



MOTIVATION AS MEDIATOR BETWEEN SELF-REGULATED LEARNING AND ACADEMIC PERFORMANCE OF SENIOR HIGH SCHOOL STUDENTS IN DISTANCE LEARNING: BASIS FOR PROPOSED METACOGNITIVE STRATEGIES

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ABSTRACT

This study focused on the association of self-regulated learning to the academic performance, and the mediating impact of motivation of ninety senior high school students in Valenzuela City during online classes. This is for the school administrators, teachers, parents and students to ensure all learning opportunities are available and work together to reduce unmotivated learners in online classes. This enables the educators to provide metacognitive strategies, identify approaches and strategies to enhance the self-regulated learning and motivation of students in distance learning. More so, this study utilized quantitative research design through the use of standardized questionnaires. The researchers adopted the instrument of Online Self-regulated Learning Questionnaire (OSLQ) by Lucy Barnard-Brak, Valerie Osland Paton and William Y. Lan. Another adopted standardized questionnaire is the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Paul Pintrich. The correlation analysis result showed that there is positive low correlation between self-regulated learning and academic performance of senior high school students in the aspect of goal setting, environment structuring, time management, and self-evaluation. More so, the Structural Equation Modeling result showed that total effect of self-regulated learning to the outcome which is the academic performance is significant. Likewise, motivation predicts academic performance and at the same time controlling the self-regulated learning which is indirect effect. However, in a direct effect, there is no significant impact whether self-regulated learning predicts motivation that in turn predicts academic success in an online class. This study supports the importance of self-regulated learning in the distance learning, yet there is a need for further research in specific subject areas during system of distance learning to practice self-regulated learning across varied academic subjects.

Keywords: self-regulated learning, motivation, metacognitive strategies, distance learning

INTRODUCTION

Traditional school systems around the world have been affected by the COVID-19 pandemic since 2020. To avoid the risk of transmission among students, the Philippines'

educational system has relied from face-to-face classes to distance learning until now. Distance learning is a style of learning where the teacher and students learn outside of the classroom and do not interact physically during the teaching and learning process. (Department of Education, 2020). The Department of Education's distance learning program includes the use of written

P – ISSN 2651 - 7701 | E – ISSN 2651 – 771X | www.ioer-imrj.com

CABRERA, R.A. A., DISTOR, J.M.S., *Motivation as Mediator Between Self- Regulated Learning and Academic Performance of Senior High School Students in Distance Learning: Basis for Proposed Metacognitive Strategies*, pp. 12 -20

modules, lesson delivery via television and radio, and synchronous classes via the internet which most students are not accustomed to, especially in public schools.

This transition to distance learning may bring challenges to students when it comes to their academic performance because it is hard to manage time between schoolwork and tasks at home, so it is important to maintain self-regulated learning and motivation. Learners in distance education have more control over how they want to finish a course at their own pace than in traditional classroom education where there is a scheduled and organized setting. (Jansen et al., 2020). Self-regulated learning implies that the student is actively involved in their own learning, taking charge of, managing, and evaluating it. (Zimmerman, 2000). Learners must then take greater responsibility for learning because there is lesser face-to-face interaction with teachers and classmates and they study independently or with the guidance of their parents. They need to devise plans to achieve their objectives and are aware of how to deal with various distractions (Uppal & Kumar, 2020).

Distance learning can present some distractions for high school students, such as engaging in computer games, and mobile apps, watching other dramas, or even doing other tasks while attending an online class, all of which can contribute to a decrease in student motivation. Another factor is that this pandemic has a significant effect on the mental health of learners, as they have experienced increased anxiety, which has impacted various facets of their lives, including social and emotional health, as well as school results (UNESCO, 2020). When faced with academic challenges, some students give up, like they tend to drop out while others rise to the occasion with tactics and perseverance, resulting in higher grades. This is where self-regulated learning and motivation in distance learning take place. In connection with self-regulated learning theory, Zimmerman and Martinez-Pons (1988) discovered that more skilled self-regulated students employed metacognitive learning approaches such as asking themselves questions, organizing their thoughts, working out how to

study, and reviewing lectures than less experienced self-regulated students.

Despite the full transition of the Department of Education in distance learning, very little is known about students' self-regulation and motivation in this learning environment, or how they may influence their online learning outcomes. This study fills that gap by analyzing self-regulated learning and academic performance of senior high school students enrolled in distance learning programs, with the goal of determining the role of motivation as an intervening factor in their academic success. According to Patil and Dharwadkar (2020), there is a need for a paradigm shift in which the teaching-learning strategy emphasizes student participation in online classes in order to increase concrete learning. Because today's students are well-equipped to use technology, teachers can take advantage of this to encourage them to participate more in online discussions. Students' levels of self-regulated learning will rise as they gain experience with online learning (Chumbley et al., 2018).

According to Zimmerman (2002), as cited by Mega et al. (2014), self-regulated learners are actively constructing information and use various metacognitive strategies to control and regulate their academic learning. By controlling their own learning and performance, students become responsible learners. Academic success and other positive learning outcomes have also been related to self-regulated learning (Price, 2017). On the other hand, motivation plays a vital influence in learning and academic success. Motivation, in student context is used to put up more effort and passion in their studies, as well as to improve their performance and perseverance. (Ariani, 2016). Previous study of Hung et al. (2018), indicated that learners can achieve learning goals spontaneously and willingly when their learning motivation is high. Students today must cultivate a supportive atmosphere in order to stay motivated in their studies. However, there are limited studies on the impact of self-regulated learning and motivation on remote learning.

Relative to the gap of this problem in the distance learning, the researchers explored the self-regulated learning and motivation of students,

how they plan and become autonomous on their studies despite challenges where there is no physical contact between students and teachers in distance learning. Because of this new normal set-up in education, the research investigated if there is a connection on self-regulated learning, motivation, and academic performance of senior high school students. If self-regulated learning predicts student motivation, and if student motivation also predicts academic performance. This study will promote the advantages of self-regulatory strategies to be applied in the teaching and learning process. Students can learn different strategies to achieve best result in terms of academic performance. The researchers developed metacognitive activities and strategies to enhance the self-regulated learning and motivation of students in distance learning.

OBJECTIVES OF THE STUDY

The study sought to investigate the relationship between self-regulated learning and academic performance, as well as mediating impact of motivation of senior high school students in distance learning. Specifically, this will seek to answer the following questions: 1) To determine the level of self-regulated learning of senior high school students in terms of Goal setting,

Environment structuring, Task strategies, Time management, Help seeking, and Self-evaluation. 2) To find out the academic performance of senior high school students in S.Y. 2020-2021. 3) To determine the level of motivation of senior high school students in terms of Intrinsic Goal, Extrinsic Goal, Task value, Control of Learning Beliefs, Self-efficacy, and Test Anxiety. 4) To examine if there is significant relationship between self-regulated learning and academic performance of senior high school students. 5)

To examine if student motivation mediates between self-regulated learning and academic performance. 6) To propose metacognitive strategies and program for students based on the findings of the study.

METHODOLOGY

This study utilized a quantitative research design that uses descriptive and correlational approaches through the use of standardized questionnaires. Descriptive research aims provide information, meanings, and context about a situation, usually from the perspective of the individuals who are experiencing it (Leavy, 2017). Alternatively, correlational research investigates the relationship between variables without manipulating them and uses correlational statistics to find out. (Creswell & Creswell 2018). This study sought to obtain data regarding self-regulated learning, motivation, and academic performance of the senior high school students as well as their relationship with one other.

The respondents of this study are ninety Senior High School students at Vicente P. Trinidad National High School in Division of Valenzuela City using convenience sampling technique, as it involves identifying subjects based on the accessibility to the researchers (Leavy, 2017). They agreed to participate to answer the research questionnaires using google forms. To obtain the relevant data, the researchers asked permission first from the School Head to conduct the study and begun to gather information through online questionnaire using google forms, and attached informed consent, nature of the study and data privacy guidelines were also provided to students and parents. With the strictest confidentiality, the first semester average grades were also acquired from the database.

The researchers adopted the standardized questionnaire of Online Self-regulated Learning Questionnaire (OSLQ) by Lucy Barnard-Brak, Osland Paton and Lan in 2008. It is a 24-item scale designed to meet the requirement for a self-regulation tool in online and mixed learning environments. Another adopted standardized questionnaire is the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Paul Pintrich, together with the help of David Smith, Teresa Garcia-Duncan and Wilbert J. Mckeachie. It's an 86-item self-report questionnaire designed to evaluate college students' motivational approaches and learning practices. Both questionnaires have high validity and reliability component.

When assessing data for self-regulated learning and motivation, the mean was utilized, followed by frequency and percentage for academic performance. Pearson moment of correlation was used to analyze the data in order to determine the association between self-regulated learning and academic performance. Finally, structural equation modeling (SEM) analysis was applied to analyze structural relationships between measured variables and latent construct (Kline, 2015) such self-regulated learning, motivation, and senior high school students' academic achievement. There is factor analysis and multiple regression analysis used SEM and all of data were analyzed using SPSS.

RESULTS AND DISCUSSION

This study sought the relationship between self-regulated learning and academic performance of senior high school students, as well as the mediating impact of their motivation on self-regulated learning and academic performance.

1. Level of Self-regulated Learning of Senior High School Students

Table 1
The Level of Self-regulated Learning of Senior High School Students

OSLQ Subscale	Mean	SD	Interpretation
Goal Setting	3.57	0.62	Agree
Environment Structuring	3.94	0.88	Agree
Task Strategies	3.27	0.70	Neutral
Time Management	3.60	0.79	Agree
Help Seeking Behavior	3.43	0.85	Neutral
Self-Evaluation	3.62	0.84	Agree
Overall Mean	3.57	0.78	Agree

Table 1 describes the online self-regulated learning of the senior high school students. On an average, students showed relatively high self-regulated learning ($M = 3.57$, $SD = 0.78$) which

entails that they regularly apply self-regulated learning in their online classes. It was found out that the highest mean was from the environment structuring scale ($M = 3.94$, $SD = 0.88$), this is the ability of the learners to decide a suitable location for their studies in order to avoid distractions and the lowest mean is $M = 3.27$, $SD = 0.70$ which is task strategies, the ability of the learners to plan and strategize how to achieve their set goals.

Accordingly, Senior High School students used several self-regulated learning practices on a regular basis in the distance learning namely: goal setting, environment structuring, time management and self-evaluation. This conforms with the study of Broadbent (2017) on the self-regulated learning of online students and blended learning students where the results suggest that online students used self-regulated learning methods more frequently than blended learning students or students who have face to face and online class at the same time. Also, according to the research of Lim et al. (2020) self-regulated learning is found to influence students' online learning satisfaction. Students who are self-regulated are engaging in activities such as environmental and time management, task strategies for mastering task content, understanding, monitoring, and assistance seeking (Jansen et al., 2017).

2. Academic Performance of Senior High School Students

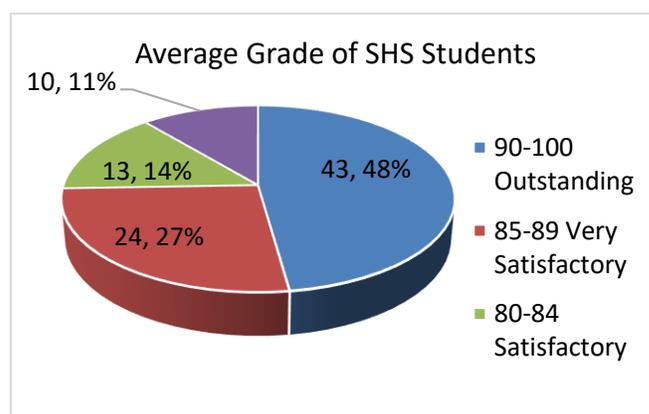


Figure 1. The Academic Performance of Senior High School Students



Figure 1 indicates the frequency and percentage of the average grade of 90 senior high school students for the school year 2020-2021. 43 or 48% are outstanding, followed by 24 or 27% have very satisfactory grade, 13 or 14% belong to satisfactory level and lastly, 10 or 11% have fairly satisfactory grades.

3. Level of Motivation of Senior High School Students

Table 2
Level of Motivation of Senior High School Students

MSLQ Subscale	Mean	SD	Interpretation
Intrinsic Goal	5.20	1.04	Somewhat true of me
Extrinsic Goal	5.46	1.26	Somewhat true of me
Task Value	5.61	1.07	True of Me
Control of Learning Beliefs	5.36	1.07	Somewhat true of me
Self-Efficacy	5.06	1.12	Somewhat true of me
Test Anxiety	5.02	0.86	Somewhat true of me
Overall Mean	5.29	1.07	Somewhat true of me

Based on table 2, the level of motivation of Senior High School students are high (M = 5.29, SD = 1.07) in terms of attending online classes. The highest mean in motivation subscale is under task value which is M = 5.61, SD = 1.07. On the MSLQ, task value refers to students' perceptions of the subject or course material as to their benefit, value, and functionality. The senior high school students' motivation in the distance learning was found out to be high, same with their self-regulation as discussed earlier which means that they regulate their motivation very well in attending online classes. All the motivation subscales scores are acceptable: intrinsic goal, extrinsic goal, task value, control of learning beliefs, self-efficacy and test anxiety. Learners who are self-motivated can have an impact on their online learning efforts (Zhu et al., 2020). As supported by Hung et al. (2018), they found that when learners' learning motivation is high, they can achieve learning goals spontaneously and willingly.

4. Significant Relationship between Self-regulated Learning and Academic Performance

Table 3
The relationship between Self-regulated Learning and Academic Performance

SRL Subscales	Pearson-r coefficient	p-value at 0.05	Interpretation
Goal Setting	0.456	0.000	Positive low correlation
Environment Structuring	0.346	0.001	Positive low correlation
Task Strategies	0.164	0.122	Positive very low correlation
Time Management	0.421	0.000	Positive low correlation
Help Seeking Behavior	0.236	0.025	Positive very low correlation
Self-Evaluation	0.377	0.000	Positive low correlation
Overall Correlation	0.430	0.000	Positive low correlation

The Pearson correlation coefficients of variables are exhibited in Table 3. Goal setting significantly correlated with academic performance (r = .46, p < .05), environment structuring (r = 0.35, p < .05), time management (r = .42, p < .05), and self-evaluation (r = .38, p < .05). This indicates that there is positive low correlation between self-regulated learning and academic performance of senior high school students. Therefore, the null hypothesis is rejected however effect size is relatively small. From the findings, goal setting, environment structuring, time management and self-efficacy has significant effect to academic performance of senior high school students except task strategies and help seeking behavior. However, effect size is relatively small due to low correlation of the variables. According to (Zumbrunn et al., 2015; Zimmerman, 2000) self-regulation is one of the determinants of students' learning outcomes.

5. Mediation Effect of Motivation in Self-regulated Learning and Academic Performance

A structural equation modeling was used to examine the relationships between the constructs,



the mediating effect of motivation was investigated to establish whether it mediated the association between self-regulated learning and academic performance.

Table 4
The Mediation Effect of Motivation in Self-regulated Learning and Academic Performance

	Std. Estimation (Std. β)	p-value	Result
Self-regulated Learning → Academic Performance (Total Effect)	0.430	0.005	Significant impact
SRL → Motivation → Academic Performance (Direct Effect)	0.204	0.126	No significant impact
Motivation → Academic Performance & SRL (Indirect Effect)	0.226	0.012	Significant impact

The total effect of self-regulated learning to the outcome which is the academic performance (Std. β = 0.430, p-value = 0.005) is significant. However, in direct effect, there is no significant impact whether self-regulated learning predicts motivation in an online class, which in turn predicts academic success (Std. β = 0.204, p-value = 0.126). Likewise, motivation predicts academic performance and at the same time controlling the self-regulated learning which is indirect effect (Std. β = 0.226, p-value = 0.012). Therefore, the motivation does not mediate between self-regulated learning and academic performance.

The total effect of self-regulated learning to the academic is significant, same with previous results using Pearson-r moment of correlation. Students who are self-regulated are autonomous, confident, can set goals and track their progress and then reflect on their achievements. As a result, they have a higher rate of success (DiBenedetto, 2018). However, in direct effect, the motivation does not mediate between self-regulated learning and academic performance.

Nevertheless, other factors may be considered when determining how learners influence their own academic success and some students have difficulty working independently (Apriana & Hidajat, 2020). In the study of the study of Price (2017) the correlation between overall SRL and academic performance of online high school graduates was not significant. It was discovered that there is no clear link between the general average of recent online graduates and the overall employment of SRL strategies in online learning settings. In view of this, the findings of this study will serve as the foundation for proposed metacognitive strategies for distance learners so they can plan, organize, track, and evaluate their learning.

6. Proposed Metacognitive Strategies Activities

Some of the proposed metacognitive strategies for learner in the forethought phase is writing subject goals. Its objective is to have a target goal in every subject that enables them to prepare to regulate their learning. Next strategy is the metacognitive awareness inventory which is to assess the general self-regulated learning skills across disciplines. There will be instrument for the learners to answer at the beginning of semester. For the performance phase, the researchers proposed exam journaling where the learners will reflect after each examination on how they studied and what will they do differently for the next test. The next is online discussion where the objectives are to provide easy means to pose metacognitive prompts either after, demonstration, video, or during an online class. For the evaluation phase, there is knowledge is power, which the objective is to increase their self-efficacy as learners and their self-regulated learning skills. Lastly, e-portfolio of reflective writing which helps students understand all the learnings from the subject. To take more ownership and responsibility over the learning process.

CONCLUSIONS

Findings emphasized the relevance of self-regulation and motivation in enhancing academic performance of students. It discloses that Senior High School students regularly use self-regulated learning strategies and has a high level of motivation in attending their online classes. Although, this study supports the importance of self-regulated learning in the distance learning, there is a need for further research in specific subject areas during system of distance learning to practice self-regulated learning across varied academic subjects. Based on the study, the significant relationship of self-regulated learning and academic performance is low. The limitation of this study is the use of self-assessment questionnaire on student's self-regulation and motivation may limit to their subjective perception. Another is that this study lacks in longitudinal analysis and cannot be generalized for other research setting. Also, there is lack of research showing its application to classrooms in profound ways.

Despite these limitations, one of the strengths of this study is that researchers employed structural equation modeling approach that is best for finding out the relationship among self-regulation, motivation, and academic performance. Another strength is that this study serves as a basis for metacognitive strategies providing real-life examples that can be useful in lifelong learning that can also improve their self-regulated learning and motivation in online classes. This study also provides contribution to research in improving self-regulated learning of students who are under the distance learning modality. According to Patil and Dharwadkar (2020), the teaching-learning strategy must be well-adjusted to the distance learning so that it emphasizes student participation in online classes to increase concrete learning. Teacher is one of the main factors for successful attainment of learning outcomes, they should give activities directing to student motivation, help learners stay on task, monitor their progress and regularly provide feedback on student performance (DiBenedetto, 2018; Goh et al., 2017).

RECOMMENDATIONS

These research findings have implications for educators because they can create an instructional design and teaching strategies that focus on self-regulated learning that can improve motivation of students to attend online classes and eventually it can lead to enhancing their academic performance. Some metacognitive strategies that teacher can apply in their lesson planning or activities that improves productivity and effectiveness are related to self-questioning, reflection, acknowledging strengths and weaknesses, learning styles, taking notes, doing graphic organizers or even task-based regulation checklist (Drew, 2021). Moreover, students should also learn to manage their learnings effectively. Students can monitor their own task by using different self-management approaches like reflect in journal, ask questions, take down notes, positive feedback among their classmates and write target objectives in every subject. They can plan and organize their daily activities, study patterns, and assess their self-regulation abilities so that they can easily adjust to the challenges that distance learning presents. The Discipline of Educational Psychology can enable to apply self-regulation theories, develop more instruments to measure and understand individual learning, the instructional process, and improve student learning outcomes.

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