# Reading Motivation, Language Learning Self-Efficacy and Test-taking Strategy: A Structural Equation Model on Academic Performance of Students


**ABSTRACT**

**Aims:** To determine the best fit model for the academic performance of students using reading motivation, language learning self-efficacy, and test-taking strategy as exogenous variables, and academic performance as the endogenous variable.

**Study design:** This research used Structural Equation Modeling (SEM).

**Place and Duration of Study:** The study was conducted at public high schools of SOCCSKSARGEN or Region 12 in the Philippines during the school year 2021-2022.

**Methodology:** The respondents of the study were 400 public high school students. The respondents were chosen using stratified random sampling. A four-part questionnaire was utilized to collect the data. All items in each indicator of the four variables revealed a good interpretation which means they were valid and reliable.

**Results:**

Reading tough books to achieve excellent marks, perform well in class, and gain attention from teachers and parents is less likely to drive students. Students used to evaluate their language learning requirements, define the abilities they wished to develop, pick effective study techniques, and set aside gadgets when studying. They also used to read the question before looking for hints in the relevant content, extract the essential lines that convey the major ideas, concentrate on titles, names, numbers, quotations, or instances, and comprehend the overall context to infer an option. The survey discovered that most of the time, students utilized it to determine the progress of their learning and create learning objectives. It was also found that there was a link between the exogenous variables and the academic performance of students.

**Conclusion:** Students observed variables on reading motivation and academic performance. There was a positive and significant relationship between reading motivation, language learning self-efficacy, and test-taking strategy. Thus, this study supported Reynolds and Walberg's theory of academic achievement.



*Keywords: Education, study skills, writing strategies, reading habits, motivation in learning language, structural equation model, Philippines*


**Comment [WU1]:** remove

**Comment [WU2]:** the opening statement should focus on the intent of the study.what instigated the researcher to carry out the research;in on or two sentences.

**Comment [WU3]:** Remove/

**Comment [WU4]:** Study design should be described under research methodology.

**Comment [WU5]:** remove

**Comment [WU6]:** remove all topics or sub-topics in the abstract part.Refer the journal citeria on spacing ,phonts and style .Indicate clearly the population,and the instrument .Keep its flow.

## 1. INTRODUCTION

The improvement of students' academic performance is one of the primary problems of education in the Philippines. Business World Online (2019) reported that Grade 10 students got a 40% of Mean Percentage Score on the National Achievements Test in the school year 2016-2017 which was lower than the 44.70% MPS in the previous school year. However, Buzdar (2017) proved that poor academic performance of students increased the dropout rate. In addition, Almerino (2020) found out that many high school graduates were not yet ready to pursue college despite the K-12 reforms implemented by the Department of Education.

### 1.1 Objectives of the Study

This study pursued to create the best fit model for the academic performance of students m using reading motivation, language learning self-efficacy, and test-taking strategy as exogenous variables, and academic performance as the endogenous variable. Specifically, this study aimed:

1. to determine the level of reading motivation of students;
2. to assess the level of language learning self-efficacy of students;
3. to determine the test-taking strategy of students;
4. to determine the academic performance of students;
5. to describe the significant relationship between the exogenous variables and endogenous variables;
6. to determine the variable that has a significant influence on academic performance;
7. to determine the best fit model for the academic performance of students.

Despite the research on reading motivation, language learning self-efficacy, test-taking strategy, and academic performance of students, there was no study conducted that examined structural equation modeling using these variables in the local setting. This study would benefit the teachers and students to elevate the quality of education in the country by implementing innovative interventions in teaching.

## 2. MATERIAL AND METHODS

**Comment [WU7]:** Indicate the data analysis method and the type of software used to produce the out put.

### 2.1 Research Design

This quantitative research used Structural Equation Modeling (SEM) to establish the best fit model for the academic performance of students. SEM is a multivariate statistic that is used in examining the relationship between the latent and manifest variables. This study also used a Pearson-r in determining the linear correlation between the variables through numerical data. The regression analysis helped establish the predictors of academic performance.

### 2.2 Research Respondents

The respondents of the study were 400 public high school students from SOCCSKSARGEN or Region 12. These students were enrolled during the school year 2021-2022. The respondents were chosen using stratified random sampling. This study did not include private school students.

### 2.3 Research Instrument

A four-part questionnaire was utilized to collect the data needed for the investigation. All items in each indicator of the four variables revealed a good interpretation which means they are valid and reliable.

## 3. RESULTS AND DISCUSSION

### 3.1 Reading Motivation of Students

Table 1 showed statistical results of the level of each reading motivation. The students obtained an overall mean score of 3.23, with a standard deviation of 1.02. The result means that the students agreed to have observed this variable sometimes. The reading motivation with high-level indicators was curiosity and involvement as reflected in mean scores of 3.53 and 3.46 with a standard deviation of 1.19 and 1.17. The indicators on preference for challenge, grades, recognition, social, and competition had moderate levels based on the mean scores of 3.31, 3.28, 3.24, 2.95, and 2.87 with standard deviations of 1.14, 1.18, 1.24, 1.05, and 1.11.

Table 1. Reading Motivation of Students

| Indicators | SD | Mean | Descriptive Level |
|---|---|---|---|
| Curiosity | 1.19 | 3.53 | High |
| Involvement | 1.17 | 3.46 | High |
| Reference for Challenge | 1.14 | 3.31 | Moderate |
| Recognition | 1.24 | 3.24 | Moderate |
| Grade | 1.18 | 3.28 | Moderate |
| Social | 1.05 | 2.95 | Moderate |
| Competition | 1.11 | 2.87 | Moderate |
| Overall | 1.02 | 3.23 | Moderate |

The result of the study proved that students were less likely motivated to read challenging books to get high grades, excel in class, and be recognized by their teachers and parents. Contrastingly, the result of the study also manifested that students were more likely motivated to read interesting topics, and stories about adventures, mysteries, and fiction, and they sometimes lose track of time.

Similarly, Protacio (2017) explained that students get motivated to read when the articles were suited to their interests than academic-related articles. In addition, Bright and Loman (2020) emphasized that recognition, grades, and competition affect students' learning.

### 3.2 Level of Language Learning Self-Efficacy

Table 2 showed statistical results of the level of each language learning self-efficacy. The students got an overall mean score of 3.59, with a standard deviation of 0.99. The result indicated that the students agreed to have observed the variable oftentimes. The language learning self-efficacy indicators with high results were identifying learning needs and setting goals, selecting learning sources and materials, transferring acquired skills information to other contexts, and organizing the learning process and environment with the mean range scores of 3.46-1.82 and standard deviation range of 1.01-1.82 but seeking social assistance indicator was in moderate level with its mean score 3.32 and standard deviation of 1.06.

Table 2. Level of Language Learning Self-Efficacy

| Indicators | SD | Mean | Descriptive Level |
|---|---|---|---|
| Identifying learning needs and setting goals | 1.14 | 3.82 | High |
| Selecting learning sources and materials | 1.09 | 3.71 | High |
| Seeking social assistance | 1.06 | 3.32 | Moderate |

| | | | |
|---|---|---|---|
| Organizing the learning process and environment | 1.01 | 3.46 | High |
| Monitoring | 1.12 | 3.66 | High |
| Evaluating | 1.05 | 3.53 | High |
| Transferring acquired skills or information to other contexts | 1.08 | 3.66 | High |
| Overall | 0.99 | 3.59 | High |

The result indicated that students used to assess their language learning needs, identify skills they wish to improve, choose appropriate strategies for learning, determine whether instructional materials were relevant, reflect on the effectiveness of activities, seek assistance from their classmates to make sure learning, consider the pacing of learning and put their laptop or cell phone away when studying. Also, to be effective in learning, students seek help from their teachers and lecturers through email sometimes.

Anent this, Ritonga (2022) stressed that giving support and feedback helped the students to improve their language learning and for Anam and Stracke (2016), students who aimed to learn a language had the efficacy for language learning strategy while Ahmadian and Ali (2017) believed that teachers could contribute a lot in the learning process of students in the language.

**3.3 Level of Test-taking Strategy**

Table 3 presents the statistical results of the level of each test-taking strategy. The students obtained an overall mean score of 3.72, with a standard deviation of 1.05. The result means that the respondents agreed to have observed the variable oftentimes.

Table 3. Level of Test-taking Strategy

| Indicators | SD | Mean | Descriptive Level |
|---|---|---|---|
| Word-based/ lexico- grammatical strategies | 1.14 | 3.73 | High |
| Sentence-based strategies | 1.10 | 3.76 | High |
| Reading comprehension strategies | 1.09 | 3.74 | High |
| Technical approaches | 1.07 | 3.67 | High |
| Overall | 1.05 | 3.72 | High |

Also, students obtained a high level in all indicators such as statistical results of the level of each word-based/ lexico- grammatical strategy identifying learning needs and setting goals, selecting learning sources and materials, transferring acquired skills information to other contexts, and organizing the learning process and environment with the mean range scores of 3.46-1.82 and standard deviation range of 1.01-1.82.

The results imply that most of the time, students used to understand the overall context to infer an option, read the question before looking for clues in the related text, read all the questions first as a mental note before going on to the passage, extract the key sentences that convey the main information, focus on titles, names, numbers, quotations or examples, and identify the relationship between the passages. Also, students used to understand the vocabulary to select the correct answer, consider the word tense or voice by knowledge of the grammatical rules, apply the process of elimination to approach an answer, skip the

questions that are perceived to be difficult and time-consuming, and use background knowledge in educated guesses.

A study by Chen and Liu (2020), found that students' vocabulary had something to do with student's ability to answer questions comprehensively. Snow at Matthews (2016) also mentioned that students should understand words that are not usually used in communication and be able to apply new learning. Furthermore, Akbar et al. (2021) said that test anxiety affects the academic performance of students.

**3.4 Level of Academic Performance**

Table 4 shows the statistical results of the level of each academic performance. The students obtained an overall mean score of 3.38, with a standard deviation of 0.87. The result means that the respondents agreed to have observed the variable sometimes.

Table 4. Level of Academic Performance

| **Indicators** | **SD** | **Mean** | **Descriptive Level** |
|---|---|---|---|
| Motivation | 0.90 | 3.39 | Moderate |
| Communication Skills | 0.92 | 3.23 | Moderate |
| Learning Skills | 1.04 | 3.62 | High |
| Creativity | 0.96 | 3.37 | Moderate |
| Positive Attitude | 0.89 | 3.27 | Moderate |
| Study Skills | 0.99 | 3.42 | Moderate |
| Overall | 0.87 | 3.38 | Moderate |

The academic performance indicator with the high-level result was learning skills with a mean score of 3.62 and standard deviation of 1.04 while indicators such as study skills, creativity, motivation, positive attitude, and communication skills obtained moderate-level results with mean scores of 3.42, 3.37, 3.39, 3.27 at 3.23 and standard deviations of 0.99, 0.96, 0.90. 0.89. 0.90.

The results manifested that sometimes students could hardly allot their time for study schedules and difficult subjects, submit assignments on time, and tend to choose tasks and activities to comply with even though they were unsure to get a high grade and they tend to blame the group mates for their failures. On the other way around, the study found out that students used to determine the development of their learning and set learning goals most of the time.

In addition, Dudeja and Balda (2019) believed that good study habit increases students' self-confidence, perceptions of academics, and ability to make a grade while Hedi and Kann (2019) emphasized that students with study ability positively affects students learning and ability to apply their ability to handle difficult situations.

**3.5 Level of Academic Performance**

Table 5. Relationship between the Exogenous Variables and Academic Performance

| Exogenous Variables | Academic Performance | | | | | | |
|---|---|---|---|---|---|---|---|
| | Motivation | Communication Skills | Learning Skills | Creativity | Positive Attitude | Study Skills | Significance |
| Reading Motivation | .584** | .530** | .637** | .597** | .588** | .606** | .649** |
| | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Language Learning | .718** | .671** | .812** | .722** | .712** | .722** | .799** |
| Self-efficacy | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| Test-taking | .765** | .669** | .830** | .740** | .726** | .727** | .817** |
| strategy | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

*Sig. at the p< 0.01**& p<0.05* level (2-tailed)*

The correlation test displayed in Table 5 revealed between exogenous variables and academic performance was significant at p<0.5 since the r-value of reading motivation was .649 with a P-value of .000, learning language self-efficacy with an r-value of .799 with a P-value of .000, and test-taking strategy with an r-value of .817 and P-value of .000. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.

The result of the research concurred with the study of Vuong et al. (2021) as they noted that students who were motivated to read due to their preferred books had become high achievers. In addition, Alrabai (2018) proved that the language efficacy of students had a great impact on their language performance while Agha and Ata (2016) emphasized that self-regulation in taking that test influenced the academic performance of students.

**3.6. Influence of the Exogenous Variables on Reading Motivation**

Table 6 showed that the p-value of exogenous variables such as language learning self-efficacy and test-taking strategy was .000 while reading motivation was .105. This means that learning self-efficacy and test-taking strategy had a significant influence on academic performance while reading motivation did not have a significant influence on academic performance. Also, table 6 displayed an F-value of 324.644, R-value of .843, R2 of .711, and p-value of .000 which is lower than the .05 level of significance.

Table 6. Influence of the Exogenous Variables on Reading Motivat**ion**

| **Academic Performance** | | | | | |
|---|---|---|---|---|---|
| **Exogenous Variables** | | *B* | B | *t* | *Sig.* |
| Constant | | .643 | | 7.014 | .000 |
| Reading motivation | | .057 | .067 | 1.626 | .105 |
| Language Learning Self-efficacy | | .299 | .340 | 6.070 | .000 |
| Test-taking strategy | | .398 | .485 | 9.518 | .000 |
| R | .843 | | | | |
| $R^2$ | .711 | | | | |
| ΔR | .709 | | | | |
| F | 324.644 | | | | |
| ρ | .000 | | | | |

In addition, data displayed that reading motivation consists of standardized and unstandardized coefficients of .057 and .067, a t-value of 1.626 and p-value of .105 (insignificant); language learning self-efficacy with standardized and unstandardized coefficients of .299 and .340, the t-value of 6.070 and p-value of .000 (significant); the test-

taking strategy with standardized and unstandardized coefficients of .398 and .485, t-value of 9.518 and p-value of .000 (significant).

Olifant et al. (2020) agreed that students who have poor reading achievement were an effect by a lack of reading motivation. For Pahuriray and Grace (2021), language learning through self-regulated strategy has a great influence on the academic performance of students while Stenlund et al. (2018) alleged that test-taking strategy using being calm or fretful influenced the performance of taking the test.

### 3.7. The Goodness of Fit with the Comparative Criterion Indices

Table 7 presented the goodness of fit with the following indices: Chi-Square/ degrees of freedom (MIN/DF) with 1.303; Normed Fit Index (NFI) is .990; the Tucker-Lewis Index (TLI) is .996; the Comparative Fit Index (CFI) is .998; the Goodness of Fit Index (GFI) with .997; the Root Means Square of Error Approximation (RMSEA) is .028; and the P OF Close Fit (Pclose) with .981.

Table 7. The Goodness of Fit with the Comparative Criterion Indices

| Best Model for academic performance | P-value (>0.05) | CMIN / DF (0<value <2) | GFI (>0.95) | CFI (>0.95) | NFI (>0.95) | TLI (>0.95) | RMSEA (<0.05) | P-close (>0.05) |
|---|---|---|---|---|---|---|---|---|
| | .086 | 1.303 | .977 | .998 | .990 | .996 | .028 | .981 |

Legend:
CMIN/DF – Chi-Square/Degrees of Freedom
GFI – Goodness of Fit Index
RMSEA – Root Mean Square of Error Approximation
NFI –Normed Fit Index
TLI -Tucker-Lewis Index
CFI- Comparative Fit Index

Figure 1 presents the best-fit structural model for academic performance as shown in the goodness of fit measures displayed in Table 7. The model showed that all language learning self-efficacy and test-taking strategies predict academic performance with some manifest variables.

The indicators that remained for reading motivation were composed of curiosity, preference for challenge, and grades while language learning self-efficacy consisted of indicators such as transferring acquired skills or information to other contexts, organizing the learning process and environment, identifying learning needs, and setting goals. Moreover, the test-taking strategy had indicators of technical approaches, reading comprehension strategy, and word-based/ lexico-grammatical strategies while academic performance contained motivation, creativity, and positive attitudes.

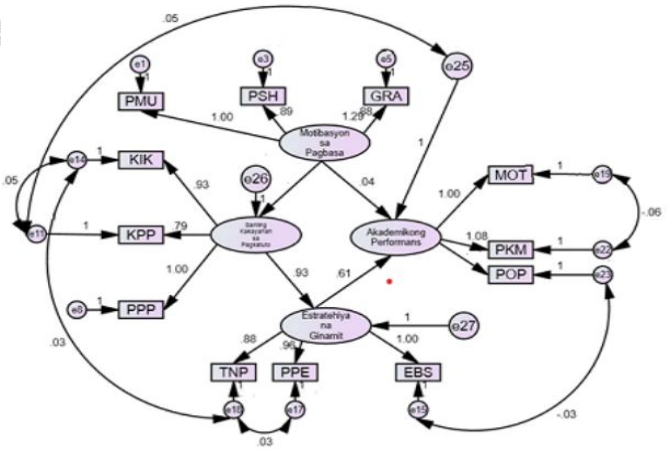

Figure 1. Best-Fit Structural Model on Academic Performance

*Legend:*

| | | |
|---|---|---|
| *PMU-* pagkamausisa (curioisity) | *KPP-* pag-aayos ng mga proseso at kapaligiran ng pagkatuto (organizing the learning process and environment) | *TNP-* teknikal na pagdulog (technical approaches) |
| *PSH-* preperensya sa hamon (preference for challenge) | *KIK-* paglilipat ng kakayahan sa ibang konteksto (transferring acquired skills or information to other contexts) | *MOT-motibasyon (motivation)* |
| *GRA-grado (grades)* | *PPE-* pagbasang may pag-unawa na estratehiya (reading comprehension strategies) | *PKM-pagkamalikhain (creativity)* |
| *PPP-* pagtukoy sa pangangailangan sa pagkatuto at pagtatakda ng mga layunin (identifying learning needs and setting goals) | *EBS-* estratehiyang batay sa salita (word-based/ lexico-grammatical strategies) | *POP-positibong pag-uugali (positive attitude)* |

## 4. CONCLUSION

Conclusions were drawn in this section after considering the findings of the study. Students agreed to have observed variables on reading motivation and academic performance sometimes. Because of this, it is recommended that language teachers like Filipino should conduct reading competitions, and give assessments that aim to evaluate the reading comprehension of the students. In addition, the teachers should monitor students' daily performance and be able to recognize students with improved performance for a week.

The study also concluded that students have oftentimes agreed to have observed language learning self-efficacy and test-taking strategy. Therefore, the researcher recommended that the teacher should conduct Quiz Bowl, oration, and give authentic assessments for students.

Also, this study revealed that there was a positive and significant relationship between reading motivation, language learning self-efficacy, test-taking strategy, and academic performance. Therefore, the null hypothesis is rejected. Hence, language learning self-efficacy and test-taking strategy had a significant influence on academic performance.

Likely, this study supported Reynolds and Walberg's theory of academic achievement since psychological characteristics and social interactions of students affect their academic performance. In this regard, the researcher recommended that students should strengthen their social relationships by participating in the authentic assessments given by the teachers.

On the other hand, Walberg's theory of educational productivity goes along with this study since it posited that the psychological characteristics of students and their immediate psychological environments influence educational outcomes in terms of cognitive, behavioral, and attitudinal. Moreover, the researcher recommended that the teachers should employ domains in learning such as cognitive, psychomotor, and affective in teaching a lesson so that students may be able to improve their macro skills in communication.

## ETHICAL APPROVAL

The researcher followed and complied with all the criteria in conducting the study following the assessment protocol and standardized criteria. Voluntary Participation, Privacy and confidentiality, Informed consent process, Recruitment, Risks, Benefits, Falsification, Conflict of Interest (COI), Deceit, Permission from Organization/Location, and Technology Issues were fully followed as stipulated by the University of Mindanao Ethics Review Committee.

## REFERENCES


1. Business World Online (2019). K to 12 review finds declining test scores and skills mismatch. <https://www.bworldonline.com/editors picks/2019/03/06/218344/k-to-12-review-finds-declining-test-scores-skills-mismatch/>.
2. Buzdar MA. Student's academic performance and its relationship with their intrinsic and extrinsic motivation. Journal of Educational Research. 2017; 20(1): 76.
3. Almerino PM. Evaluating the academic performance of K-12 students in the Philippines: A standardized evaluation approach. Education Research International. 2020: 2020: 6.
4. Protacio MS. A case study exploring the reading engagement of middle grades English learners. 2017. 40(3): 1-17.DOI: 10.1080/19404476.2017.1280586
5. Bright R. Loman M. Do books make a difference? the Effects of an indigo love of reading foundation grant and teacher professional learning on motivation for reading in a middle school. Language and Literacy. 2020; 22(2):26.
6. Ritonga M. Assessment and language improvement: The effect of peer assessment (PA) on reading comprehension, reading motivation, and vocabulary learning among EFL learners. Language Testing in Asia. 2022; 12(1):13-14.
7. Anam S, Stracke E. Language learning strategies of Indonesian primary school students: In relation to self-efficacy beliefs. System 60. 2016; 60:8.
8. Ahmadian M, Ali AG. Language learning strategies, multiple intelligences, and self-efficacy: Exploring the links. Journal of Asia TEFL. 2017; 14(4): 768.
9. Chen C, Liu Y. The role of vocabulary breadth and dept in IELTS academic reading tests. Reading in a Foreign Language. 2020; 32(1): 5-6.
10. Snow C, Matthews TJ. Reading and language in the early grades. The Future of Children. 2016; 26(2):57-58.
11. Akbar A, Chaudry MS, Shahzad K. Measuring the effects of library anxiety & different forms of stress on academic performance of university students. Library Philosophy and Practice. 2021: 15-16.
12. Dudeja K, Balda S. Relationship of study habits with family income, media exposure, and participation in sports. Indian Journal of Health and Wellbeing. 2019; 10(10); 290-294.
13. Hedin B, Kann V. Improving study skills by combining a study skill module and repeated reflection seminars. Education Research International. 2019; 2019: 8.
14. Vuong QH, Nguyen MH, Le TT. Home scholarly culture, book selection reason, and academic performance: Pathways to book reading interest among secondary school students. European Journal of Investigation in Health, Psychology, and Education. 2021 Jun 1;11(2):468-95.
15. Alrabai F. The association between self-efficacy of Saudi learners and their EFL academic performance. Theory and Practice in Language Studies. 2018; 8(10):1365.
16. Agha S, Ata R. Learning habits as factors influencing academic performance in medical students. Pakistan Journal of Psychology. 2016; 47(2):3-17.
17. Olifant T, Cekiso M, Rautenbach E. Critical reading perceptions and practices of English First Additional Language learners in Gauteng, Tshwane South district. Reading & Writing. 2020;11(1):1-1.
18. Pahuriray V, Grace M. Self-Regulating capacity in language learning and English academic achievement. Globus Journal of Progressive Education. 2021; 11(2):82-85.
19. Stenlund T. Per-Erik L, Eklöf H. The successful test taker: Exploring test-taking behavior profiles through cluster analysis. European Journal of Psychology of Education. 2018; 33(2): 401-414.