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Effects of Self-Learning Module on the Academic Performance of Alternative Learning Students Enrolled in Senior High School

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Abstract

This study aimed to determine the effects of Self-Learning Modules (SLMs) on the academic performance of Alternative Learning System (ALS) Senior High School students at Conner Central National High School, Ripang, Conner, Apayao, during the school year 2025–2026. Employing a quasi-experimental one-group pre-test–post-test design, the study involved all fifteen enrolled ALS SHS students selected through total population sampling. Data were gathered using a researcher-made pre-test and post-test aligned with the Komunikasyon at Pananaliksik subject, along with a 40-item four-point Likert-scale survey questionnaire assessing learners' perceived effectiveness of and challenges encountered in using SLMs. Descriptive statistics including weighted mean and standard deviation were used to analyze learner perceptions, while a paired samples t-test determined significant differences in academic performance. Findings revealed that learners rated the SLMs very highly in terms of content clarity and organization (mean = 4.58), learner engagement (mean = 4.31), and accessibility and usability (mean = 4.42), indicating that the modules effectively supported independent learning. However, learners also reported significant challenges, particularly difficulty understanding lessons without teacher guidance, lack of motivation, limited family support, and inconsistencies in module quality. Despite these challenges, the paired samples t-test showed a statistically significant improvement in academic performance, with mean scores rising from 24.47 in the pre-test to 28.73 in the post-test ($t = -5.45$, $p = 0.001$), leading to the rejection of the null hypothesis. The findings confirm that SLMs are effective instructional tools for ALS learners, though sustained improvements require enhanced quality assurance, teacher support, and learner guidance systems.

Keywords: Self-Learning Modules; Alternative Learning System; Academic Performance; Modular Distance Learning; Independent Learning

1. Introduction

Education is the source through which humanity adjusts to its needs and learning has a significant effect on pupils' lives. Teachers are one of the most valuable tools in this process for delivering excellent knowledge [1]. In the new normal since students are used to face-to-face interaction with the teacher, it was quite difficult for them to suddenly adjust to the new system. It required proper orientation and familiarization of the new normal [2, 3].

Globally, one of the most widely adopted learning modalities during the pandemic was modular distance learning through Self-Learning Modules (SLMs). However, students have difficulty absorbing their lessons especially if they have poor time management. Time management was one of the difficulties in the process of SLM as it required scheduling of time [4]. Another issue with SLM was that it minimized social interaction with peers and classmates, but on the bright side, it helped develop self-efficacy among children [5]. Moreover, learners could study slower or faster however they want depending on their requirements. Some children were proud of themselves if they did their activities on their own with limited assistance from teachers and peer groups [6, 7]. This gave learners a successful implementation depends

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largely on how teachers integrate these tools into daily instruction, often challenged by limited resources, heavy workloads, and varying higher chance of success since not all learners learn at the same speed [8]. Despite the reduced social interaction among the students, SLM helped students build self-efficacy, or confidence in their ability to learn independently. However, there were certain flaws in the modules themselves. They varied from school to school, and the teachers who created them determine what they contain [9]. Highlighting the need to enhance SLM accessibility, promote self-directed learning, provide supplemental teacher support, and address learners' difficulties [10].

In the Philippine context, the 21st century has been dynamically adapting to the ever-changing needs of the teaching-learning process [11]. As part of the Department of Education's (DepEd) commitment that education continues for Filipino out-of-school youth and adults (OSYA) amid the COVID-19 pandemic, they unveiled the newly developed self-directed life skills modules [12,13]. In adherence to Regional Memorandum No. 382 s. 2024, these SLMs served as tools for independent learning and continuous educational delivery [14,15]. The Implementation Division reiterated that all Self-Learning Modules (SLMs) shall be used and reused [16,17]. A self-learning module was an orderly set of instructions designed to facilitate learners' mastery of a body of knowledge or a procedure. When combined with other modules, learners could master a vast body of knowledge or a complex process. Moreover, self-learning modules were also defined as its name implies, modules, which were available for students to use by themselves for learning on their own and usually do not require any teacher for help [18]. The utilization of self-learning modules was a great help for pupils due to their enhanced quality as a learning material that supports teachers in the classes [11]. Self-learning modules were effective in the retention of learning among grade 11 students since they learn at their own pace and convenience [19]. Furthermore, Self-Learning Modules (SLM) are used to continue the learning process in a new normal way to address the call of pursuing education [20]. Learners' performance improved significantly before and after using Self-Learning Modules [21]. Thus, learners need to be encouraged to adapt to the new learning modality and understand the lessons at their own pace with the assistance of their parents and/or guardians [22]. Self-learning modules might prove to be a boon for students due to enriching features. SLMs also could perform the role of teacher, making the students become independent thinkers or learn at their own pace. They gained freedom to learn without any restriction [23, 24].

The pandemic of COVID-19 has altered the teaching and learning process. The use of SLMS as an emergency response to the pandemic has now become the long-term integration or use of SLMS in the ALS curriculum [25]. The need for curriculum developers and educators to further enhance instructional materials to support student learning outcomes remained crucial [26]. Due to a well-explained module, some students might not have any trouble understanding their lectures, but other students could not be as fortunate [27]. While the SLMs demonstrated positive aspects, particularly in content clarity, their overall effectiveness in terms of accessibility, facilitation of self-learning, and addressing challenges still require improvement [28]. Previous studies have highlighted the potential of SLMs to support learning continuity, but there was limited empirical evidence on how these modules impact learners' knowledge mastery, skills application, and assessment performance, especially in specific local contexts such as Conner Central National High School. Despite DepEd's mandate to utilize SLMs, questions remained about their clarity, accessibility, and impact on learning outcomes. Specifically, it evaluated learners' performance before and after using SLMs and examined their perceptions regarding content clarity, engagement, and usability. It also identified the personal, social, and material challenges encountered during SLM utilization.

Upon exhausting all the related literature and considering the past research dimensions, the researcher was motivated to conduct a study that contributed to understanding the role of the Self-Learning Module in ALS SHS and to provide insights to enhance the design of the modules, the implementation itself, and the learner support system. The findings of this aided in guiding the teachers and related government agencies to improve the quality and convenience of the ALS SHS curriculum.

This study aimed to determine the perceived effects of Self-Learning Modules (SLMs) on the academic performance of Alternative Learning System (ALS) Senior High School (SHS) students in Komunikasyon at Pananaliksik at Conner Central National High School during the school year 2025–2026. It sought to assess the learners' academic performance before and after using SLMs, and to examine whether there is a significant difference in their performance across these periods. Moreover, the study explored the perceived effects of SLMs in enhancing the learning experience in terms of content clarity and organization, learner engagement, and accessibility and usability. It also investigated the challenges encountered by ALS SHS learners in utilizing SLMs, specifically focusing on personal challenges, social challenges, and material-related challenges associated with the modules.

2. Methodology

2.1. Research Design

A quasi-experimental research design was employed in this study, specifically the one-group pre-test–post-test design. This was to determine the effectiveness of Self-Learning Modules (SLMs) on the academic performance of the Alternative Learning System (ALS) Senior High School (SHS) at Conner Central National High School during the school year 2025-2026. In this design, a single group of ALS SHS students was measured before and after the utilization of SLMs to assess changes attributable to the applied intervention. According to Capili and Anastasi (2025) [31], a single-group structure of quasi-experimental research was one where participants were measured before (pretest) and after (posttest) the intervention. The effect of the intervention was inferred from the difference in pretest and posttest results.

2.2. Locale of the Study

This study was conducted at Conner Central National High School (CCNHS) located in Ripang, Conner, Apayao limited to its Alternative Learning System (ALS) Senior High School students. The researcher selected this as the locale of the study since this school offers an Alternative Learning System (ALS) Senior High School program which was ideal research setting for assessing the effectiveness of Self-Learning Modules towards the academic performance of the students.

2.3. Participants of the Study

The participants of this study were enrolled in Alternative Learning System (ALS) Senior High School (SHS) students at Conner Central National High School during the school year 2025-2026. These students were qualified as the participants since they were the direct users of the Self-Learning Modules (SLMs) implemented by the Department of Education (DepEd) under the modular distance learning modality. Since there were only fifteen (15) students enrolled in this strand, the researcher decided to select all of the total number of students.

2.4. Research Instrument

This study used two instruments in gathering the required data pretest and a posttest, and a structured survey questionnaire. The test questionnaire was created by the researcher and validated by the master teacher. The questions were designed in accordance with the modules provided for SLMs to assess the students' academic performance before and after using the modules. The survey questionnaire consisted of forty (40) items, four-point Likert scale questions that determined the effectiveness and challenges as perceived by the participants. In addition, this was undergone validation with the language master teacher and approved by the superior.

2.5. Statistical Analysis

Weighted mean and standard deviation were used to describe the level of academic performance and the degree of perceived effectiveness. The ANOVA (Analysis of Variance) test was utilized to determine if the change in scores from the pre-test to the post-test is statistically significant.

3. Results and discussion

3.1. Learners' Perception on SLM Effectiveness

Table 1 Learners' Perception on SLM Effectiveness as to Content Clarity and Organization

Statements	Mean	DI
1. The SLMs are clearly written and easy to Understand	4.73	Very High
2. Lessons are arranged logically and systematically	4.60	Very High
3. Instructions and examples help me understand the lessons better.	4.40	Very High
Category Mean	4.58	Very High

As shown in Table 1, the very high rating for content clarity and organization with a mean of 4.58 indicated that the SLMs were not only understandable but also instructionally efficient in guiding learners through the lessons. This suggested that the modules successfully function as a "stand-in teacher," which was the core expectation in modular distance learning. The high score in clarity (4.73) implied that the language, explanations, and examples were appropriate to the learners' level, reducing confusion and enabling independent comprehension. Moreover, the logical sequencing (4.60) reflects effective curriculum alignment and scaffolding, where lessons build progressively from simple to complex concepts. This was consistent with the standards set by the Department of Education in DepEd Order No. 018, s. 2020 [32], which emphasized that SLMs must be structured in a way that promotes self-paced learning. From a deeper perspective, this finding indicated that instructional design was a strength of the implementation, and therefore, learning difficulties were less likely to originate from how content was presented but rather from learner-related or environmental factors.

Table 2 Learners' Perception on SLM Effectiveness as to Learner Engagement

Statements	**Mean**	**DI**
1. The SLM activities keep me interested in learning	4.33	Very High
2. The SLM encourages me to study independently.	4.33	Very High
3. I am motivated to finish the tasks and activities in the SLM.	4.27	Very High
Category Mean	4.31	Very High

As gleaned from Table 2, the very high category mean of 4.31 indicated that the SLMs were effective in engaging learners and encouraging participation in learning activities. The equal ratings for interest and independent learning (4.33) suggested that the modules were able to capture learners' attention and promote self-directed learning behaviors. However, the slightly lower mean for motivation (4.27) indicated that sustaining engagement over time may still be a challenge. This finding aligned with Bond et al. (2020) [33], who emphasized that learner engagement in distance education was influenced by interaction and feedback, which were limited in modular learning. While the modules successfully initiate engagement, maintaining learners' motivation may require additional support such as teacher follow-up or external reinforcement.

Table 3 Learners' Perception on SLM Effectiveness as to Accessibility and Usability

Statements	**Mean**	**DI**
1. The SLM is easy to use and understand.	4.67	Very High
2. I can use the SLM even without internet or gadgets.	4.40	Very High
3. The instructions are easy to follow during independent study.	4.20	High
Category Mean	4.42	Very High

As can be seen in Table 3, the category mean of 4.42 reflected that the SLMs are highly accessible and easy to use for learners. The highest rating for ease of use (4.67) indicates that learners can navigate the modules without difficulty, while the ability to use the modules without internet access (4.40) highlights their suitability for learners in areas with limited technological resources. This supported the principle of inclusive education as mandated by the 1987 Philippine Constitution and the Learning Continuity Plan of the Department of Education. However, the lower mean for following instructions (4.20) suggests that some learners may still encounter difficulties in understanding directions independently. This supported the findings of Barrot et al. (2021) [34], who noted that accessibility alone did not ensure effective learning without sufficient comprehension skills.

3.2. Challenges Encountered by the Learners in Using SLMs

Table 4 Challenges Encountered in Using SLMs as to Personal Challenges

Statements	Mean	DI
1. Difficulty in understanding lessons without teacher guidance.	4.47	Very High
2. Lack of motivation to study independently.	4.40	Very High
3. Time management problems when doing SLM tasks.	4.20	High
Category Mean	4.36	Very High

Table 4 showed that the category mean of 4.36 indicates that learners experience significant personal challenges in using SLMs. The highest concern, difficulty in understanding lessons without teacher guidance (4.47), showed that learners still rely heavily on teacher explanations. Additionally, the high ratings for lack of motivation (4.40) and time management problems (4.20) suggested that learners may struggle with self-regulation. These findings were consistent with Adnan and Anwar (2020) 35, 36], who reported that students encountered difficulties in remote learning due to absence of immediate support. Zimmerman (2020) [37] also emphasized that self-regulated learning skills were crucial for independent learning, yet many learners have not fully developed these competencies.

Table 5 Challenges Encountered in Using SLMs as to Social Challenges

Statements	Mean	DI
1. Household responsibilities affect my study time.	4.20	High
2. Noisy or distracting home environment.	4.13	High
3. Limited support or assistance from family members.	4.40	Very High
Category Mean	4.24	Very High

The very high category mean of 4.24 indicates that social factors significantly affect learners' experiences in modular learning as reflected in Table 5. The high ratings for limited family support (4.40), household responsibilities (4.20), and noisy environments (4.13) suggest that the home environment played a critical role in shaping learning outcomes. According to Department of Education Order No. 013, s. 2020 [38], parents expected to act as facilitators in modular learning; however, the results indicated that this support was not always available. This finding was supported by Dangle and Sumaoang (2020) and UNESCO (2021) [39], who highlighted that home-related challenges were common barriers in distance learning environments.

Table 6 Challenges Encountered in Using SLMs as to Material-Related Challenges (Module Material)

Statements	Mean	DI
1. The SLMs have unclear or confusing instructions.	4.20	High
2. Some printed modules are incomplete or damaged	3.87	High
3. Insufficient examples or explanations in some lessons.	3.80	High
Category Mean	3.96	High

As shown in Table 6, the category mean of 3.96 indicates that learners encountered moderate challenges related to the quality and completeness of the modules. The highest concern, unclear instructions (4.20), suggested that some parts of the modules may not be sufficiently detailed for independent learning. The presence of incomplete or damaged modules (3.87) and insufficient examples (3.80) further indicated issues in implementation and distribution. According to Department of Education Order No. 018, s. 2020, SLMs must undergo quality assurance to ensure clarity and completeness; however, these findings suggest that such standards may not always be consistently met. Barrot et al. (2021) also emphasized that the quality of instructional materials significantly influences learning effectiveness.

Table 7 Significant Difference in the academic performance of Learners before and after the use of SLMs

Indicator	Mean	DF	t-tabular	P-Value	Decision
Pre-Test	24.47	14	-5.45	0.001	Reject H_o
Post Test	28.73				

As reflected in Table 7, the test indicated a statistically significant difference between the learners' pre-test and post-test scores. The pre-test mean of 24.47 increased to a post-test mean of 28.73, showing a noticeable improvement in learners' academic performance after the use of the Self-Learning Modules (SLMs). The computed t-value of -5.45 with 14 degrees of freedom and a p-value of 0.001 was less than the 0.05 level of significance, leading to the rejection of the null hypothesis. This meant that the observed improvement was not due to chance but could be attributed to the intervention implemented.

The negative t-value indicated that post-test scores were significantly higher than pre-test scores, confirming that learners performed better after exposure to the SLMs. According to Field (2020), a p-value lower than 0.05 provides strong evidence that a real difference existed between paired observations, validating the effectiveness of the treatment. This result suggested that the SLMs contributed positively to enhancing learners' understanding and mastery of the lessons.

This finding supported the policy direction of the Department of Education under DepEd Order No. 012, s. 2020 (Basic Education Learning Continuity Plan), which could promote modular learning as an effective alternative delivery mode in ensuring continuity of education. It also aligned with Republic Act No. 10533, which emphasized learner-centered approaches and the use of appropriate instructional strategies to improve learning outcomes.

Furthermore, the improvement in scores could be explained by the structured and self-paced nature of SLMs, allowing learners to review lessons repeatedly and learn at their own pace. Studies such as Reyes-Chua et al. (2020) and Barrot et al. (2021) [40] have shown that modular learning, when properly implemented, could significantly enhance learners' academic performance despite the absence of face-to-face instruction.

4. Conclusion

In conclusion, the findings of this study revealed that Self-Learning Modules (SLMs) significantly enhanced the academic performance of Alternative Learning System (ALS) Senior High School learners, as evidenced by the improvement in post-test scores compared to pre-test results. Learners perceived the modules to be highly effective in terms of content clarity and organization, learner engagement, and accessibility, which affirmed their instructional value as a substitute for direct teacher guidance. However, challenges remained, particularly in personal aspects such as motivation and time management, social factors like household responsibilities and limited family support, and material-related issues such as unclear instructions or incomplete modules. Despite these difficulties, the overall positive impact of SLMs demonstrated their potential as a viable tool for modular distance learning, aligning with DepEd's Learning Continuity Plan and learner-centered educational policies. This underscores the importance of continuous improvement in instructional design, teacher support, and resource quality to maximize the effectiveness of SLMs in fostering independent and meaningful learning experiences.

Compliance with ethical standards

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I acknowledge that I have not used ChatGPT or Copilot for refining some of the sections in the document.

Disclosure of conflict of interest

I affirm that the respondents voluntarily agreed to participate after being fully informed about the purpose, nature, and potential implications of the study. Their responses have been collected with utmost respect for their privacy and confidentiality, in accordance with ethical research guidelines.

Statement of ethical approval

The study was conducted with approval and in accordance with the standards of the college. No ethical approval was required, as the research followed all applicable ethical guidelines, ensuring respect for the respondents' privacy and confidentiality

Statement of informed consent

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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