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Abstract

When someone fails to achieve their potential, it is called underachievement. This phenomenon is predominantly observed for adolescent, particularly during the transition to middle school. This finding is observed because they are obligated to adapt to many internal and external changes. Several studies have confirmed that underachievement is caused by poor self-regulated learning skills. In this study, researchers adapted the Self-Regulation Empowerment Program (SREP) to help middle school student improve their self-regulation skills in learning. This program focuses on increasing the knowledge (cognitive domain) on self-regulated learning at the forethought phase by the means of SREP. This research adopts a single-case experimental design, particularly the A-B design. The analysis is performed by observing how well the participant performs in terms of success indicators, comparison between pretest and posttest scores, and qualitative analysis. Hence, the participant could achieve all success indicators in each session. This intervention program is effective in increasing knowledge on self-regulated learning at the forethought phase in empowerment and goal setting aspects. However, it is not effective in improving the time-management aspect. The procedures in this intervention can be adapted by parent and teachers to help the participant in improving their self-regulated learning ability.

Keywords

Middle School, Self-Regulated Learning, SREP, Student, Underachievement, Underachiever

Learners who exhibit a discrepancy between the expected achievement (measured using cognitive test scores or standardized intelligence tests) and their actual achievement (measured using classroom scores and teacher evaluations) are called underachievers (Reis & McCoach, 2000). In other words, students' academic achievements are lower than their academic ability. Reis and McCoach (2000) summarized some characteristics of underachievement from several studies. Some of these characteristics include low self-

efficacy, low self-control, lack of regulated learning strategies, and high external locus of control.

Peterson and Colangelo (1996, in McCoach & Siegle, 2018) stated that the initial stages of underachievement are often observed in middle school. It arises as learners are demanded to adapt to new environment as they transition to middle school (Goldstein et al., 2015). In contrast to elementary school, middle school students are demanded to adapt to more responsibilities, more diversified teachers, heterogenic friendships, increasingly complex school subjects, and independence (Cleary, Velardi, et al., 2017; Santrock, 2011). Transition to middle school can be difficult for many students (Santrock, 2011) and may lead to stress

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(Goldstein et al., 2015). Furthermore, stress during the transition to middle school reduces motivation and academic achievement (Goldstein et al., 2015).

When transitioning from elementary school, the lack of attention to self-regulated learning is particularly problematic for middle school students because of demands, expectations, and challenges they encounter (Grolnick & Raftery-Helmer, 2015, in Cleary, Velardi, et al., 2017). Zimmerman and Martinez-Pons (1988, in Zimmerman, 1990) found that learners having issues with self-regulated learning generally exhibit less school achievements. Reis et al. (1995, in Clemons, 2008) found that the inability to manage time, having unrealistic goals, lack of persistence, and incorrect learning strategies contribute to underachievement. Cleary and Zimmerman (2004) summarized some researches findings indicating that having a poor knowledge of effective strategies as well as lack of understanding on methods of selection, evaluation, and adjustment of strategies contribute to students' struggle in school. However, studies have revealed that good self-regulated learning is related to high academic achievement (Dembo & Eaton, 2000).

Self-regulated learning involves thoughts, feelings; and behaviors that one has that have been designed and adapted systematically to influence learning and self-motivation (Schunk & Ertmer, 2000). Zimmerman (1986, in Zimmerman, 1990) stated that learners who applied self-regulation actively participated in their learning through metacognition (e.g., planning), motivation (e.g., self-efficacy), and behavior (e.g., organizing learning environment). Learners who effectively implement self-regulated learning are those who actively set goals, determine the most suitable learning strategies, plan their time, and set and determine prioritized materials and information; additionally, learners flexibly shift from one approach to another, monitor the learning process by requesting for feedback on their performance, and make accurate adjustments for their learning activities in future situations (Effeny et al., 2013).

Self-regulated learning comprises three phases as described by Zimmerman (2000) through a cycle termed the Cyclical Model of Self-Regulation. The phases include the forethought (i.e., task analysis and self-motivational

beliefs), performance/volitional control (i.e., self-control and self-observation), and self-reflection (i.e., self-judgment and self-reaction). The judgment formed in the self-reflection phase influences the learner's belief and efforts in the forethought phase (Zimmerman & Kitsantas, 2005). For example, if the learner is satisfied with their achievement, they will be more motivated and put more efforts in studying, and vice versa. Unfortunately, as learners reach middle school, most of them develop a negative belief in their abilities and struggle with academic demands. This behavior is noted because of the lack of understanding on learning strategies and the inability to select, evaluate, and adopt appropriate learning strategies (Cleary & Zimmerman, 2004).

Cleary and Zimmerman (2004) designed a school-based program called the *Self-Regulation Empowerment Program* (SREP) to increase students' self-regulation in learning. SREP aims to empower middle school students by instilling self-motivational beliefs (*empowerment*) and increasing knowledge on learning strategies, which help students apply these strategies for academic tasks in a self-regulated manner (i.e., *cyclical feedback loop*) (Cleary & Zimmerman, 2004). SREP consists of three phases: Empowerment, Learning Strategies, and Cyclical Feedback Loop (Cleary & Zimmerman, 2004). The program is designed to reduce learner passiveness by attributing them the responsibility to be involved in the problem-solving process. The *self-regulated learning coach* (SRC) acts as an agent of change that provides training based on the self-regulation cycle developed by Zimmerman under this program.

The study conducted by Cleary, Veraldi, et al. (2017) revealed that middle school students who underwent SREP displayed an adaptive effort in a Mathematics test and presented a strategic approach during the test preparation stage. The experiment further showed a significant increase in Mathematics scores for two consecutive years. Moreover, an experiment conducted by Cleary, Platten, et al. (2008) confirmed that high school students who underwent SREP scored higher in their Biology test, applied an adaptive self-regulation strategy, presented less maladaptive behavioral regulation, and displayed more confidence than the comparison group. Therefore, the learners realized that the

scores they achieved were associated relate to the strategy applied. Thus, there is an increase in all phase of SREP, that is, *empowerment* (an increase of confidence), *learning strategies* (mastering strategy), and *cyclical feedback loop* (applying strategy and self-reflection).

Cleary and Zimmerman (2004) stated that the SREP does not apply the same procedure for all learners. Rather, the SRC must consider learner's characteristics, which include their specific strengths and weaknesses. The researcher adapted the SREP in this study by considering the importance of self-regulated learning for the academic success of learners and observing the advantages of SREP to assist the participant in developing their ability to self-regulate in facing academic demands. SREP is selected for some specific reasons. First, SREP focuses on not only self-regulated learning but also the empowerment of the participant. Second, SREP focuses on teaching students how to use learning strategies in a cyclical, self-regulated manner. Third, the program is specifically designed for middle school students (Cleary & Zimmerman, 2004).

The ultimate goal of SREP is to enable and empower students to become more self-sufficient and independent learners (Cleary & Zimmerman, 2004). This program involves three steps. First is Empowerment that enhances student's perception of control over their academic performance. Second is Study/Learning Strategies that teaches students various learning and self-regulation strategies. Third is the Cyclical Feedback Loop that allows students to use the forethought, performance control, and self-reflection phase processes in a cyclical manner.

The researcher applied the three steps of SREP: *empowerment, learning strategies, and cyclical feedback loop*. However, the second and third steps were modified. The researcher intended to develop the participant's perception of such control in line with the aim of empowerment step, which is to increase the perception of control over academic performance (Cleary & Zimmerman, 2004). This was accomplished by assisting the participant in understanding the relationship between the learning strategy and the grades achieved. In doing so, the participant is expected to learn to attribute their academic achievement with their effort and employ the applied learning strategy to initiate a shift from an external to an internal *locus of control*.

This intervention is conducted by the researcher while acting as the SRC. Some aspects considered despite not having undergone training such as that by previous researchers. The researcher gathered and analyzed the participant's psychological assessment data in this study. This step was followed by literary reviews on self-regulated learning and SREP. The researcher designed the self-regulated learning intervention program according to the conditions and requirements of the participant based on literature and field findings. The program was designed under supervision, which facilitated discussions and allowed revisions based on feedback.

This program was designed based on Kolb's (2015) learning cycle. Originally, Kolb's cycle comprises of two information-gathering processes, that is, *concrete experience* (CE) and *abstract conceptualization* (AC), and two information transformation processes, that is, *reflective observation* (RO) and *active experimentation* (AE). Each session is designed based on CE, RO, and AC phases. The researcher did not facilitate AE at this intervention because this stage requires the participant to apply knowledge obtained from this intervention in their everyday life. Moreover, time only permitted for the study to reach the AC phase because the intervention was carried out at the end of the semester and was approaching school final exams. Thus, the aim of this intervention is limited to increasing the participant's knowledge on self-regulated learning, particularly the forethought phase. The research question in this study is, is the SREP effective in increasing knowledge (cognitive domain) on self-regulation in the forethought phase of a junior high school underachiever?

Method

Participants

The participant of this study is a junior high school student aged 14 years and 8 months and is anonymized as R. R has scored below the Minimum Mastery Criteria (KKM) for the majority of their subjects throughout their time in middle school. However, R possesses average intellectual competence (IQ = 105, Wechsler scale) according to their psychological assessment. It is also noted that their verbal reasoning

ability is above average (IQ Verbal = 114), whereas their reasoning ability for concrete practical assignments is measured at average (IQ Performance = 94). There is also a marked difference between R's accomplishments in junior high school and elementary school. In elementary school, he was placed in a class designated for students with higher abilities, and he was also consistently ranked top five and often win both school and international academic competitions. R's below-satisfactory academic achievement has categorized him as an underachiever despite their adequate level of intellectual competence.

R's condition is influenced by difficulties in dealing with various changes occurring in middle school. R tends to rely on his parent, and work duties often hamper R's parents from providing guidance and supervising their studies. Lack of supervision by parents has not only caused R to spend more time on gadgets than studying but also resulted in R's reluctance in finding and applying strategies for studying. R does not set learning nor goals to direct them in fulfilling their responsibility as a student. Moreover, R often attributes his academic grades to the difficulty of subjects and the subject teacher's approach. In other words, he tends to have an external locus of control, and because of that, he does not think he has control over their academic achievement. Those factors that contribute to R's academic achievement are the evidence that he is lacking in self-regulated learning.

The participant was selected by purposive sampling technique. The researcher carried out a psychological assessment on the participant, such as observation, interview, and some of psy-

chological test prior to the intervention. This was followed by an analysis of the data obtained. The results of the analysis showed that based on which the researcher decided to administer the SREP program to resolve this condition, the participant was indeed experiencing underachievement.

Research Design

For this study, the researcher applied a *single-case design*. In particular, the experiment is an A-B type of research whereby the researcher measures the *baseline* (A) and administers the treatment (B).

Measurement

The researcher constructed an instrument in the form of a questionnaire to measure the effectiveness of this program. The researchers have been researched on some questionnaires about self-regulated learning, and we found that the questionnaires focus more on the application of self-regulated learning. However, this study only focuses on cognitive domain, so those questionnaires are not fit to this study. That is why the researchers decided to construct an instrument that is aligned with this study. The questionnaire was designed to measure the participant's belief in control and self-regulated learning regarding time management and goal setting. The items in this questionnaire were developed based on the psychological empowerment, time management, and goal setting constructs. Prior to application, two lecturers provided expert judgment. A trial was then held on 24 junior high school students for reliability measurement

Table 1.

Summary of questionnaire

Construct	Description	Item number	Item example
Psychological empowerment	Belief in control of academic achievement.	1, 2, 4, 6, 7, 9, 11, 13, 15, 17, 20, 22, 24, 26	I have full control over my scores.
Self-regulated learning process on the forethought phase	Time management based on the Covey matrix. Goal setting based on SMART criteria and formulating action plan.	3, 5, 8, 10, 12, 14, 16, 18, 19, 21, 23, 25	Determining the achievement target I want to reach does not help me achieve goods grades.

Table 2.*Intervention program design*

Session	Aim	Procedure	Date and Time
Opening	–	<ul style="list-style-type: none"> • Rapport building. The participant is asked to complete a pretest. 	December 2, 2019 2:10–2:30 p.m.
Empowerment I	<ul style="list-style-type: none"> • The participant realizes that their learning behavior influences their academic achievement. • The participant realizes that he has control over their academic achievement. 	<ul style="list-style-type: none"> • The participant is provided a form and is requested to list the subject's scores he considers to be satisfactory and unsatisfactory. • The participant is requested to write down the internal factors he believes to have affected those grades. • The facilitator and participant discuss the different factors that respectively contribute to satisfactory and unsatisfactory scores. The facilitator elicits insights gained by the participant from this exercise. • The facilitator provides materials on empowerment. • The participant is given the opportunity to ask questions regarding the provided materials. 	December 2, 2019 2:30–3:15 p.m.
Empowerment II	<ul style="list-style-type: none"> • The participant is able to resolve the problems and difficulties that hamper their academic achievement. 	<ul style="list-style-type: none"> • The participant is provided the same form given in the previous session and list solutions on how to resolve the problems he is facing, which is unsatisfactory academic scores. • The participant is asked to reflect on the insights he obtained from the Empowerment I and II sessions. 	December 2, 2019 3:15–4:00 p.m.
Learning Strategies I	<ul style="list-style-type: none"> • The participant becomes aware of their learning style. • The participant becomes aware of various learning strategies. 	<ul style="list-style-type: none"> • The participant is asked to complete the VARK questionnaire. • Together, the facilitator and the participant score the questionnaire to determine the participant's learning style. • The facilitator assesses whether the results of the questionnaire are in line with the participant's experiences. • The facilitator provides the participant with materials on learning strategies and learning styles. • The participant is given the opportunity to ask questions about the materials. • The facilitator and the participant discuss the range of strategies that are suitable for the participant. • The participant is requested to reflect on the insights he obtained from the Learning Strategies I session. 	December 4, 2019 2:00–3:10 p.m.

Time Management	<ul style="list-style-type: none"> The participant is able to manage time based on the Important and Urgent criteria. 	<ul style="list-style-type: none"> The participant is provided a form to list down the activities he performed on the previous day. The participant is asked to classify their activities into the Covey matrix (Important-Urgent). The facilitator and participant discuss the reasons for the participants' answers on the Covey matrix and elicits the insights gained from this activity. The facilitator provides materials on time-management. The participant is given the opportunity to ask questions about the materials. The participant is asked to re-classify the activities in the Covey matrix on a new form. The participant is requested to reflect on the insights he obtained from this session. 	December 5, 2019 2:00–3:20 p.m.
Goal Setting	<ul style="list-style-type: none"> The participant realizes the importance of goal setting in carrying out academic demands. The participant is able to formulate academic goals based on the SMART criteria (Specific, Measurable, Achievable, Realistic, and Time-bound). The participant is able to make an action plan to achieve the academic goals based on the SMART criteria. 	<ul style="list-style-type: none"> The participant is asked to compare two case studies that illustrate a learner with SMART goals and another without. The facilitator and the participant discuss the results of the comparisons. The facilitator provides materials for goal setting. The participant is given the opportunity to ask questions about the materials. The participant is given a form and asked to formulate academic goals that he wants to achieve based on the SMART criteria. On the given form, the participant is asked to make action plans for the said goals. The participant is requested to reflect on the insights he obtained from this session. 	December 6, 2019 1:00–2:10 p.m.
Sum Up (Debriefing)	<ul style="list-style-type: none"> The participant grasps how all the sessions are connected. 	<ul style="list-style-type: none"> The facilitator asks the participant to recall and state all the steps exercised in the previous activities and express what he has gained from the Empowerment I until Goal Setting sessions. The facilitator summarizes the activities and explains the aim of the intervention. The participant is asked to evaluate the intervention program. The participant is asked to do a post-test. 	December 6, 2019 2:10–2:40 p.m.
Closing	—	<ul style="list-style-type: none"> The facilitator thanks the participant and ends the activity. 	December 6, 2019 2:40–2:45 p.m.

Table 3*Success indicators*

Session	Success indicator
Session 1: Empowerment I	<ul style="list-style-type: none"> • The participant states that their learning behavior affects their academic achievement. • The participant realizes that he has control over their academic achievement.
Session 2: Empowerment II	<ul style="list-style-type: none"> • The participant is able to provide concrete solutions that can be applied to improve their academic achievement.
Session 3: Learning Strategies	<ul style="list-style-type: none"> • The participant is able to determine suitable learning strategies according to their learning style.
Session 4: Time Management	<ul style="list-style-type: none"> • The participant is able to classify their activities into Important-Urgent in accordance to the Covey matrix. • The participant is able to list the benefits of time management in order to support their learning process.
Session 5: Goal Setting	<ul style="list-style-type: none"> • The participant is able to list the benefits of goal setting in order to support their learning process. • The participant is able to explain the criteria of effective goals. • The participant is able to formulate goals based on the SMART criteria. • The participant is able to make an action plan for the formulated goals.

purpose. The reliability score for this instrument was 0.595. Table 1 displays the construct, item number, and example of items in the questionnaire.

Research Procedure

Ethical Issue. The participant gave their written consent to participate before the study was conducted. The participant was also told that he was allowed to withdraw from the study without receiving negative consequences.

Preparation Stages. The researcher initially carried out a psychological assessment of the participant for needs analysis in planning this intervention program. The researcher determined the type and aim of the intervention having concluded the issues experienced by the participant. The program is designed according to the aims. Table 2 shows the intervention program method used in this research.

This program has been modified based on the participant's characteristics and needs. Here are some modifications that have been made by the researchers. The researcher provided knowledge on various strategies and modalities

of learning in the second step of this intervention. Boström and Lassen (2006) stated that an effective method in choosing a suitable learning strategy is by understanding the learning style. The researcher identified their learning modality along with the participant. Then, the researcher focused on learning strategies that are suitable with the participant's learning style. This second step aims to increase the participant's knowledge on varieties of learning strategies.

In the *cyclical feedback loop* step, the researcher focused on the *forethought* phase, which is a preparation process applied before one takes an action (Zimmerman, 2000). The *forethought* phase was chosen because one needs to master this phase before going to two other phases. In R's case, he is still lacking in the *forethought* phase. In particular, the researcher administered the intervention in goal setting and time management aspects. Goal setting was selected as a means for directing attention, effort, and action with the aim of reaching the goals and motivating a person to use their ability (Locke & Latam, 2006). Hence, the participant, who still requires guidance from adults around them, maybe directed by these goals in learning.

Apart from goal setting, time is a crucial aspect in planning and regulation (Eilam & Aharon, 2003). Time limitation should be considered by the learner in decision-making and choosing alternative actions. This factor, if done effectively, enables the learner to reach the goals that have been set (Eilam & Aharon, 2003). As such, the implementation of time management is crucial in achieving goals. In academic contexts, Wolters et al. (2017) define time management as a learner's effort to intentionally and efficiently organize their time to reach an academic objective within a given time. The researchers decided to focus on time management because the participant has many tasks on different subjects and tight deadlines. Participant needs to know how to manage their time well to finish all the tasks on time.

Stages of Implementation. The intervention program was conducted on December 2 and 4–6, 2019, at the participant's school. There are five main sessions in this program, each with a duration of 35–65 min. In the opening stage, the researcher carries out a baseline measurement for the pretest and delivers the aims of the program. Following this, the researcher carries out each session as detailed in the program plan. Once all stages are delivered, another session is held to relate all five sessions. The program is closed by administering a posttest to measure the success of the program.

Data Analysis

Three criteria are used for reference in assessing the success of the intervention program. First, the researcher observes whether the participant is able to fulfill the success indicator at each session (Table 3). Second, the researcher compares the scores obtained from the pretest and posttest, which is presented in the form of a table. There are three components to be observed,

that is, psychological empowerment, time management, and goal setting. Finally, the researcher examines the results of the observation as qualitative data to determine the effectiveness of the intervention, namely, whether the participant (1) is able to maintain attention and concentration, (2) is able to carry out the activities according to the instructions given, (3) is able to understand what has been taught in each session, (4) is able to answer the questions given to them, and (5) is able to reflect in accordance with the aims of the intervention.

Results

The self-regulated learning intervention program administered to the underachiever was conducted for four days, namely, on December 2 and 4–6, 2019. The program has five sessions that are carried out within the 4-day period. In general, the participant successfully fulfilled all success indicators of each session. In the first and second sessions, the participant began to realize that he has control over their academic achievement through the efforts given. In the third session, the participant came to understand their learning style and the various suitable learning strategies.

The participant became aware of the importance of time management and the ability to prioritize activities based on the Important and Urgent criteria in the fourth session. In the fifth session, the participant showed that he was able to formulate academic goals based on the SMART criteria. This was followed by an action plan that was made to achieve the formulated goals.

The results of the pretest and posttest indicate an increase in the Empowerment aspect. Such changes are also evident in the goal-setting aspect. However, no changes were shown with regard to time management.

The participant qualitatively showed that he

Table 4

Questionnaire results

Aspect	Number of items	Pretest scores (percentage)	Post-test scores
Empowerment	12	7 (58.3%)	11 (91.67%)
Time management	6	3 (50%)	3 (50%)
Goal Setting	6	3 (50%)	5 (83.3%)

was able to follow the intervention program well. In sessions one, two, three, and five, the participant was able to maintain their attention and concentration and complete every activity according to the instructions given. He was also able to understand the materials, answer the questions given, and reflect in accordance with the aims of the intervention. However, the participant presented signs of fatigue, and was therefore unable to maintain focus during the fourth session. The researcher gave some times for the participant to drink and go to the restroom. The session was continued when the participant was ready.

Discussion

A score increase was seen in the empowerment session in comparison of the pretest and posttest results. This is in line with the study of Cleary, Velardi, et al. (2017) that showed how participants displayed control over their mathematics achievement, which was administered in the empowerment step. Similarly, an increase was also indicated in the posttest score administered in this research in the goal-setting session. This was supported by the participant's adequate intellectual competence that enabled him to understand the goal-setting process well.

Such an improvement was not presented in the time-management session. The participant seemed fatigued and was unable to focus their attention or properly concentrate at this stage. Focus on attention enables a person to highlight the characteristics of an event or material that they want to remember thus enhancing the encoding process (Santrock, 2011). In this case, since the encoding process was not optimal, the participant's posttest score was affected. This was also influenced by the time in which the program was scheduled. The participant informed that they had taken part in energy-consuming activities on the previous day, which contributed to poor sleep quality.

The procedures applied in this program can be adapted by teachers and parents in helping the participant in carrying out self-regulated learning. This can be done by reminding participants that the effort they put in influences their academic achievement. Hence, the participant can continue to have control over their academic achievement. The parents and teachers may also

assist the participant in identifying resources that may aid goal achievement. Parents may also be involved in overseeing the participant during the goal setting process that should be in accordance with external abilities and conditions (schools and parents).

Most of previous studies apply SREP in a group of participants (Cleary, Platten, et al., 2008; Cleary, Velardi, et al., 2017). In this study, the program is applied in single participant. Moreover, most of previous studies tend to focus on goal-setting, learning strategies, and how to those things in self-regulated learning. In this study, the researchers also include time-management that is seen as a crucial part of goal setting.

This study has some limitations. This study is limited in the cognitive domain. The researchers realize that even though the participant has the knowledge regarding self-regulated learning, it is not guaranteed that this knowledge will be applied in their daily life. The second phase also was not fully administered. For the future research, it is better to demonstrate the learning strategies, so the participant is able to get concrete experience on how to apply learning strategies to solve their difficulty. Finally, after evaluating the intervention, the schedule that has been set for the intervention was not the best decision. It turned out that the participant did not perform really well as expected. This is should be taken into consideration for future research.

Conclusion

The SREP is effective in increasing the middle school underachiever's knowledge on self-regulation on the forethought phase, especially on the empowerment and goal setting aspects. However, such improvements were not evident in the time management aspect.

Recommendation

In further studies, this intervention can be developed to target the affective and psychomotor domains. Furthermore, the second phase can be fully administered during which the participant is given the opportunity to practice the learning strategies that have been taught. Furthermore, selecting a convenient time to conduct the pro-

gram is advised in view of school activities that are often very demanding for students. In view of this, sessions should be done in intervals so as to allow the participant to perform better during the intervention.

Knowledge on self-regulated learning in the forethought phase that the participant has obtained in this intervention should be consistently applied in facing their academic demands. With continuous effort, the participant is expected to take the habit of self-regulation in learning and will be able to develop and flexibly modify activities to suit himself. Such consistency is required to ease the participant in applying this strategy and for him to produce satisfying results.

Declaration of Conflicting Interest

There is no conflict of interest surrounding the authorship and the publication of this manuscript.

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