learning strategies before intervention was 4.19 (SD=.31) and after intervention was 4.47 (SD=.22).

Students who were not given intervention program have demonstrated deteriorated mean scores of their motivational level and learning strategies over time. During the pretest, the mean score for their motivational level was 5.1 (SD=.41) but the mean score of posttest was 4.7 (SD=.37). *T*-test results shown that the mean score of motivational level decreased significantly between pre and posttest (sig. = .006). Their use of learning strategies decreased as well in the nine months time. In the pretest, they achieved 4.46 (SD=.27) as the mean scores for sections learning strategies, however, the mean score decreased in the posttest (Mean=4.12, SD=.27). They have indicated significantly difference in their learning strategies between pre and posttest. Students in control group have shown lower motivational level and the use of learning strategies for History when they were not given intervention program.

Statistically, students undergone intervention program improved both their motivational level and learning strategies when compared to students who did not. For motivational level, the difference was significant between these two groups of students. As shown by *t*-test; the sig. = .036 for motivational level. As for their learning strategies, the mean score between these two groups of students also differed significantly (sig. = .008).

5.2 Qualitative results

Interview data has been transcribed and analyzed according to the themes that has predetermined during the construction of questions on SRLIS. By categorization, long interview conversation could be reduced and placed into the themes (Kvale, 2007). Five themes have been developed according to self-regulated learning components to categorize interview data: motivation, cognitive learning strategies, metacognitive self-regulation, resource management strategies, and learning environment. Each component might have sub-themes, for example, organization, elaboration, critical thinking, rehearsing, and memorizing were sub-themes under cognitive learning strategies. By answering questions 1, 2, 4, and 7on SRLIS, students revealed their usage of strategies to rearrange

and organize their learning material or to memorize facts by repeating practice and read out the keywords over and over.

Interview data provided deeper knowledge to researcher regards students' application of learning strategies for History after intervention program. Students started to self-aware of their learning behavior for this subject. Generally, they have self-monitored that they invested too little study time and effort for this subject outside the classroom.

6. Triangulation of Quantitative and Qualitative Data

Both quantitative and interview data has revealed convergence and divergence results between MSLQ and SRLIS. Same instructions of intervention were given to all students in experimental group; however they demonstrated different level of usage in learning strategies after receiving intervention program. Their performances resulted from their own learning styles. Thus, statements revealed by students in the interview session support some of the findings in MSLQ, but there were also contradictory statements appeared in the conversations which did not support the findings in MSLQ.

Sound findings between MSLQ and SRLIS could be found when the mean score of students' intrinsic and extrinsic goals in MSLQ parallel students' information during interview. The mean score increased after intervention program. In the interview, students revealed that they started to think about the targeted goal they could achieve confidently. However, they prefer extrinsic goal rather than intrinsic goal as most of them were inspired to get better grades for the tests and exam in future. They set goals and planned appropriate cognitive learning strategies for goal attainment. Self-regulated learning is a personal process and a passionate learning approach. This is because it allows students to learn according to their own ability and unique learning needs. Thus, students planned their targeted goal according to their abilities and learning resources they have in hand.

However, contradictory results have emerged between students expectancy components (control of learning beliefs and self-efficacy) on MSLQ and test anxiety. Students have indicated increment of mean score for expectancy components (self-efficacy and control of learning beliefs) and also test anxiety. This finding contradicted the evidences shown by previous research. According to Pintrich (1991) and other researchers, test anxiety has been found related negatively to the expectancy components and academic performance. From the interview, students admitted that they felt anxious especially when they were not well prepared to sit for the test or exam. In reality, students who indicated improvement of their self-efficacy and control of learning beliefs on MSLQ have been found engaged low level of confidence and beliefs towards their ability in learning History. Incongruence situations occurred between their emotional stage and their effort to learn History. They did not believe that their effort in studying History would result in positive outcomes. Thus, they did not exert full effort to study this subject before tests or exam. Insufficient preparation for tests made them anxious and worried, especially when they were unable to answer most of the questions in the test papers.

This is understandable because hypothetical questions under control of learning beliefs and self-efficacy construct on MSLQ did not provide clear picture about student improvement in their real effort to control their performance in study. For example, the questions sound "If I try hard enough, then I will understand the materials of History", "If I study in appropriate ways, then I will be able to understand the materials of History", "I believe I will receive an excellent grade for History", "I expect to do well for History". The assumption underlying in these two constructs is if students feel that they can control the learning outcomes, they are more likely to invest more effort to study strategically for goal attainment. Quantitatively, a student's knowledge towards their control of learning beliefs and self-efficacy were supposing to increase if he answers 'not at all true of me (1)' in the pretest and answer 'very true of me (7)' in the posttest after the intervention program. However, these constructs concern not only student knowledge but also refers to their effort to make their study different and to engage them to more strategically and effective learning strategies. Self-efficacy influences student judgment and attitude towards their learning. If students believe that they are the key factor to impact their learning outcomes but they do not have confident in their own ability to learn the subject, they are more likely to maintain their old learning behaviors. Thus, they felt anxious during the test. They have to convince themselves in order to be confident to write or choose answers in the test because they have not revised the materials thoroughly.

Undoubtedly, students in control group have suffered deteriorated in their use of learning strategies over time (Figure 2). Students who undergone intervention program disclosed correlated information between their responses on MSLQ and the application of learning strategies for History subject after intervention program. They were more likely to use intensive rehearsal and memorization skills to remember the facts and important points of the content. They highlighted the points from the content and make into small notes as their own reference. They recited over and over to memorize the points. However, their elaboration and organization skills need to be refined because they did not relate much of the content to their prior knowledge. They also did not have much idea about how to outline the material from the reference and text books. Only a few students revealed that they make flow charts and mind-maps to organize their readings. However, they have right effort attempting to reread the questions and try to understand the requirements of a task and eventually outline the key points. They also try to understand the materials by connecting their reading and lectures by teachers.

Critical thinking is skillfully conceptualizing, applying, analyzing, synthesizing, and evaluating information. Even though students indicated improvement of their critical thinking skill quantitatively, divergence qualitative data has been encountered. They were lacking of ability or skill to question History content that have been taught by teacher, find good supporting evidences for historical incidents, develop own ideas towards learning material that have been revealed to them, or even finding conclusion to the texts they read. Exam oriented and teacher-centered teaching and learning process in contemporary classroom inhibit students to cultivate critical thinking learning behavior (Toh, 2003). Students become passive learners; they receive and accept whatever information that delivered by teachers.

Students who received intervention program established progress on their resource management strategies included time and effort management, peer learning and help seeking. Qualitative data supported these findings because students gave out meaningful and useful information regarding their ways they seek for social and non-social resources, keep monitoring and reviewing records of the previous performances. Most of the students self-record their results for tests and examinations for their own reference, even though they did not record the marks in a proper format. The good effort to self-record their performance helps them to monitor and control the strategies they used effectively. They may self-reflect on the effectiveness of a particular learning strategy which resulting the current outcomes. They may also take action to refine and adjust the insufficient strategies in order to attain better results.

Some students made constructive attribution on the current performance of History. They exert effort to discover the causes that brought them to contemporary results, either good or poor results. However, specific time management skill needs to be enhanced as most of the students did not plan adequate study time for this subject. Attribution of poor results made them alert of their weakness but they were not desirable to set proper study time. They did not make study schedule because they have no confidence to strictly follow what has been planned. They admitted they were easily distracted by other things during their study for the subject.

Students would seek assistance from their peers in the class or from other classes when they encountered learning difficulties. They formed discussion groups to study and complete their assignments in group. The tendency to check their completed tasks with peers' work was high. Some of the students would seek help from History teacher only when they could not solve the problem with their peers. Most of the time, they referred notes in text and reference books to seek for answers for their assignments.

Most models of self-regulation learning include strategies to shape, control and structure the learning environment as important strategies for regulation (Zimmerman, 1998a). Environmental control and regulation refers to effort that attempt to structure and organize learning environment that will influence goals and task completion (Corno, 1989; Kuhl, 1984, 1985). Students undergone intervention program indicated increment of means score in time and study environmental in MSLQ. Undoubtedly, the benefits of proper time planning and study place outside the classroom have been revealed in the intervention. Students have knowledge towards questions such as 'I make good use of my study time for History', 'I usually study in a place where I can concentrate on my tasks' and made ideal choice of the options in the questions. However, in reality, most of the students did not set study time for themselves. Their effort to learn History was low as they sometimes did not realize distractions and interferences occurred while they were studying this subject. They were easily distracted by TV, online games, and internet. Their commitment to learn and complete tasks in History was low.

Students might realize the importance of conducive study environment at home; however, they were not able to do so because of economy factors. For example, some students live in a small flat unit with numerous siblings. They

need to share the bedroom among other siblings and there was no vacant room available to be designated as study room. Some students study on dining table, and some students do their homework in the living area of the house.

Interview data have provided insight the actual way of students' application of self-regulatory strategies after intervention program. Interview data revealed the reality faced by students and further explained the results produced by the quantitative data. In conclusion, the practice of self-regulatory strategies in daily learning for History is not sufficient. Students need continuously practice of the strategies in their daily learning in order to enhance their will and skill of using the strategies. The knowledge and experience of self-regulatory strategies application in and out of the classroom may produce better skills if the students are provided with more opportunities to practice the strategies. The skills may also be refined if they practice these strategies for other subjects as well. Continuous encouragement and guidance from subject teachers and parents may help students to sustain and maintain their usage of self-regulated learning strategies in the learning.

7. Conclusion

Intervention program in this study with incorporated self-regulatory strategies and History content succeed in providing knowledge and inculcate students' awareness of the advantages to enhance their learning in this subject. Good self-regulated learning behavior may result in positive outcomes in students' motivational level and use of learning strategies in History. However, a learning behavior can only be sustained and developed sufficiently if students have the will and skill to apply it consistently. Therefore, continuous practice for self-regulatory strategies is required in and out of the classroom. More positive changes on students' learning behaviors can be attained if self-regulatory strategies are integrated into the content of other subjects in the school. The strategies will automatically become their learning approach when they attempt to attain their goals. Even though students' academic performance is not included in this study but improvement of students' motivational level and their use of learning strategies will become an effective predictor for their better performance in the future. Inferences between quantitative and qualitative data have provided a comprehensive reality about students' application of self-regulatory strategies in History. Future research in this field is required to further expand the application of self-regulatory strategies for other subjects in the classroom contexts.

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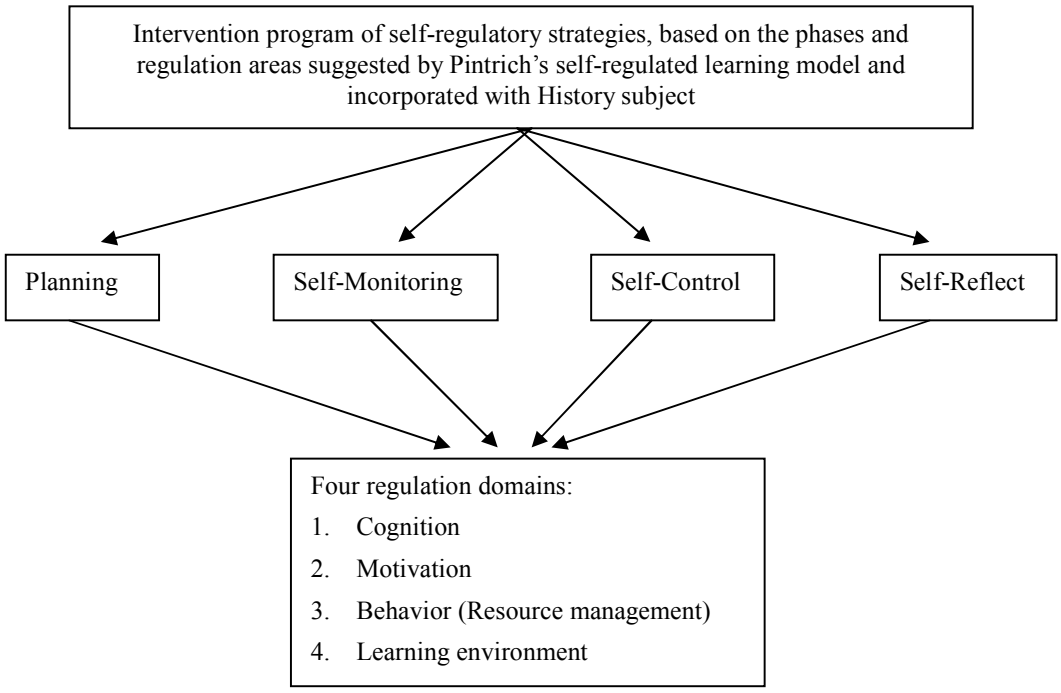

Figure 1. Four phases of strategies implementation and four regulation domains in the learning process

The four phases of self-regulatory strategies: planning, self-monitoring, self-control, and self-reflect were inserted in the intervention program. Students learn to plan for appropriate cognitive learning strategies, self-monitor and self-evaluate the effectiveness of the cognitive learning strategies they have chosen, self-control their effort and time of learning, and determine whether distraction occurs in the process of learning. All self-regulatory strategies do not work independently; they are inter-related and work in a synergy manner.

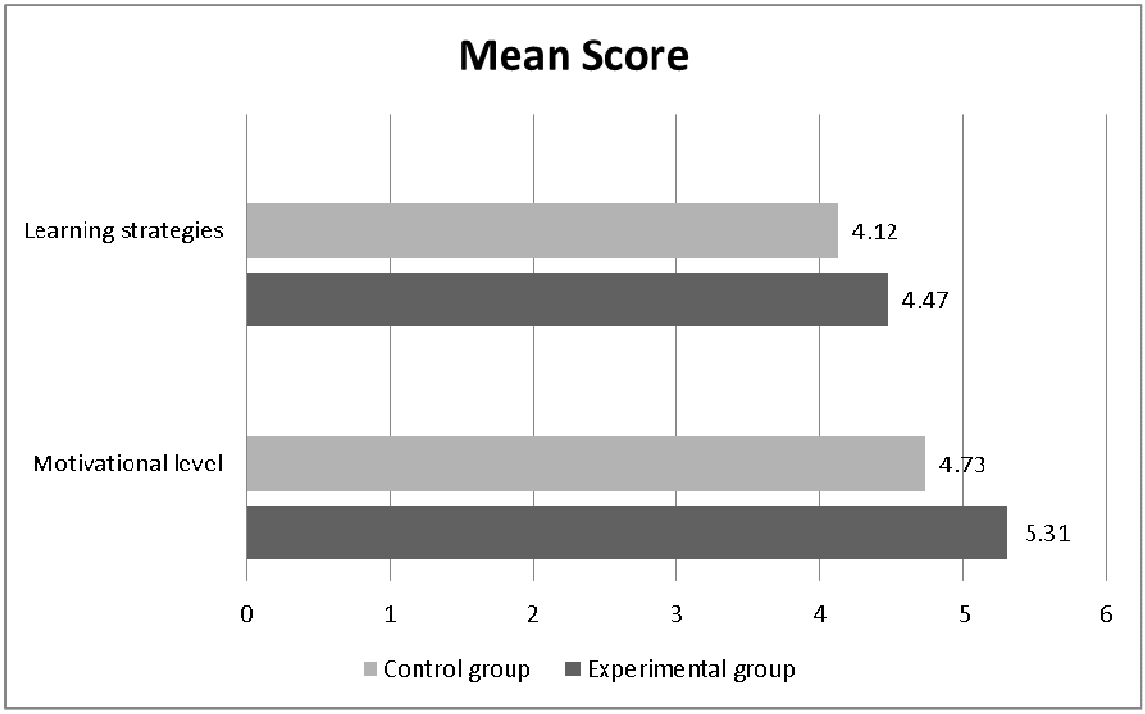

Figure 2. Comparison students' motivational level and use of learning strategies between experimental and control group

Students who have undergone intervention (experimental group) improved significantly in their motivational level (mean = 5.31) if compared to students who did not receive intervention program (control group) (mean = 4.73). Students' use of learning strategies also increased significantly after intervention (mean = 4.47) if compared to students in control group (mean = 4.12).

Table 1. The mean scores of students' motivational level and use of learning strategies before intervention program

	Experimental group	Control group
Motivation	4.79	5.08
Learning strategies	4.19	4.46

After analyzing with independent sample *t*-test, the mean score of students' motivation from experimental group showed no significant difference than students in control group (sig.= 0.300, $p > .05$, 2-tailed) before intervention started. The mean score of students' learning strategies between experimental and control group also indicated no significant difference (sig.= 0. 071, $p > .05$, 2-tailed) before the intervention started.