

ENHANCING READING AND NUMERACY SKILLS OF ALS LEARNERS: AN EXPERIMENTAL STUDY

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ABSTRACT

The research is a quantitative research study, particularly employing the Experimental study, which focuses on the reading and numeracy skills among ALS learners. This research study utilized a quasi-experimental design, with twenty learners who answered the 40-item one-group pre-test-post-test design. The subject of this study is the twenty ALS learners of Nabunturan National Comprehensive High School Community Learning Center. The results of the pretest revealed that the level of learners' academic performance in reading and numeracy skills showed that the learners did not meet expectations. Intervention has been made, after the interference was applied, the level of learners' performance showed satisfactory but nearing mastery level of competencies. In addition, the results also showed that there is a significant difference in the students' engagement and academic performance before and after the intervention. Based on the results of the study, the researcher recommended that all ALS Implementers and facilitators must be encouraged to create more activities that encourage learners to become more cooperative, self-expression, and shared experiences. Motivation also is very important to the learners to do better in the class. ALS programs can nurture a positive learning environment where learners not only grow academically but also gain the social and emotional skills necessary for success in life. In addition, the use of Community Learning Centers needs to have all necessary facilities such as televisions, computers, and other equipment to ensure learners stay competitive and up to date with new information. This study will greatly help learners as they go on their next journey in Junior High School.

Keyword: Educational Administration, Community learning center, enhancement, academic performance, quasi-experimental design.

Enhancing Reading and Numeracy Skills among ALS Learners; An Experimental Study

I. INTRODUCTION

1.1 The Problem and Its Background

Reading and numeracy are two critical skills that learners need to acquire. These abilities are particularly essential for learners in the Alternative Learning System (ALS). Strong reading and numeracy abilities enable students to quickly and thoroughly comprehend a variety of text formats, recognize and remember the most important details, and draw conclusions between essential ideas [15]. Moreover, these skills form the foundation for lifelong learning, enabling learners to participate fully in society. Reading and numeracy skills are equally important, as they can be applied in all academic subject areas and all educational, career, and civic settings throughout a student's life [12]. It encompasses a broad set of knowledge, skills, work habits, and character traits crucial to success in today's world, especially in collegiate programs, contemporary careers, and workplaces.

Globally, in 2017, the results of the Program for the International Assessment of Adult Competencies (PIAAC) showed that despite more pupils having graduated from high school before joining the workforce, the adult workforce in America is not more proficient in reading, math, or digital problem-solving than it was five years ago. For this reason, the PIAAC evaluates the skills of "working age" people, aged 16 to 65, in 38 nations every three years. The Program for the International Assessment of Adult Competencies (PIAAC) was developed by the Organization for Economic Cooperation and Development. It measures the capability of a person in both math and digital problem-solving skills, and unfortunately, United States adults scored significantly below the

international average. According to a report in the Philippines, ALS learners still lack the functional literacy needed to handle the trials they may encounter globally. There is significant emphasis on improving their reading levels to achieve the required functional literacy skills. Consequently, this study discovered that sex, age, occupation, and civil status influence the development of functional reading skills among ALS students in the Municipality of Sipocot, Camarines Sur [13]. As a learning facilitator of the Alternative Learning System (ALS) at Nabunturan National Comprehensive High School, the researcher observed that ALS learners are mostly quiet, passive, and non-participative, especially in reading and Mathematics. The learners are not motivated to answer entirely of their assignments and activity sheets. They cannot understand and follow the instructions correctly. Their school attendance is irregular. These factors are the reason why the researcher wants to conduct this study.

1.2 Review of Related Literature and Studies

The Basic Education Act governs the Alternative Learning System (ALS), also known as Republic Act 915. It stipulates the establishment of the Alternative Learning System (ALS) to provide basic education to out-of-school children, youth, and adult populations. It corresponds to the education system in the Philippines, which offers out-of-school youth and adult (OSYA) learners the chance to improve their functional and basic skills and to complete their basic education. Education in the present and the future must establish new objectives that emphasize helping students develop their identity to become responsible and successful national and global citizens, along with all the necessary information, skills, and attitudes [18].

The purpose of education is to support people in navigating their lives and making contributions to humanity, which is vital to the learners [1]. Another characteristic of education is related to deeper issues of human and social development, which concentrate on the essential contribution to the basic needs of the learner to become a strong member of society and meet the challenges and needs of the ever-changing humanity.

The challenges in today's education are promoting reading and numeracy skills among learners. These skills enable learners to resolve complex problems and collaborate and connect effectively with the people around them. Consequently, it is a sad reality that a substantial number of the world's population are dropouts, out-of-school youth, and even some individuals who do not attend formal schooling. As a result, individuals who do not receive a proper education struggle to understand the essential skills that enable them to deal with and compete effectively in a global context [14].

Education enables people to learn how to read, write, speak, and listen. Moreover, education is closely tied to a person's life goals and future well-being. People with greater education are more employable and receive more opportunities [1]. The challenges in the education sector today are the inclination of learners to Focus on Reading and Numeracy skills. Reading and Numeracy skills are fundamental in developing every learner's ability. With this, all schools, both public and private, must focus not just on conveying basic skills but also on ensuring that learners acquire knowledge and develop the skills of reading with comprehension and reasoning.

Furthermore, the Department of Education initiated a program designed to support out-of-school youth by providing them with alternate education, vocational training, and job placement services to help them reintegrate into the workforce or continue their education. Through government initiatives, out-of-school youngsters should also reach their full potential and safeguard their future [16]. Children between the ages of 6 and 14 who do not attend formal school are considered out-of-school children. Out-of-school youths are those who do not attend school and are between the ages of 15 and 24 [16]

Thus, the Department of Education established an Alternative Learning System (ALS) to reduce illiteracy and dropouts in our country. This program complements the education structure of the Philippines, providing dropouts, out-of-school youth, and adults (OSYA), as well as other learners, with an opportunity to acquire Basic Education [2]. Reading is comprehending and evaluating written material, such as books, articles, instructions, and digital content. It entails identifying written material and interpreting the meaning, including instructions, statistics, stories, or concepts. Through reading, learners can acquire knowledge, expand their vocabulary, and enhance cognitive skills such as focus and critical thinking [8]. A lifelong instrument for intellectual progress, personal development, and society involvement, it is far more than just a basic talent [3].

Reading improves cognitive abilities, communication skills, creativity, and empathy while providing a means for relaxation and stress relief [5]. Students may also find reading easy or challenging based on the text's fundamental characteristics, the relationship between the text and their prior knowledge, and their reading competence. When reading, the reader's knowledge and competence must interact with the text's content to facilitate understanding. [17].

1.2 Theoretical Framework

This research was grounded in Albert Bandura's Social Learning Theory, first introduced in his foundational work, "Social Learning Theory," published in the 1960s. Bandura outlined four key components of observational learning in his Social Learning Theory: retention, attention, reproduction, and motivation. These components explain how individuals learn by observing others. Attention is required to notice and focus on behavior, influenced by factors such as interest or relevance. Retention involves remembering what was observed, allowing the individual to store and later access the actions mentally. Reproduction describes the ability to physically duplicate behavior, often requiring practice and feedback.

Ultimately, motivation is crucial in determining whether to perform a behaviour based on the anticipated rewards or outcomes. Bandura later introduced the theory of self-efficacy—the belief in one's ability to achieve goals or complete tasks successfully. He argued that human beings with high self-efficacy are more likely to persevere in challenging situations, approach responsibilities with confidence, and ultimately experience greater success in learning and personal development.

This study conceptualized that ALS learners are diverse in terms of their intelligence, with the help and guidance of ALS teachers and implementers to hone their talents to become successful in life. Learners must be prepared to learn, adapt, and use new literacies. Learners who possess reading and numeracy skills are better equipped to develop empathy, compassion, and characteristics essential for socially cooperative individuals. These abilities also ensure that students develop into morally upright and honest individuals as they mature, enabling them to work together, cooperate, think critically, get along with others, and build a better future.

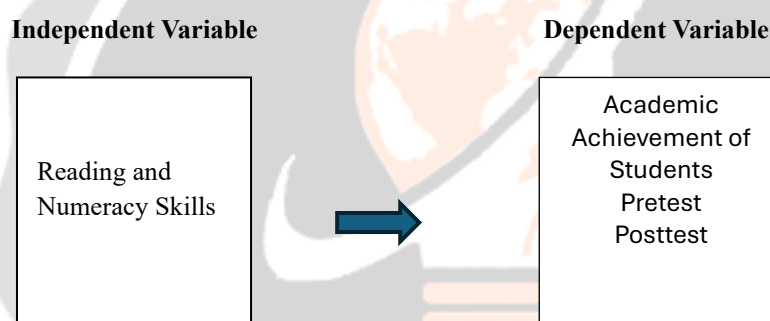


Figure 1: Conceptual Framework

1.3 Statement of the Problem

This study aimed to determine the effect of a collaborative learning strategy using technology as an intervention in teaching reading and numeracy skills to ALS students enrolled in Nabunturan National Comprehensive High School (NNCHS), Nabunturan, Davao de Oro, for the 2024-2025 school year. Notably, this study sought answers to the following questions:

1. What is the reading and numeracy competency level of the students in the pre-test scores?
2. What is the reading and numeracy competency level of the students in the post-test scores?
3. Is there a significant difference between the pre-test and post-test scores of the students?

1.4 Null Hypothesis

To accurately address the problems, the hypothesis below was formulated and tested.

HO1 There is no significant difference between the result of the pre-test and post-test of the students at 0.05 level of significance.

1.5 Scope and Delimitation of the Study

The focus of the study was to determine the significant difference between the pre-test and post-test results in literacy and numeracy skills among 20 ALS learners enrolled at NNCHS during the 2024-2025 school year. A pre-test was administered before the intervention, and a post-test was conducted four weeks after the intervention, utilizing collaborative learning strategy and technology.

1.6 Significance of Study

The results of this study were beneficial to the following individuals:

ALS Learners. The results of this study inspire ALS learners to be more interested in completing their education and to be open to various possibilities for their overall development. The outcomes of this study will motivate ALS instructors to be more patient and to create and innovate strategies and student activities that develop the literacy and numeracy skills of ALS learners, essential for community and workplace participation.

In addition, Department of Education Officials. The findings of this research will be beneficial for DepEd officials in evaluating the ALS curriculum and making necessary modifications to enhance the quality of education for ALS learners. **Whereas Community ALS Implementers.** The results of this study would serve as a guide for ALS teachers, mobile teachers, district ALS coordinators, and principals. This would also serve as a guide in improving and enhancing teachers' capability, techniques, and innovation to address the needs of the learners in developing Literacy and Numeracy skills. This will provide very significant information to ensure an understanding of the situation for both teachers and students regarding teaching. **Future Researchers.** The outcome of this study will assist and help other researchers interested in conducting research related to literacy and numeracy skills among ALS learners.

1.7 Definition of Terms

In the desire to have a better understanding of the terminologies used in the study, the following words were operationally defined:

Academic Achievements. This refers to the scores obtained by students during the pre-test and post-test in literacy and numeracy Skills.

Reading skills. This refers to the range of abilities that enable learners to decode, comprehend, analyze, and respond effectively to written texts. Developing these skills is essential for achieving academic success, fostering critical thinking, and promoting lifelong learning.

Numeracy skills. This refers to a range of abilities, including fundamental arithmetic, problem-solving, and the skill to apply mathematical logic in various settings, such as personal finances, technology, science, and everyday life.

2. METHODS

2.1 Research Design

This study employed a quantitative, quasi-experimental, one-group, pre-test-post-test research design. The word "quasi" means to imitate experimental research. This research design features a single group of participants for the investigation. A one-group pre-test-post-test design involves measuring a dependent variable in a single group before (pre-test) and after (post-test) a treatment or intervention has been made to assess the outcome of the intervention. The pre-test and post-test were created and validated to measure the mastery of learning competencies in reading and numeracy skills before and after implementing the collaborative learning strategy using technology. Research questions were formulated based on trends observed at the research site; the study employed a quantitative approach [19]. Identifying a trend suggests that the research issue can be effectively tackled through a study where the researcher seeks to understand the overall pattern of participants' responses and to observe how this pattern varies among different individuals [19].

2.3 Research Locale

The research was conducted at the Nabunturan National Comprehensive High School Community Learning Centre (NNCHS-CLC), located in the province of Davao de Oro. The province was officially renamed Compostela Valley to Davao de Oro by Republic Act 11297 and was approved on April 17, 2019. Davao de Oro is in the middle of the eastern part of Davao Region. It is composed of 11 municipalities and 237 barangays, divided into two legislative districts. The municipality of Nabunturan was established on July 23, 1957, through Republic Act No. 2039.

Nabunturan National Comprehensive High School, commonly referred to as NNCHS is situated in the capital of Nabunturan, specifically in Barangay Poblacion. Barangay Poblacion is situated in the middle of the valley, located at coordinates 7.6021 and 125.9687. At these coordinates, the elevation is thought to be 86.7 meters (284.3 feet) above sea level. Nabunturan National Comprehensive High School has its origins in Compostela High School, the first secondary institution in Davao de Oro (previously Compostela Valley), which began with its inaugural classroom in 1951. During that period, Compostela High School provided a significant benefit to the

community, as it was quite challenging and costly for parents to send their children to schools outside the town. With this, the municipal council's resolution was sent to Manila, and the authorities, via the Office of the Schools Division Superintendent, appointed the first faculty and school principal.

2.4 Research Subject

The research subjects of the study were the 20 Junior High learners from Nabunturan National Comprehensive High School's Alternative Learning System (ALS) who were enrolled for the 2024-2025 school year through a universal sampling technique.

2.4 Research Instrument

A researcher-made questionnaire was used for the pre-test and post-test, along with a table of specifications. The questions for reading skills were based on Learning Strand 1 in English for Reading and Learning Strand 3 in Mathematical and Problem-Solving Skills for numeracy skills. There were 20 items per component, totaling 40 items.

Validation of the Instrument. To ensure the instrument's validity, the 20-item test questionnaire for both numeracy and literacy was validated by the external and internal validators identified by the Dean of Graduate School. Comments and recommendations regarding the questionnaire were strictly complied with and, if necessary, updated. For its reliability, the questionnaire was tested on 20 ALS learners of Nabunturan National Comprehensive High School CLC.

2.5 Research Procedures

The researcher followed the proper protocol in conducting research. First, she submitted an endorsement letter to the division office and another letter addressed to the Schools Division Superintendent, Division of Davao de Oro. When permission to conduct the study was granted, a letter was provided to the principal at the school where the researcher conducted the study. The administration of the questionnaire, data collection, and data retrieval were done by the researcher herself.

The researcher explained the procedure for conducting the study and translated them into the common dialect spoken by the majority to facilitate a better understanding of the procedure. After conducting a brief orientation about the study, the researcher administered a pre-test to assess participants' prior knowledge of the topic, followed by the intervention. The intervention was implemented through a collaborative learning strategy and the use of technology. After the intervention was completed, the researcher administered the post-test, collected all the responses, and submitted the results to the statistician. Then, she kept all the documents on her personal computer for safety and confidentiality.

2.6 Statistical Treatment of the Data

The researcher used the following statistical tools: Mean. This was used to measure the level of the ALS learner's Literacy and numeracy skills. T-Test. An inferential statistic was used to determine if there was a significant difference between the mean pre-test and post-test.

2.7 Ethical Consideration

There were several ethical considerations in this study, and to prevent ethical problems at any point during the research procedure, the researchers followed all applicable rules, including getting the agreement of the research subjects. This indicates that the research subjects were fully informed about the study's goals, methodology, and advantages before being allowed to decide whether to participate or not. This study follows ethical standards in dealing with the research subjects and the information they disclose, including:

Voluntary involvement in research. The research subjects were given complete autonomy over whether to willingly participate in the study or not, free from any consequences or penalties. It was important for the researcher to acquire agreement from all participants and verify that their involvement was entirely voluntary. Privacy and confidentiality.

As part of our ethical obligation, the researchers sought to protect the anonymity and privacy of the research subjects. The participants in this study were given assurances by the researchers that their privacy would be

protected and that their personal information would remain confidential. To prevent data interference, researchers took measures to ensure that study-related data is securely stored and that only authorized people may access it.

Risk. This study did not involve any events that could induce damage or risk to the research subjects' physical or mental health. The researcher ensured that they always followed the protocol when conducting the research.

Advantages. The findings of this study will be favourable to all learners and ALS implementers, enabling them to gain a deeper understanding of the significance of reading and numeracy skills in their daily lives. Dishonesty. The researcher did not demonstrate any attempt or intention to trick and fabricate the research subjects of this study.

The researcher fostered trust and respected the independence of individuals. Furthermore, the researcher was responsible for protecting the confidentiality and privacy of subjects, ensuring that personal information is stored securely and reported in aggregate to prevent identification. Ethical guidelines also emphasize minimizing harm; researchers should avoid procedures that may cause physical, psychological, or emotional distress to participants.

Overall, this adhered to the ethical standards outlined in Republic Act 10173, officially known as the Data Privacy Act of 2012 (DPA). The Philippine data privacy law aims to safeguard the fundamental human right to privacy and communication while ensuring the free exchange of information to foster innovation and development. It also ensures that private and public sector information and communication systems are secure.

Furthermore, the study also followed the guidelines for moral reasoning set forth by the Institutional Research Board of Assumption College, Nabunturan. Following their approval, the study underwent preliminary testing and obtained a Research Ethics Certificate. At the same time, the collected data will be analyzed to ensure the consistency of the study question.

3 RESULTS

3.1 Competency Level in Reading and Numeracy Skills

This section provides the pre-test scores of students in reading and numeracy skills of the students. Table 1 shows the results of the pre-test scores in reading and numeracy skills of the students.

Table-1: Pre-test Scores in Reading and Numeracy Skills

Pre-test	No. of Students	Class Mean	Class Proficiency	Level of Performance
Universal one group	20	11.2	28%	Low Mastery Level

The information provided in the table displays the result of the pre-test on reading and numeracy skills. It reveals that the proficiency class is 28%, the class mean is 11.2, and the performance level indicates that ALS learners' competency level in reading and numeracy is at a low mastery level.

3.2 Post-test Scores in Reading and Numeracy Skills

Table-2: Post-test Scores in Reading and Numeracy Skills

Posttest	No. of Students	Class Mean	Class Proficiency	Level of Performance
Universal one group posttest	20	22.15	53.38%	Near Mastery Level

This table shows the data providing the post-test results in terms of mean score and class proficiency. The exact number of learners and methods use a universal one-group pre-posttest. The mean is 22.15, indicating moderate performance by the learners. The class proficiency is 53.38%, which suggests that the subjects are performing below average, but they are still achieving more than half of the available points.

3.4 Test of the Null Hypothesis

Table-3: Difference between the Pre-test and Post-test Mean Scores

Post-test	Mean	t-value	p-value	Remarks
Pre-test	11.2	-13.809	.001	There is a significant difference
Posttest	22.14			

The difference between the pre-test mean score and the post-test mean score in reading and numeracy is presented in Table 3. It is reflected that the mean score in the pre-test is 11.2, and the post-test mean score is 22.14 with a t-value of -13.809 and p-value of .001, which is less than 0.05 level of significance. The t-value of -13.809 indicates the variance within the groups in relation to the pre-test and post-test average difference. The pre-test and post-test scores exhibit a significant disparity, as revealed by the t-value. This shows that the post-test scores greatly exceeded the pre-test scores. The p-value is slightly below 0.05, resulting in the rejection of the null hypothesis. It suggests that there is a significant statistical difference between the scores before and after the test. The t-value of -13.809 and p-value of 0.001 provide strong evidence that the intervention had a substantial and positive impact on learners, resulting in a notable improvement in scores from the pre-test to the post-test.

4. Discussions and Conclusion

4.1 Discussions

Reading and Numeracy Competency Level of the Students in the Pre-test Scores. The average test results indicated that participants did not demonstrate mastery of the competencies tested, and they did not meet expectations in both reading and numeracy skills. Based on these results, the learners need to develop and enhance their academic performance, especially in reading and numeracy. This implies that ALS implementers must focus on different interventions and improve the reading comprehension and numeracy skills among ALS learners. This is significant because these are vital for the academic and personal development of learners in the ALS. By addressing gaps in these areas, ALS implementers can guarantee that learners are better equipped to succeed in both their educational journey and their everyday lives.

Thus, the teacher must utilize various interventions and learning materials tailored to the needs of different learners and develop strategies that encourage learners to participate actively in the class. Continuous assessment and feedback can guide the development of specific methods and enhance the reading and numeracy abilities of the learners.

Learners who struggle with reading skills frequently achieve lower academic success. A lack of adequate reading skills can impede students' ability to engage with course materials, assignments, and tests, consequently impacting their academic progress [6]. However, when learners are equipped with the necessary skills, they will improve their academic performance, and this improvement will have a direct and valuable impact on their ability to handle daily tasks and activities.

According to Getenet (2022), students' everyday lives, personal growth, and academic achievement are significantly influenced by their reading and numeracy skills. Students' academic performance in the classroom improves as their literacy and numeracy skills improve. Students must acquire proficient reading and numeracy abilities to enhance their comprehension [7].

Reading and Numeracy Competency Level of the Students in the post-test scores. Results showed that after receiving lessons and intervention using various strategies, the learner's level of performance approached mastery. It indicated that the group is meeting the basic expectations, but improvements are necessary to reach higher proficiency levels. The average score suggested that there is room for significant improvement to enhance learners' understanding and performance. Furthermore, the result indicates that the use of different interventions has an impact on improving learners' reading and numeracy skills.

This outcome suggests that employing various strategies, such as incorporating television into classes and sending lessons via messenger, can support learners in their learning process. Encouraging and building learner's confidence can assist in enhancing their reading and numeracy abilities. Motivation plays a vital role in the reading success of learners, as individuals who are motivated to read tend to engage in this activity more frequently, ultimately enhancing their basic literacy skills [4]. In addition, individuals with higher self-efficacy are more eager to participate, work harder, are less likely to give up easily and have fewer adverse responses to difficulty than

those who hesitate about their abilities. It is also correlated with writing achievement at all age levels, including college learners [10].

The significant difference between pre-test and post-test. There was a significant difference between pre-test and post-test mean scores. Therefore, it has been demonstrated that the use of collaborative learning can have a positive impact on the learner's ability to understand. The integration of technology as an intervention, such as adaptive learning programs or digital tools, enables students to engage with content in a more interactive and personalized way [11]. Developing learners' self-efficacy is also an essential factor in enhancing their skills in reading and numeracy [9].

4.2 Conclusion

The pre-test and post-test results of ALS learners from Nabunturan National Comprehensive High School CLC showed a noticeable distinction between the post-test scores and the pre-tests. Based on the post-test results, it is evident that the researcher's intervention enabled the learners to achieve a near mastery level, as they had not met the expectations or standards for reading and numeracy skills based on their pre-test scores. Therefore, applying collaborative learning strategies with the use of technology can improve the reading and numeracy competence of ALS students.

4.3 Recommendations

The outcome of the study is now presenting the following recommendations:

1. The Department of Education must allocate resources in every Community Learning Centre, with a particular focus on technology. This would ensure that these ALS students have opportunities to enhance their academic achievements and reach their full potential.
2. DepEd is encouraged to support ALS teachers by providing them with materials to enhance the education of ALS students. The Department of Education (DepEd) should provide ALS implementers with training and seminars to update them on instructional strategies and resources used to enhance their reading and numeracy skills.
3. DepEd must provide every Community Learning Centre with all necessary facilities, such as televisions, computers, and other equipment, to ensure learners stay competitive and up-to-date with new technology.
4. ALS Implementers must design activities that encourage cooperation, self-expression, and shared experiences; ALS programs can nurture a positive learning environment where learners not only grow academically but also gain the social and emotional skills necessary for success in life. This activity will contribute to their overall confidence and ability to engage with the world around them, both in and outside of the classroom
5. Assigning ALS implementers who focus solely on the holistic development of ALS students also requires special attention that extends beyond academic instruction to address their emotional, social, and psychological needs. ALS implementers who are fully committed to supporting the growth of these students can provide the necessary guidance, mentorship, and personalized interventions to help them overcome their past challenges and develop the skills they need to succeed.

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