



# LEARNING STRATEGIES AND ACADEMIC PERFORMANCE OF INTERMEDIATE LEARNERS: A MULTIPLE REGRESSION ANALYSIS

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Article DOI: <https://doi.org/10.36713/epra23082>

DOI No: 10.36713/epra23082

## ABSTRACT

The main objective of this study was to determine the relationship between learning strategies and the academic performance of learners at Mambalili Elementary School. The study used a quantitative research method and employed complete enumeration in selecting the 166 pupils respondents. The researcher used an adapted survey questionnaire to measure the independent learning strategies of pupils while their academic performance was measured using third-quarter test scores in English, Mathematics, and Science. The results revealed there is a high level of independent learning strategies among pupils as demonstrated with their strong self-directed learning behaviors, effective time management, cognitive strategies, peer engagement, and academic thinking. Among the subjects, Mathematics received the highest mean score categorized as nearing mastery, while English and Science were both categorized as developing mastery. However, the lowest class proficiency was observed in Science which indicated a need for enhanced instructional support. A weak but statistically significant correlation was also found between independent learning strategies and academic performance in English, however, there was no significant relationships observed in Mathematics and Science. Regression analysis further indicated that independent learning strategies did not significantly predict academic performance of learners. These findings suggested that while self-regulated learning positively correlates with academic performance in other contexts, its effectiveness may differ depending on personal, behavioral, and environmental factors. The study highlighted the need for targeted interventions, such as project-based learning and strategic instructional methods in improving the academic outcomes of pupils.

**KEYWORDS:** Educational Management, Learning Strategies, Academic Performance, Self-Regulated Learning, Multiple Regression Analysis

## 1. INTRODUCTION

Learning strategies shapes the academic performance of learners. These strategies include deliberate techniques employed by both teachers and learners to improve understanding, retention, and application of knowledge. A study by Nacua et al. (2024) found that structured learning strategies significantly correlate with higher academic performance among students.

In Cambodia, the implementation of well-structured learning strategies has been shown to improve student understanding in settings with limited resources. Teachers have adopted differentiated instruction, collaborative learning, and contextualized teaching methods to bridge learning gaps (Chea & Kuon, 2024). In the Philippines, particularly in the Davao Region, learning strategies have been identified to help student achievement and significance of different instructional approaches such as printed modules, concept mapping, group activities, and interactive teaching techniques in improving the academic success of learners (Pregoner & Baguio, 2024).

In Mambalili Elementary School in Bunawan District, Agusan del Sur, there is a growing need to understand how learners use of learning strategies influences their academic performance, especially given the diverse challenges they face both in and out

of the classroom. As a classroom teacher, I have personally witnessed the direct influence of learning strategies to the progress of my learners. For example, I use concept maps and visual organizers to help visual learners in understanding difficult topics more effectively. Similarly, peer discussions and group tasks have enabled learners, particularly those who are shy or struggling, to participate actively and improve academically. These observations emphasized the role of well-chosen learning strategies in improving student performance to different contexts and learning environments.

In addition, this study was anchored on the Theory of Achievement Goal Theory by Chazan et al. (2022). According to Achievement Goal Theory, achievement goals are future-oriented and are viewed as cognitive representations of desired outcomes. These internal goals direct behavior in specific ways that differ through how competence is conceptualized by the individual. Therefore, achievement goals help researchers and practitioners understand the reasons students engage in achievement settings. Although a large portion of the achievement goal literature measures goals as being trait-like, more contemporary perspectives, including intervention research, view these cognitive representations as malleable and context-dependent, making them particularly relevant for



practicing psychologists looking for motivational constructs that they can enhance.

The researcher theorized that learning strategies affects the academic performance of the pupils. There are five domains of learning strategies: management of time and effort, complex cognitive use, simple cognitive use, contact with others and academic thinking. Each of these domains were important since this could make a difference on the academic performance in terms of classroom discipline, effective teaching, teacher rewards, and delegation of authority.

Moreover, the Department of Education (DepEd) has been advocating for learner-centered approaches under the K-12 curriculum, encouraging learners to become independent and self-regulated learners (DepEd, 2013). However, despite these efforts, challenges remain in schools like Mambalili Elementary School, where issues such as limited access to learning materials, varying home support, and linguistic barriers can impact how well learners can adopt and apply effective learning strategies.

Understanding how learning strategies relate to academic performance among intermediate learners in this specific local context is crucial. It allows educators and school leaders to identify which strategies are most effective and how they can be integrated into classroom instruction to support better learning outcomes.

Given these observations, this study aimed in determining the relationship between learning strategies and the academic performance of Grades 4, 5, and 6 learners in Mambalili Elementary School using multiple regression analysis. By focusing on the specific strategies employed by teachers and their effects on student outcomes, this research sought to provide evidence-based recommendations for improving learning strategies practices in similar context and contributing valuable interventions not only within the school but also across similar settings in the Bunawan District and the wider Caraga Region.

The general objective of the study was to determine the influence of different learning strategies to the academic performance of learners in Mambalili Elementary School. Specifically, it sought answers to the following questions:

1. What is the level of learning strategies in terms of:
  - 1.1 Management of time and effort;
  - 1.2 Complex Cognitive Strategy;
  - 1.3 Simple Cognitive Strategy;
  - 1.4 Contacts With Others; and
  - 1.5 Academic Thinking?
2. What is the level of academic performance of the learners as reflected in their 3rd quarter periodical test scores of the subjects:
  - 2.1 English
  - 2.2 Mathematics; and
  - 2.3 Science?
3. Is there a significant relationship between learning strategies and academic performance?
4. Which among the domain of learning strategies greatly influence academic performance?

## 2. METHODOLOGY

### Research Design

This study utilized Predictive Correlation research design which predicted the variance of one or more variables based on the variance of another variables. The study variables were classified as independent (predictor) and dependent (outcome). Correlation technique is a procedure in which subject score in two variables are simply measured without manipulation of any to determine whether there is a significant relationship (Mendivelso, 2022). Since this study sought to investigate which domain of learning strategies greatly affects academic performance, this was the suitable design to use.

A survey design was also used for this quantitative descriptive research study investigating the level and association between learning strategies and academic performance among pupils of Mambalili Elementary School.

### Research Locale

This study was conducted in Mambalili Elementary School during the second semester of S.Y. 2024-2025. "Linunsuran" was its original name means people. However, it was changed to "Mambalili" when the strong typhoon happened in the barangay, where a portion of land was left and formed like a boat where the people transferred and seek for their safety. After the flood, there came a non-formal teacher whose name was 'Balili'. People love their teacher as their "Ma'am". The word Mambalili is a coined word of "Ma'am Balili" which is the first teacher of Mambalili Elementary School.

### Respondents of the Study

The respondents of this research study were 166 learners from grades 4, 5 and 6 of Mambalili Elementary School enrolled during the S.Y. 2024-2025. For each member of the cluster to have an equal chance of being selected Mulisa (2022), a universal sampling technique was utilized. Table 1 below shows the distribution of the respondents per section in grades 4, 5 and 6 learners.

### Research Instruments

The instruments used in this study consisted of two parts. The first part was an adapted questionnaire on Learning Strategies from the study of Neroni et al. (2019). The survey questionnaire in this study was designed to determine the relationship between learning strategies and academic performance and to identify which domain among the indicators of learning strategies had the greatest impact. The first part consisted of five indicators: management of time and effort, complex cognitive strategy, simple cognitive strategy, contact with others, and academic thinking.

Meanwhile, academic performance was measured using the third-quarter test scores of the learners in the subject areas of English, Mathematics, and Science. The data on learning strategies were gathered by summing the scores from all statements in the survey questions. Shown below is the scoring and interpretation of learning strategies.



Rating	Interval	Descriptive Rating	Interpretation
4	3.5 – 4.00	Very High	The pupils Leaning Strategies was always manifested.
3	2.5 – 3.49	High	The pupils Communication Skills was oftentimes manifested.
2	1.5 – 2.49	Low	The pupils Communication Skills was sometimes manifested.
1	1 – 1.49	Very Low	The pupils Communication Skills was rarely manifested.

On the other hand, the scoring and interpretation of data for academic performance is shown below.

Rating	Interval	Descriptive Rating	Interpretation
4	90 – 100%	Mastery	The pupils have fully mastered the competencies and can apply them independently.
3	80 – 89%	Nearing Mastery	The pupils have a strong understanding but require minimal support to achieve full mastery.
2	70 – 79%	Developing Mastery	The pupils show partial understanding but need further reinforcement and practice.
1	Below 70%	No Mastery	The pupils have not yet acquired the necessary skills and require significant intervention.

### Validation of Instrument

A panel of external and internal validators were tasked to review the adopted instruments before it was administered to the respondents. After which, the researcher used the test and retest to ensure the validity of the questionnaire. The pilot testing was conducted in the different school, which was in West Bunawan Central Elementary School. It was explained by the researcher to the School Principal and to the respondents the importance of conducting the pilot testing and the significance of it to make the study reliable. If found no issues during testing, the administration of the instrument followed.

### Research Procedure

The researcher prepared a letter of permission to the School Principal and to the Division of Agusan del Sur to allow her to conduct this study. It was explained to them the nature of the study and their utmost cooperation was highly appreciated. The researcher herself also distributed and administered the research instruments to the student and they were asked to answer the said survey questionnaire respectively. The collection of the instruments were done immediately to ensure the confidentiality of the responses.

After the data collection, the researcher tallied, collated, tabulated and submitted the data to the statistician for statistical treatment. The results analyzed and interpreted using the four-point likert scale.

### Statistical Treatment of Data

This section presented the statistical tools that were used in the study. The data in this study was organized and classified based on the research design and the problems. The data was tallied and tabulated to facilitate the presentation and interpretation of the results. Statistical tools also helped the researcher in determining the validity and reliability of the research instrument. The researcher used the **mean** to determine the level of learning strategies and academic performance. Then, the **Pearson r correlation** was used to determine the relationship between the variables. The Pearson correlation coefficient, also called Pearson's r, is a statistical calculation of the strength of two variables' relationships. **Multiple Regression Analysis** was also used to estimate the relationship

between two or more independent variables and one dependent variable (Bevans, 2023).

### Data Collection Procedure

The researcher sought an approval from the ethics and validation of the questionnaires ensure the integrity of the study process set by Assumption College of Nabunturan Ethics Review Committee and to build trusts between the researcher and the parties involved. After that, the collection of the needed data for the study commenced. The results of the survey were collected and tabulated subject for a statistical treatment by the statistician. The signed consent by the respondents for voluntary participation in the study was secured first before they fill-in the survey questionnaires. The participants were free to withdraw from their participation in the study if they feel displeasure.

### Ethical Considerations

Andreassen et al. (2024) emphasizes that ethical considerations are essential in guiding the principles and values upheld throughout a research investigation. In this study, ethical guidelines were strictly followed. The research focused on evaluating pupils' learning strategies across domains such as time and effort management, complex and simple cognitive strategies, contact with others, and academic thinking, with findings intended for publication and school dissemination.

In addition, informed consent was also obtained from participants, clearly explaining the purpose, methods, and voluntary nature of the study. Participants were assured they could withdraw at any time without consequence, and the researcher emphasized their right to skip any uncomfortable questions. There were no risks encountered in this study and participants were compensated for any expenses incurred, with surveys conducted at their convenience. Privacy and confidentiality were maintained in accordance with the Data Privacy Act of 2012, and the researcher securely stored and deleted all personal data after the conduct of this study.

Justice was ensured through universal sampling of Grades 4 to 6 pupils, with tokens of appreciation provided. Transparency was upheld by disclosing affiliations and sharing transcripts with participants for validation. The researcher, a Master of



Arts in Education graduate from Assumption College of Nabunturan, brought significant experience from prior academic research to ensure the integrity and ethical compliance of this study.

### 3. RESULTS AND DISCUSSION

This section presents the results of the study based on the data collected from the respondents. This section emphasized the findings aligned with the research objectives and variables under investigation. Tables and descriptive analysis are used to clearly illustrate the trends, patterns, and relationships observed in the data.

**Table 1. Level of Learning Strategies**

Indicators	Mean	Interpretation
Management of time and effort	3.3	High
Complex Cognitive Strategy	3.2	High
Simple Cognitive Strategy	3.4	High
Contacts With Others	3.3	High
Academic Thinking	3.2	High
<b>Overall Mean</b>	<b>3.28</b>	<b>High</b>

Table 1 shows the overall level of learning strategies used by the pupils, with an overall mean of 3.28, described as high. From the data provided, the most frequently used strategy is the Simple Cognitive Strategy with a mean of 3.4. This is followed by both Management of Time and Effort and Contacts with Others, each with a mean of 3.3. Complex Cognitive Strategy and Academic Thinking both received a mean of 3.2. The pupils consistently apply different independent learning strategies, particularly those involving repetition, time management, peer interaction, and critical thinking. This suggests that pupils exhibited a strong ability to manage their time, use effective cognitive strategies, engage with peers, and apply academic

thinking skills. Time management abilities and academic achievement are both improved when students practice self-regulated learning (SRL).

According to Lourenço and Paiva (2024), students who plan their academic activities in advance and manage their time wisely tend to perform better academically. Usroh et al. (2022) also found that time management is closely related to self-discipline and commitment to learning. Similarly, Valente et al. (2024) emphasized that early development of time management habits contributes significantly to academic responsibility and long-term academic success among young learners.

**Table 2. Level of Academic Performance**

Subject	Number of Items	Mean	SD	Class Proficiency	Performance Level	Interpretation
English	20	9.440	2.276	47%	79%	Developing Mastery
Mathematics	20	10.163	2.932	51%	80%	Nearing Mastery
Science	20	8.795	2.448	44%	78%	Developing Mastery
<b>Overall</b>	<b>20</b>	<b>9.466</b>	<b>2.552</b>	<b>47.33%</b>	<b>79%</b>	<b>Developing Mastery</b>

Table 2 shows that Mathematics gets the highest mean score of 10.16, with a 51% class proficiency and an 80% performance level, categorized as nearing mastery. English and Science gets the mean scores of 9.440 and 8.795, respectively, with performance levels of 79% and 78%, both interpreted as developing mastery. Pupils appeared to be making development towards academic mastery, based on the overall mean score of 9.466 and performance level of 79%. Although pupils are making an overall satisfactory academic achievement, there might be a need for an additional independent instruction to achieve their maximum potential, particularly in Science with a lowest class proficiency of 44%.

Nurudin et al. (2023) emphasized that motivational beliefs, cognitive strategy use, and metacognitive processing are essential elements of Self-regulated learning (SRL) that improve educational outcomes. Similarly, Cousins et al. (2022) noted that interventions targeting Self-regulated learning (SRL) improve both the skills and performance of students over time. As cited by Yu (2023), Self-regulated learning (SRL) in younger students leads to increased academic motivation, persistence, and greater control over learning processes. As emphasized by Van Hoof et al. (2021) retrieval practice not only strengthens memory but also improves the ability of students to transfer knowledge to new contexts, making it a powerful tool for durable learning.



**Table 3. Relationships of Learning Strategies of the Academic Performance of Learners**

Independent Variable	Dependent Variable	r-value	r-square	p-value	Decision
Learning Strategies (LS)	Academic Performance in English	0.184	0.0339	0.017	Reject Ho
	Academic Performance in Mathematics	0.040	0.0016	0.609	Failed to Reject Ho
	Academic Performance in Science	-0.015	0.0002	0.848	Failed to Reject Ho

Presented in Table 3 is the significance of the relationships between Learning Strategies (LS) and the academic performance of pupils in English, Mathematics, and Science. The results revealed that Learning Strategies (LS) has a weak but statistically significant positive correlation with academic performance in English subject with an r value of 0.184 and p-value of 0.017, hence, rejecting the null hypothesis of the study. However, the relationships between Learning Strategies (LS) and academic performance in the subject areas such Mathematics and Science with an r value of 0.040 and -0.015, as well as p-value of 0.609 and 0.848 respectively are not statistically significant, hence, the researcher failed to reject the null hypothesis.

The findings closely aligned with the study conducted by Langbroek et al. (2024) who revealed that different subjects and learning objectives shows unique influence on the effectiveness of learning strategies as the effectiveness of different instructional methodologies might differs among different types of knowledge and subjects. Forbes-McKay et al. (2023) also argue that independent learning, motivational beliefs, cognitive strategies, and academic achievement are also associated with positive learning outcomes. Similar findings were noted by Lourenço and Paiva (2024) who emphasized the role of SRL in improving both time management and academic performance. As found by Pablo-Huamani et al. (2024), effective pedagogical management includes supporting diverse student learning needs and fostering independent learning behaviors which strengthens academic outcomes.

**Table 4. Regression Analysis of Learning Strategies Predicting Academic Performance**

Indicators	Unstandardized Coefficients		Standardized Coefficients	t-value	p-value	Decision
	B	SE	Beta			
(Constant)	23.572	3.277				
Management of Time and Effort	1.783	0.981	0.171	1.818	0.071	Failed to reject Ho
Complex Cognitive Strategy	-0.596	1.082	-0.057	-0.551	0.582	Failed to reject Ho
Simple Cognitive Strategy	-0.098	1.018	-0.011	-0.096	0.923	Failed to reject Ho
Contacts With Others	-0.682	0.932	-0.081	-0.733	0.465	Failed to reject Ho
Academic Thinking	1.054	1.040	0.114	1.014	0.312	Failed to reject Ho



Table 4 presents the regression analysis of learning strategies predicting academic performance. It is found that no indicators of learning strategies significantly predict the academic performance of pupils. The overall model fit represents a low level, with an R-value of 0.237 and an  $R^2$  of 0.056 which indicates that only 5.6% of the variance in academic performance is explained in the learning strategies used. The results suggest that only a small portion of the variance in academic performance could be explained by the learning strategies employed by the learners. It is important to consider that the effectiveness of SRL may differ depending on personal, behavioral, and environmental factors specific to the learners during the learning process (Rahmadhani & Budiraharjo, 2024).

Moreover, research indicates that factors like metacognition and effort regulation may play a more significant role in predicting literacy and math achievement (Amanah et al., 2024). The study also supported the mediating role of intrinsic motivation and self-regulated learning in improving performance and found that strategies are only effective when supported by a motivating environment (Cécillon et al., 2024).

## 4. CONCLUSION AND RECOMMENDATIONS

### Conclusion

Based on the findings of the study, it appears that pupils demonstrated a high level of learning strategies, particularly in effective time management, cognitive engagement, peer interaction, and academic thinking. However, their academic performance varied across subject areas. Notably, learners performed best in Mathematics but they were behind in Science, suggesting the need for additional instructional support in that subject.

Furthermore, while learning strategies showed a weak but significant correlation with English performance, no significant influence was found in Mathematics and Science. Regression analysis revealed that independent learning strategies accounted for only a small portion of the variance in the academic performance of learners. These results suggest that although fostering independent learning is beneficial, it may not be the only determinant of academic success. Other contributing factors may require attention to help improve learner performance across subjects.

### Recommendations

1. Teachers are encouraged to use simple and engaging strategies in teaching Science, such as project-based activities, computer lessons, and ready-made learning materials, to help pupils better understand Science topics and improve their performance.
2. School heads may organize short training sessions on inquiry-based collaborative, and hands-on methods during faculty meetings. These training sessions may help equip teachers with practical and effective teaching strategies, especially in subjects like Mathematics and Science whereas learning strategies were found to have little influence on the performance of pupils.
3. Future research may explore other factors influencing pupils' academic performance, such as teacher

effectiveness, the learning environment, availability of instructional materials, and the role of parental involvement, to gain a deeper understanding of what contributes to academic success.

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