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The Effects of Using a Program Applying Self-Regulation in Combination with Teacher's Social Support on Learning Behaviors of Underachieving Primary Students

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The purpose of this paper was to evaluate the effectiveness of a program applying self-regulation in combination with teacher's social support in improving the learning behaviors of underachieving primary students. The sample consisted of nineteen grade 5 students in a primary school located in Bangkok Metropolitan identified as underachieving. The research design used in the study was a combination of a quasi-experimental and ABA design. Learning behavioral forms were used to collect the data and two-way MANOVA with repeated measures was the statistical technique used for data analysis. The results were that both programs applying self-regulation in combination with teachers' social support and the program applying only self-regulation were significantly effective in improving *individual students' in-class and after-class behaviors. Furthermore, there was no significant difference in effectiveness between the two programs.*

Keywords: learning behavior, self-regulation, social support, underachievement

Underachievement is defined as an inability or failure to perform appropriately in one's own age or talent; in other words, it is unfulfilled potential. It is the difference between students' abilities and learning outcomes or the learning achievement of which the scores of learning outcomes or achievement are lower than the unfulfilled potential (expected abilities) (Whitmore, 1980; Butler-Por, 1987; Mc Call, Evahn, & Kratzer, 1992; Rimm, 1995; Peterson & Colangelo, 1996; Reis & McCoach, 2000). Students who underachieve are not able to develop their full potential. They cannot develop themselves as effectively as possible, which can reduce the effectiveness of education. This is a challenging problem in education today. It is essential to find the solution to this problem in order to elevate students' potential for the competitive world of today and tomorrow.

The suspected causes for underachievement vary greatly and include such factors as family influences, social concerns, unchallenging curriculum, and/or undiagnosed learning disabilities (Flint, 2002) that make underachievement generally complex by nature (Kagan, Moore, & Bredekamp, 1995; Flint, 2002; Hyson, 2008). One of the outstanding characteristics among underachieving students related to their underperformance is learning behaviors. Holtzman (1965) specified that learning behaviors highly affected learning achievement. Normally students with underachievement have poor learning behaviors leading to poor academic achievement such as daily work that is frequently incomplete or poorly done,

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unrealistic goal setting, or the inability to work as a group member, and the fear of failure or success (Whitmore, 1980, as cited in Hunter-Braden, 1998; Schneider, 1998; The Association of Educators of Gifted, Talented and Creative Children in B. C., 2006).

While appropriate interventions are necessary if educators are to correct this problem, it is understandable that proposed interventions have taken on several different directions. As with creating a definition and looking at causes of underachievement, no single intervention has been found to be the answer (Hoover-Schultz, 2005). However, some researchers stated that effective intervention program should be an integrative approach that includes both internal and external factors of students (Baum, Renzulli, & Hébert, 1995; Hishinuma, 1996; Flint, 2002).

Thus, the interventions on learning behavior modification among underachieving students need to be enacted systemically. This study aimed at the development of a program based on the conception of self-regulation and social support from teachers for the solutions on learning behaviors among underachieving primary students. The research question was: What is the effect of the program applying self-regulation in combination with teacher's social support on learning behaviors of underachieving primary students. The research findings could create a better understanding about the learning behaviors of underachieving students and providing the appropriate guidelines for the solutions to underachieving among primary students. As a consequence, underachievement among students could be solved effectively.

Literature Review

Learning behavior and underachievement

Learning behavior is the behavior of students related to their study or learning activities. Learning behavior is the actual behavior of students' approach to learning that includes a variety of behaviors, skills, dispositions, and attitudes that describe the way in which children approach or react to learning situations (Kagan, Moore, & Bredekamp, 1995; Hyson, 2008; Domínguez, Vitiello, Maier, & Greenfield, 2010).

The effective learning behaviors of students lead to academic success (Maddox, 1965). Artelt et al. (2003) stated that students with effective learning behaviors have better performance than their peers with less effective approaches. Learning behaviors significantly predict academic achievement even after controlling for the effects of highly predictive yet more stable variables like intelligence (Schaefer & McDermott, 1999).

While the behavior of the majority of children in school is good, as it always has been, it appears that the learning behaviors among underachieving students include the lack of completion of their tasks, no initiation in academics, the fear or dislike of testing or difficult tasks, the inappropriate goal setting, the inability to work as a group member, and the fear of fail or success (Whitmore, 1980, as cited in Hunter-Braden, 1998; Schneider, 1998; The Association of Educators of Gifted, Talented and Creative Children in B. C., 2006). Thus, reversing these behaviors can help reduce the achievement gap of underachieving students.

Self-regulation

Self-regulation, the systematic process of one using one's own thoughts, feelings, and actions, to achieve a goal (Bandura, 1986; Zimmerman, 2000), is essential to the learning process. There are three parts of self-regulation (Bandura, 1986); 1) *Self-observation* is the process that learners monitor themselves to determine their progress, 2) *Judgment process* involves using observational for assessing their performance against the goals, and 3) *Self-reaction* is the step that individuals learn to reinforce and punish themselves depending on the judgment results. In practice, based on three big steps, it has found that researchers use different steps of self-regulation (Bandura, 1986; Pintrich & De Groot, 1990; Clark, Janz, Dodge, & Sharpe, 1992; Zimmerman, 2000; Ley & Young, 2001). However, there are six common steps among them including self-observation, goal-setting, planning, self-controlling and monitoring, self-evaluating, and self-reaction.

Self-regulation could affect students' learning behaviors and their achievement because cognitive and behavioral regulations are important factors of learning (Corno & Mandinace, 1983, as cited in Pintrich & De Groot, 1990). Students regulating their own learning are actively involved in the learning process and thus can guide their thoughts, emotions, and actions in a way to positively affect their motivation and learning (Boekaerts & Corno, 2005). Specifically, it can help students create better learning habits and strengthen their study skills (Wolters, 2011), and apply learning strategies to enhance academic outcomes (Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005).

Social support

Apart from self-regulation, which is the students' internal factor stated earlier, social support from families, friends and schools also highly influence students' learning achievement (Berns, 2004). Basically, social support is defined as the perception or experience that one is loved and cared for, esteemed and valued, and part of a social network of mutual assistance and obligations (Wills, 1991).

Generally, social support is examined in several forms. *Instrumental support* involves the provision of tangible assistance such as services, financial assistance, and other specific aid or goods. *Information support* occurs when one individual helps another to understand a stressful event better and to ascertain what resources and coping strategies may be needed to deal with it. *Emotional support* involves providing warmth and nurturance to another individual and reassuring the person that he or she is a valuable person who is cared about (Thoits, 1986; Taylor et al., 2004). However, as learning instruments are majorly provided and responsible by parents, social support studies in school settings regularly focus more on informational and emotional supports than instrumental ones (Bhanthumnavin & Makhanong, 2007). Therefore, informational and emotional supports by teachers should be effectively implemented.

Social support has long been known to help people cope with health and mental problems when they do occur (Thoits, 1986; Taylor et al., 2004). As teachers are important agents of providing learning or instruction in a classroom setting, social support from teachers directly influences the students' learning behaviors in that of their learning concentration and participation (Bhanthumnavin & Makhanong, 2007). Researchers have found that students who have teachers with whom they could identify, who were consistently interested and supportive, who individualized instruction, were willing to give the special

help needed, and who maintained consistently high expectations could improve their achievement more often than those who have teachers without these characteristics (Passow & Goldberg, 1959; Butler-Por, 1987; Emerick, 1992).

Intervention program

Researchers have described two categories of interventions aimed at reversing underachievement: counseling and instructional interventions (Dowdall & Colangelo, 1982; Butler-Por, 1987). While counseling interventions attempt to change any personal or family dynamics affecting students' underachievement by helping them to decide goals and reverse any habits that are blocking the road to success, instructional interventions focus on special classrooms designed to create a more favorable environment for underachievers in order to provide students with more freedom and control of their own learning by having a small teacher-student ratio and using less conventional approaches to teaching (Dowdall & Colangelo, 1982; Butler-Por, 1987). However, some researchers believe the debate is still out on both intervention categories success (Hoover-Schultz, 2005). However, Butler-Por (1987) stated that using a multi-dimensional method to deal with underachievement, including an appropriate classroom environment and an instructional approach related to student needs can help solve student underachievement problem for all ability levels.

Since underachievement and learning behaviors are generally complex in nature (Kagan, Moore, & Bredekamp, 1995; Flint, 2002; Hyson, 2008), it seems logical to provide multi-faceted instruction and intervention in order to address the many factors of underachievement (Baum, Renzulli, & Hébert, 1999; Flint, 2002). Hishinuma (1996) called successful interventions integrative in their approach. Therefore, the intervention should include factors that are in both inner and outer of students, and should be rely on students' characteristics as well as their learning situations in order to reverse the targeted learning behaviors effectively.

Intervention programs that are considered integrative in their approach have been developed in some cases. Creative Productivity Type III Enrichment implemented by Baum, Renzulli, and Hébert (1999) was proven successful. This one-year program provides opportunities for seventeen gifted underachieving students (age 8-13) to become actual investigators of real problems in areas of interest through suitable means of inquiry and to bring their findings to bear on real world audiences. The critical success factors for this program are positive relationships with adults, the acquisition of self-regulation strategies, an understanding of personal issues of underachievement, an interest-based curriculum, and the influence of a positive peer group. Trevallion (2004) developed a highly effective intervention program: 34 out of 38 underachieving students improved academic achievement in all subjects. This multiple strategy program included building self-esteem, improving self-concept, increasing intrinsic and extrinsic motivation, utilizing strategies for improving organization, study skills, time management and overcoming academic deficiencies.

As found that both intervention programs were effective in solving the underachievement problem, by including internal and external factors, particularly self-regulation and social support. The intervention program of this study was developed based on those concepts to improve learning behaviors among underachieving primary students.

Research Hypotheses

According to related literature, two intervention programs were developed: First, program applying self-regulation in combination with teacher's social support, and second, program applying only self-regulation, to improve underachieving student learning behaviors. It was hypothesized that learning behaviors of underachieving students who are exposed to the first program and who are treated with the second program in the treatment period should be higher than those of baseline and after treatment periods, and also should be higher than those of control group. In addition, students who get the first program should have higher learning behaviors than those of students who treated with the second one in the treatment and after treatment periods.

Method

Research Design

A quasi-experimental design in which two factors experiment with repeated measure on one factor (Winer, 1971) was employed. Participants were 19 fifth-grade students in one of the primary schools located in Bangkok Metropolitan identified as underachieving by using criteria that anyone who had a T-score of Grade Point Average (GPA) in grade 4 lower than their t-score of IQ score from the Standard Progressive Matrices (Raven, 1960) would be selected. The subjects in three different classrooms, taught by the same mathematics teacher, were then divided into three groups. Individuals who usually were in the same classroom were assigned in the same experimental group. The experimental group I, consisting of eight persons, was exposed to the program applying self-regulation in combination with teacher's social support. While the experimental group II, consisting of six people, was treated with a program applying only self-regulation, and the third group consisting of five students was the control group. Within each group, treatment was implemented based on Applied Behavior Analysis (ABA) design including:

1. Baseline (A): Learning behaviors of students are continuously collected through 8 times within 2 weeks before the treatment. Then participants were surveyed their preferences of reinforces.

2. Treatment (B): Students in two experimental groups were treated through the different programs. Each program consists of three phases of 20 activity times as follows:

Phase I Students practice using self-regulation for learning behaviors and the teacher is prepared for using social support. This period spends half an hour to an hour for seven times for students and an hour for one time for teacher.

Phase II Students in two experimental groups use self-regulation in the mathematics class and teacher gives standardized social support to students in experimental group I. This period spends three weeks for an hour done 12 times.

Phase III Students and teacher evaluate program consuming half an hour for one time.

3. Baseline (A) or after the treatment: Treatment is distinct. Learning behaviors of students are collected as same as baseline. Satisfaction of students and teacher participated in program also is collected.

Measures

1. The independent variable was training method which consists of three types:

1.1 Exposed to the program applying self-regulation in combination with teacher's social support (Experimental group I). The program based on self-regulation in combination with social support from teachers was the program created by the researcher. This included the activities that were based on the concept of self-regulation and social support and integrated both concepts systemically with the aim of learning behavior modification among students who were identified as underachieving in the primary level of which those of behaviors include pre-learning, while-learning and post-leaning behaviors. The program was conducted through the procedures namely:

1.1.1 Self-regulation: The procedure included six components –self-observation, goal setting, planning, self-controlling and monitoring, self-evaluating, and self-reaction.

1.1.2 Social support in informational and emotional aspects that help students develop their learning behaviors through verbal and written prompting, together with the changes for students to query, closely embraced with love, tender and care.

There were three stages included in program procedure and were carried out 20 times in total as follows:

1) Preparation stage. The preparation stage was the stage that the students practiced in self-regulation in learning behaviors that covered the three domains of learning behaviors –cognitive, affective and psychomotor and helped teachers practice their social supports in the aspects of knowledge and emotion. The practices were done within seven times and 30-60 minutes each.

2) Self-regulation and teacher's social support stage. The students practiced in self-regulation in the aspect of learning behaviors in learning situations and were treated through the social supports from teachers in terms of knowledge and emotion. The teachers who gave such social supports spent their time in mathematics classes within three weeks with four times each, and that were 12 times in totals with 60 minutes each.

3) Program evaluation stage. The stage includes the one-time evaluating of the program through the evaluation form done by the samples.

1.2 Treated with program applying only self-regulation (Experimental group II). The program applying only self-regulation included the activities that the researcher created based on the concept of self-regulation with the aims at the learning behavior modification among students with underachievement. The procedure of program consisted of three stages as same as the program applying self-regulation in combination with teacher's social support. However, in stage 2, instead of having both self-regulation practice and teacher's social support simultaneously, participants would get only self-regulation without teacher's social support designed by the researcher.

1.3 Received normal teaching by teacher (Control group). Participants in this group were not involving either the program applying self-regulation in combination with teacher's social support or the program applying only self-regulation. They received normal teaching activities provided by the teacher, which were the same as those of the sample in experimental groups. Their learning behavior data was also collected in the same way as same as those of experimental group participants.

2. The dependent variable was learning behavior consisting of three domains: preparation behavior, in-class learning behavior, and post-learning behavior.

2.1 *Preparation behavior* was the behavior that students prepare for being readiness to study learning lessons including two domains: preparing accurate and complete learning materials, and getting in class on time. These behaviors were collected by product recording and converted to percentage.

2.2 *In-class learning behavior* was defined as orientation toward the appropriate object or person during teaching, including three domains: assigned course materials, lecturing teacher, or reciting classmates, as well as participation on learning activities, and do assignments. Rates of learning behavior are obtained for the selected pupils. Thirty-six minute observations and three-interval recordings were scheduled at a time each day when the pupils were to be working in their seats. These data were converted to percentage later.

2.3 *Post-learning behavior* involved the behaviors of students related to homework and assignments as well as self-study including three domains: finish and summit assignments by a due date, review the lesson assigned by teacher, and self-study based on their interest. These behaviors were collected by product recording and converted to a percentage.

Data Collection

The instruments were programs applying self-regulation in combination with teacher's social support, program applying only self-regulation, learning behavioral forms, students' self-regulation record, and teacher's social support record.

Learning behaviors data were collected by trained observers using learning behavioral forms. While preparation behavior and post-learning behavior were conveniently recorded by product recording method, in-class learning behavior was more complicated with using interval recording; 20-seconds interval observation with switching to ten second records. Two observers were trained by researchers in observing the in-class learning behavior of grade 5 underachieving students in another school. The training was done until the Inter-Observer Reliability (IOR) was higher than 80% (Kazdin, 1982) for consecutive three days. After two weeks of observation practice, the IOR was 80.47-84.92, indicating observation data were reliable.

Preparation and post-learning behaviors were collected within the first-five minutes of 50 minute instruction periods, except on-time assignment submission behavior which was checked through teacher's record according to each assignment deadline which was normally one day after those were assigned. In-class learning behaviors were observed for 36 minutes in each period. All raw scores were converted into percentage to represent students learning behaviors.

Data Analysis

The two-way MANOVA with repeated measures: one within-subjects and one between-subjects factor, and two-way ANOVA with repeated measure (Winer, 1971), with multiple comparison of mean by the Bonferroni method, were employed to verify the effects of a program applying self-regulation in combination with teacher's social support on learning behaviors of underachieving primary students.

Results

The results of the research first showed the analysis results of a two-way MANOVA, which was used to examine the effects of training methods and experiment time allocation on three domains of dependent variable. When significance was found, a two-way ANOVA on each single domain of learning behavior was done. Finally, simple effects were analyzed to help clarify testing all three hypotheses inferred in this research. The interpretation of the results was then presented.

Table 1

The Results of Two-way MANOVA with Repeated Measure among Students' Learning Behaviors in Each Aspect through Training Methods and Experiment Time Allocation

Sources of Variance	*df*	Pillai's Trace	*F*	*P*
Between Group				
Training methods (A)	6	.964	4.653	.002
Within Group				
Experiment time allocation (B)	6	.991	209.314	< 0.001
Interaction (AB)	12	1.529	6.494	< 0.001

It was indicated from the table 1 that the main effect of the training methods and time allocated in the experiment are significant varied at the level of .01 (*F = 4.653, p = .002*; *F = 209.314, p-value < 0.001* respectively) but it cannot be concluded and interpreted because the interaction found between the training methods and time allocated in the experiment was significantly effective at the level .01 (*F = 6.494, p-value <0.001*). It can be explained that the results gained from the training methods that affect learning behavior in each aspect can be changed as time allocation run in the experiment.

Due to those of the levels of significance found and it cannot be concluded in the aspect of training methods and times allocated in the experiment, the researcher analyzed the data on each aspect of learning behaviors for the proof of training methods and time allocated in the experiment through two-way ANOVA with repeated measure. The results of the data analysis were shown in table 2.

Table 2

The Results of Two-way ANOVA with Repeated Measure Towards the Aspect of Learning Behaviors Based on Training Methods and Experiment Time Allocation

Sources of Variance	Sum of Squares	*df*	Mean Square	*F*	*P*
Preparation behavior					
Between Groups					
Training methods	168.128	2	84.064	1.551	.242
Variance	866.942	16	54.184		
Within Group					
Experiment time allocation	359.389	1.308	274.799	8.417	.005
Interaction	263.814	2.616	100.860	3.089	.055
Variance	683.195	20.925	32.649		
In-class learning behavior					
Between Groups					
Training methods	1359.221	2	679.611	37.936	< 0.001
Variance	286.637	16	17.915		
Within Group					
Experiment time allocation	14994.565	2	7497.283	588.292	< 0.001
Interaction	3585.856	4	896.464	70.343	< 0.001
Variance	407.813	32	12.744		
Post -learning Behavior					
Between Groups					
Training methods	233.668	2	116.834	3.013	.078
Variance	620.482	16	38.780		
Within Group					
Experiment time allocation	4193.197	1.475	2842.676	20.654	< 0.001
Interaction	1762.741	2.950	597.504	4.341	.015
Variance	3248.272	23.601	137.630		

The conclusion of the table 2 is stated here. With respect to preparation behavior, it was found that the main effect of experiment time allocation appeared with the statistical significance at the 0.1 level ($F = 8.417$, $p\text{-value} < 0.001$). It can be explained that the differences of experiment time allocation affect the differences of preparation behaviors.

In the aspect of in-class learning behavior, it was found that the main effect of experiment time allocation and training methods appeared at the 0.1 significance level. ($F = 37.936$, $p\text{-value} < 0.001$; $F = 588.292$, $p\text{-value} < 0.001$ respectively). It cannot be interpreted from the main effect results finds that there are interactions between ways of practice and experiment time allocation at the .01 significant level. It can be explained that the results of training methods towards in-class learning behavior are varied according to experiment time allocation.

In the aspect of post-learning behavior, it was found that there was the significance of the main effect in experiment time allocation at the 0.1 level. (*F= 20.654, p-value < 0.001*). It cannot be interpreted from the main effect results which finds that there are interactions between ways of practice and experiment time allocation at the .01 level (*F= 4.341, p-value < 0.015*). It can be explained that the results of training methods towards in-class learning behavior are varied according to experiment time allocation.

From the analysis stated, it can also be found that there was the significant level of the interaction in the in-class learning behavior and post-learning behavior. It cannot be concluded from the training methods and experiment time allocation. Thus, the researcher had to analyze the simple effect through between-subject effects and within–subject effects. In the aspect of preparation behaviors, the researcher analyzed pair comparisons. The results were stated in table 3.

Table 3

Interpretation of the Simple effect Analysis Results

	Experiment time allocation		
Level of significance at .05	Baseline	Treatment period	After the treatment
Preparation behavior			
Between Groups			
Experimental group1 and Controlled group	-	-	-
Experimental group2 and Controlled group	-	-	-
Experimental Group1 and Experimental Group 2	-	-	-
Within Group			
Experimental Group 1	-	-	-
Experimental Group 2	-	Increased	-
Controlled Group	-	-	decreased
In-class learning behavior			
Between Group			
Experimental Group 1 and Controlled Group	-	✓	✓
Experimental Group 2 and Controlled Group	-	✓	✓
Experimental Group1 and Experimental Group 2	-	-	✓
Within Group			
Experimental Group 1	-	Increased	decreased
Experimental Group 2	-	Increased	decreased
Controlled Group	-	Increased	-
Post-learning behavior			
Between Groups			
Experimental Group 1 and Controlled Group	-	✓	✓
Experimental Group 2 and Controlled Group	-	✓	✓
Experimental Group and Experimental Group 2	-	-	-
Within Group			
Experimental Group 1	-	Increased	decreased
Experimental Group 2	-	Increased	decreased
Controlled Group	-	-	-

Note. ✓specified the significant difference between two group means.

From table 3, in the aspect of preparation behavior, the students who were treated through the self-regulation program performed with increasing effectiveness in preparation behaviors during the treatment period whereas the controlled group students performed decreasingly in preparation behaviors after the treatment.

As for in-class learning behavior, it was revealed that the students in the control group who were treated through the program based on self-regulation in combination with social support from teachers and the ones that were treated through the program based on self-regulation had in-class learning behavior in the treatment period and after treatment the period higher than the ones that were not treated through the program. After the treatment, the group that was treated through the program based on self-regulation in combination with social support from teachers had in-class learning behaviors higher than those of the one treated through the program based on self-regulation only. The three groups of students had the in-class learning behaviors during the treatment period more increasingly over the baseline whereas the student group that was treated through the program based on self-regulation in combination with social support from teachers and the one that was treated through the program based on self-regulation had the in-class learning behavior decreasingly after they were not treated through any programs during the experiment.

As per post-learning behavior, it was found that the post-learning behavior among students in the group that was treated through the program based on self-regulation in combination with social support from teachers and those of treated through the program based on self-regulation had the post-learning behavior during the treatment and after the treatment higher than the group that was not treated through any programs. After the treatment, the group that was treated through the program based on self-regulation in combination with social support from teachers and the one that was treated through the program based on self-regulation had the post-learning behavior increasingly and these behaviors were decreased after they were not treated through any programs after the treatment.

Discussion

The result of the study had proved the effectiveness of program applying self-regulation in combination with teacher's social support in improving learning behaviors of underachieving students. It can be explained that the findings are aligned with the conception stated by Bandura (1986) in that "People learn through observing others' behavior, attitudes, and outcomes of those behaviors. Most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action." (Bandura, 1986). Bandura named the process "Self-regulation" which includes self-observation, judgment process, and self-reaction.

In this research, the students had chances to practice themselves step by step. They started with the exploring of their learning behaviors in each aspect and gained their own data as their baselines as well as their preparation, in-class, and post-learning behaviors. In doing so, it helps students understand their own state of problems and can enhance their awareness to modify their learning behaviors in better ways. Later on, the students set their goals of behavior modification as their own needs which help them visualize learning behaviors and make use of the evaluation criteria in comparing to the behaviors acted (Bandura, 1986). Besides, the goals that are set by students are interpreted through numeral scoring which is

easy for primary students to understand clearly. The role of the researcher is to facilitate them at the beginning of the practice until they could stand on their own in goal setting and could run their own practices to achieve the goals. The students themselves would feel like they did things by themselves and made decisions by themselves. This would affect their feelings of comfort (Cormier, 1979, as cited in Rattanajan, 2004; Bandura, 1986), and as suggested by Bandura (1986) and Schunk (1990), the goals would be set specifically and directly. Moreover, they should be challenging, they should take only a short period of time, they should be realistic, and they should be practical so that they can build up motives among people in trying to accomplish the goals. After that, the students would plan to develop their own learning behaviors through their own strategies in that of accomplishment and they would determine the reinforcement they need if they succeed. The reinforcement helps motivate the students for their practices and to behave effectively. Then, the students would observe and take note on their own behaviors including the targeted behaviors. As doing so, the students could warn themselves and reflect on how much they behave and how can they improve themselves (Bandura, 1986).

Furthermore, the procedure as a whole relies with the concept introduced by Zimmerman (1998) in that self-regulation is the process that activates and sustains thoughts, behaviors, and affects in order to attain goals (Schunk & Zimmerman, 1994). Self-regulation helps people to maintain their standards of their own behavior retention. It also creates the longer period of time in changing the behaviors than the process of outer control. The process of self-monitoring is also done at all the time whatever the circumstance, human can react to their own behaviors immediately within positive and negative one or even in self-rewarding and self-punishment. Bandura also emphasized that self-regulation cannot be achieved through mind power, but through practicing and improving.

Beside the intrinsic modification, which is from self-regulation, it is convinced that the learning and teaching process organized by teachers also support students in learning behaviors. Such social supports are identified as compliments in verbal, the encouragement and the calling for attention. The findings also relies with the concept revealed by Bhanthumnavin and Makhanong (2007) which stated that what teachers express, no matter what and where, not only affect to students' feelings such as learning motives and good attitudes in learning, it can also affect learning behaviors in terms of intention and collaboration in teaching.

Although the results showed that the effectiveness of program applying self-regulation in combination with teacher's social support was not highly superior to those of program applying only self-regulation, it is because self-regulation is the major element of both programs. However, it should be mentioned that the first program was better than the second one in terms of maintaining in-class learning behavior after the treatment. Therefore, teacher's social support is still important. The teacher role in learning behavior modification should be changed to effectively facilitate the learning and learners. Tenderness, care and coaching are key components that help students in developing learning behaviors in a better way. Thus, behavior changing among teachers should be more in formulating trust and security in learning (Bhanthumnavin & Makhanong, 2007).

Conclusion and Recommendations

Learning behaviors of underachieving students are important focus of academic achievement improvement. Intervention program development based on concepts of self-regulation and social support is effective in leveraging such behaviors. In particular, the program can help student majorly direct their behavior improvement with some supports from the teacher. These elements need to be well-integrated and carefully implemented.

Self-regulation help students have self-understanding, motivation, and ability or skills to improve own self's behaviors. It is more powerful and impacts longer than external forces. But students need to get helps in setting realistic and practical goals as well as self-monitoring their improvement progress. Beside self-regulation, teacher's role is also a critical aspect of the intervention program. Implementation of the program should consider teacher's role as a facilitator. Therefore, it requires teacher cooperation in changing roles for giving positive supports to students with underachievement. This approach is suitable for those students development since the teacher pays attention to individual student growth and provides effective supports appropriated to student's needs.

Implementation of program in the classroom setting is also crucial. Before launching such a program, students need to be aware the importance of program without negative feeling and stereotyping. Positive reinforcement must be provided according to student's choices. This needs negotiation with students to make realistic and practical reinforcement. Moreover, students need to receive rewards on time to increase or maintain high level of appropriate behaviors.

The study's findings lead to some further considerations. There should be a retest of the effectiveness of programs applying self-regulation in combination with teachers' social support to adapt it with longer time in Phase II. There also should be the study of the exact proportion of self-regulation and teacher's social support to make highest effectiveness of program applying self-regulation in combination with teacher's social support. Moreover, the follow-up study should be implemented in order to study the maintenance of learning behaviors. Furthermore, a study of effectiveness of program applying self-regulation in combination with teacher's social support which includes academic skill training into it is also needed. In addition, the reinforcement role in learning behavior modification of these students should be studied.

References

Artelt, C., Baumert, J., Julius-McElvany, N., Peschar, J. (2003). *Learners for life: Student approaches to learning: Results from PISA 2000*. Retrieved June 10, 2009, from http://www.mpib-berlin.mpg.de/Pisa/LearnersForLife.pdf

Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory.* New Jersey: Prentice-Hall.

Baum, S. M., Renzulli, J. S., & Hébert, T. P. (1995). *The prism metaphor: A new paradigm for reversing underachievement*. Retrieved June 10, 2009, from http://www.gifted.uconn.edu/nrcgt/reports/crs95310/crs95310.pdf

Baum, S. M., Renzulli, J. S., & Hébert, T. P. (1999). Reversing underachievement: Creative productivity as a systematic intervention. *Gifted Child Quarterly, 39*, 224-235.

Berns, R. M. (2004). *Child, family, school, community (Socialization and support).* California: Wadsworth/Thomson Learning.

Bhanthumnavin, D., & Makhanong, A. (2007). *Causal relationship of student development behaviors of mathematics high school teachers.* Bangkok: National Research Council of Thailand.

Boekaerts, M., & Corno, L. (2005). Self-regulation in the classroom: A perspective on assessment and intervention. *Applied Psychology: An International Review, 54*(2), 199-231.

Bolstad, O., & Johnson, S. (1972). Self-regulation in the modification of disruptive classroom behavior. *Journal of Applied Behavior Analysis, 5*, 443-454.

Butler-Por, N. (1987). *Underachievers in school: Issues and intervention*. Chichester, England: John Wiley and Sons.

Chuchuenklin, U. (1998). *Relationships between teacher's positive behaviors and student's attention learning behaviors*. (Master's thesis). Chulalongkorn University, Thailand.

Clark, N., Janz, N., Dodge, J., & Sharpe, P. (1992). *Self-regulation of health behavior: the "take PRIDE" Program.* Retrieved June 10, 2009, from http://deepblue.lib.umich.edu/bitstream/2027.42/67784/2/10.1177_019584029201900306.pdf

Crean, H. F. (2004). Social support, conflict, major-life stressors and adaptive coping strategies in Latino middle school students: An integrative model. *Journal of Adolescent Research, 19*(6), 657-656.

Domínguez, X., Vitiello, V. E., Maier, M. F., & Greenfield, D. B. (2010). A longitudinal examination of young children's learning behavior: Child-level and classroom-level predictors of change throughout the preschool year. *School Psychology Review, 39*(1), 29-47.

Dowdall, C. B., & Colangelo, N. (1982). Underachieving gifted students: Review and implications. *Gifted Child Quarterly, 26*, 179-184.

Emerick, L. (1992). Academic underachievement among the gifted: students' perceptions of factors that reverse the pattern. *Gifted Child Quarterly, 36*(3), 140-146.

Flint, L. J. (2002). *Self-interventions of gifted underachievers: Stories of success*. Unpublished doctoral dissertation, University of Georgia. Retrieved June 10, 2009, from https://getd.libs.uga.edu/pdfs/flint_lori_j_200208_phd.pdf

Harris, K. R., Friedlander, B. D., Saddler, B., Frizzelle, R., & Graham, S. (2005). Self-monitoring of attention versus self-monitoring of academic performance: Effects among students with ADHD in the general education classroom. *Journal of Special Education, 39*(3), 145-156.

Hishinuma, E. S. (1996). Motivating the gifted underachiever: Implementing reward menus and behavioral contracts within an integrated approach. *Gifted Child Today, 19*, 30-48.

Holtzman, H. W. (1965). *Survey of study habits and attitudes*. New York: McGraw-Hill.

Hoover-Schultz, B. (2005). Gifted underachievement: Oxymoron or educational enigma? *Gifted Child Today, 28*(2), 46-49.

Hunter-Braden, P. (1998). *Underachieving gifted students: A mother's perspective.* Retrieved October 14, 2006, from http://www.sp.uconn.edu/~nrcgt/news/spring98/sprng986.html

Hyson, M. (2008). *Enthusiastic and engaged learners: Learning behaviors in the early childhood classroom*. New York: Teachers College Press.

Kagan, S. L., Moore, E., & Bredekamp, S. (1995). *Reconsidering children's early development and learning: Toward common views and vocabulary*. Washington, DC: National Education Goals Panel.

Kazdin, A. E. (1982). *Single-case research designs*. New York: Oxford University Press.

Ley, K., & Young, D. B. (2001). Instructional principles for self-regulation. *Educational Technology Research and Development, 49*(2), 93-103.

Maddox, H. (1965). *How to study*. London: Search Press.

McCall, R. B., Evahn, C., & Kratzer, L. (1992). *High school underachievers.* Newbury Park, CA: Sage.

Passow, A. H., & Goldberg, M. (1959). Study of the underachieving gifted. *Educational Leadership, 16*, 121-125.

Peterson, J. S., & Colangelo, N. (1996). Gifted achievers and underachievers: A comparison of patterns found in school files. *Journal of Counseling and Development, 74*, 399-407.

Pintrich, P. R., & De Groot, E.V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*(1), 33-40.

Rattanajarn, R. (2004). *Effects of self-regulation practice in science instruction on self-efficacy and science learning achievement of mathayomsuksa three students*. (Master's thesis). Chulalongkorn University, Thailand.

Raven, J. C. (1960). *Guide to standard progressive matrices*. London: H. K. Lewis & Co.

Reis, S. M., & McCoach, D. B. (2000). The underachievement of gifted students: What do we know and where do we go?. *Gifted Child Quarterly, 44*, 158-170.

Rimm, S. B. (1995). *Why bright kids get poor grades and what you can do about it*. New York, NY: Three Rivers Press.

Rimm, S. B. (1997). An underachievement epidemic. *Educational Leadership*. *54*(7), 18-22.

Schaefer, B. A., & McEtermott, P. A. (1999). Learning behavior and intelligence as explanations for children's scholastic achievement. *Journal of School Psychology, 37*(3), 299-313.

Schneider, S. (1998). *Overcoming underachievement*. Retrieved October 14, 2006, from http://www.penngifted.org/overcome-under.cfm

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist, 25*(1), 71-86.

Schunk, D. H., & Zimmerman, B. J. (1994). *Self-regulation of learning and performance: Issues and educational applications*. Hillside, NJ: Erlbaum.

Suwannasaeng, K. (1995). *General psychology*. Bangkok: Raumsaan.

Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K., Dunagan, M. S. (2004). Culture and social support: Who seeks it and why? *Journal of Personality & Social Psychology, 87*(3), 354-362.

The Association of Educators of Gifted, Talented and Creative Children in B.C. (n.d.). *What educators of gifted learners need to know about underachievement.* Retrieved October 14, 2006, from http://psas.bctf.ca/AEGTCCBC/publications/broch/underachive.html

Thoits, P. A. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology, 54*(4), 416-423.

Trevallion, D. (2004). *Underachievement: A model for improving academic direction in schools.* Retrieved Oct 14, 2006, from http://www.aare.edu.au/04pap/tre04914.pdf

Whitmore, J. F. (1980). *Giftedness,conflict and underachievement*. Boston: Allyn and Bacon.

Wills, T. A. (1991). Social support and interpersonal relationships. In M. S. Clark (Ed.), *Prosocial behavior* (pp. 265-289). Newbury Park, CA: Sage.

Winer, B. J. (1971). *Statistical principles in experimental design* (2nd ed.). New York, NY: McGraw-Hill.

Wolters, C. A. (2011). Regulation of motivation: Contextual and social aspects. *Teachers College Record, 113*(2), 265-283.

Zimmerman, B. J. (1998). Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulated learning: From teaching to self-reflective practice* (pp. 1-19). New York, NY: Guilford Press.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego, CA: Academic Press.