

ENHANCING LITERACY: INNOVATIVE STRATEGIES FOR ALS LEARNERS WITH DISABILITIES

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ABSTRACT

The Alternative Learning System (ALS) enables flexible and non-formal basic education for out- of-school children, youth and adult individual with diverse learning needs, abilities and capabilities. It provides vital educational opportunities to those who have not had access to or have dropped out in formal education. Nonetheless, those with disabilities in ALS encounter additional barriers to acquiring literacy skills, which makes it impossible for them to qualify for the A&E assessment on Elementary and Junior High School level. This stagnates their academic and certification advancement opportunities. To address these challenges, this action research used descriptive-quantitative analysis to gather insights from 30 ALS teachers on innovative strategies to support learners with disabilities. These strategies include the integration of Artificial Intelligence (AI) through assistive technologies, adaptive learning platforms, and differentiated instruction. Findings revealed that assistive technologies received the highest mean rating of 3.95, with teachers strongly agreeing on their value. Adaptive learning platforms and differentiated instruction also received high ratings, with mean rating of 3.89 and 3.87 respectively. Overall, ALS teachers strongly agree and support the use of AI- driven strategies to enhance learning for learners with disabilities. The results highlight the importance of investing in technology-based solutions and teacher training to effectively implement these approaches. This study offers practical recommendations for educators, policymakers, and curriculum developers, emphasizing the transformative role of AI in Alternative Learning System education.

Keywords: Alternative Learning System, Literacy, Adult Education, non-formal Education, Out- of-school children, youth and adult

INTRODUCTION

In the Philippines, the Republic Act 7277, or the Magna Carta for Disabled Persons, and the Education Act of 1982, or Batas Pambansa Bilang 232, are prominent laws that protect the inclusion of Filipinos with disabilities in various societal activities, such in education and employment (Republic Act 7277, 1992; Batas Pambansa BLG. 232, 1982). In a recent development of laws for Special Education (SPED) and inclusive education in the country, a law mandating that all public and private schools in the country grant admission to learners with disabilities and guarantee their equal access to quality education was institutionalized through the Republic Act 11650 otherwise known as Instituting a Policy of Inclusion and Services for Learners with Disabilities in Support of Inclusive Education Act (Republic Act No. 11650, 2022).

In the context of Alternative Learning System (ALS), ALS is a government-initiated alternative education program in the Department of Education, to provide learning opportunities for individuals who cannot access or complete formal basic education. It is primarily designed for out-of-school children, youth, and adults, marginalized groups such as Indigenous People (IP), Person Deprived of Liberty (PDLs), and Person with Disabilities (PWDs)-who seeks to complete basic education. The ALS education offers a flexible learning environment tailored to the unique needs of its learners. Through ALS, learners can acquire basic functional literacy, life skills, and eventually pursue higher education or livelihood opportunities.

However, despite its accessibility and flexibility, ALS learners face several challenges, particularly in acquiring literacy skills, which are crucial for both personal growth and economic mobility, specifically to Person with Disabilities (PWDs). ALS learners with disabilities often come from different backgrounds marked by socioeconomic disadvantages, early school dropout, and limited access to educational resources. This context results in literacy challenges that encompass not only in basic reading and writing skills but also broader issues such as reading comprehension, language barriers, critical thinking and problem-solving skills. In addition, many PWDs learners struggle with foundational literacy due to inconsistent schooling, poverty, family responsibilities and lack of assistive technologies. With these challenges it makes them impossible to qualify for the Accreditation and Equivalency (A&E) test assessment opportunities.

Furthermore, literacy acquisition and promotion among ALS learners with disabilities in Alternative Learning Systems (ALS) is a critical and multifaceted endeavor that demands innovative approaches and innovation in ALS basic education program. Literacy, as a foundational skill, extends beyond reading and writing to encompass the ability to communicate and engage meaningfully in society (UNESCO, 2017).

This study highlights the importance of personalized and multimodal strategies in enhancing literacy outcomes specifically for learners with disabilities. Some studies emphasize the role of assistive technologies, differentiated instruction, and learner-centered pedagogies in creating equitable learning experiences (Hehir et al., 2016). Digital tools such as text-to-speech software and adaptive learning platforms have been shown to enhance comprehension and engagement (McKnight & Morgan, 2021). Inclusive teaching practices, such as Universal Design for Learning (UDL), ensure that instructional methods accommodate a range of abilities, making learning accessible to all (Meyer, Rose, & Gordon, 2014). These approaches are especially pertinent in ALS contexts, where resource constraints often necessitate innovative solutions for learners with disabilities. In addition, according to World Bank (2029), limited teacher training, inadequate resources, and the stigma associated with disabilities pose significant challenges. Addressing these barriers requires an integrative approach that combines private stakeholder collaboration, national and local government policy support, and community engagement.

This action research explore innovative strategies that can enhance literacy among ALS learners with disabilities drawing on descriptive-quantitative method research approach. By identifying effective strategies through artificial intelligence (AI), practices and advocating for their adoption, this research seeks to contribute to the broader discourse on non-formal education and lifelong learning specifically for Alternative Learning System (ALS).

LITERATURE REVIEW

Understanding Literacy in the Context of Disabilities

Literacy is a fundamental human right and a vital tool for personal empowerment and societal participation. For learners with disabilities, literacy acquisition often represents a pathway to greater independence and participation in society. However, access to literacy, including sensory, cognitive, and physical barriers (World Bank, 2019). The concept of literacy for learners with disabilities extends beyond basic reading and writing to include functional, digital, and multimodal literacies, reflecting the diverse ways these learners engage with the world (UNESCO, 2017). Literature emphasizes the need for inclusive and adaptive educational practices that accommodate these varied literacy needs, highlighting a gap in traditional systems that often marginalize learners with disabilities.

The Importance of Literacy for Learners with Disabilities

Despite the challenges, literacy remains essential for communication, access to information, and full societal participation. Learners with disabilities face compounded difficulties due to physical, cognitive, and socio-emotional barriers, along with systematic issues such as inadequate resources, untrained educators, and societal stigma (World Bank, 2019). Nevertheless, growing recognition of this necessity has driven a surge of research and innovation aimed at identifying effective strategies to support literacy development in this population (UNESCO, 2017).

Literacy Challenges for Learners with Disabilities

Learners with disabilities often encounter significant obstacles to literacy acquisition. These include physical and cognitive impairments as well as external factors like social stigma and insufficient educational resources (World Bank, 2019). For example, students with visual impairments may struggle with standard texts, while those with developmental disabilities may find conventional teaching methods inaccessible. Although the Alternative Learning System (ALS) offers non-formal pathways for literacy, its impact is limited by the lack of specialized interventions tailored to diverse learner needs (DepEd, 2020).

Innovative Strategies in Literacy Education

Recent studies underscore the potential of emerging innovative strategies offering a promising way to support literacy development among learners with disabilities. Assistive technologies, such as text-to-speech software, braille devices, and artificial intelligence (AI) tools, have been pivotal in bridging the accessibility gap (McKnight & Morgan, 2021). For example, digital storytelling platforms have shown promise in improving comprehension and engagement among learners with developmental disabilities. Similarly, the application of Universal Design for Learning (UDL) principles has been widely recognized for its adaptability to various learning needs. UDL emphasizes multiple means of representation, engagement, and expression, making literacy instruction more inclusive (Meyer, Rose, & Gordon, 2014). Other strategies, such as peer-assisted learning and multimodal teaching, have also proven effective in fostering a supportive and engaging learning environment (Hehir et al., 2016).

The Role of Policy and Teacher education and training

Despite advancements in innovative strategies, their implementation in Alternative Learning System (ALS) settings remains inconsistent. A significant barrier is the limited capacity of educators to integrate these strategies into their teaching practices. Research indicates that ongoing professional development and training in inclusive pedagogy are crucial for equipping teachers with the skills to address the needs of learners with disabilities (UNESCO, 2017). Policy frameworks also play a critical role in supporting these initiatives. For example, the Alternative Learning System Act (Republic Act No. 11510) in the Philippines emphasizes inclusivity but requires robust mechanisms to ensure that its provisions translate into practice (DepEd, 2020). Community partnerships and stakeholder engagement further enhance the effectiveness of literacy programs, as they provide additional resources and support networks for learners (World Bank, 2019).

In conclusion, the body of literature highlights the potential of innovative strategies to transform literacy education for learners with disabilities in Alternative Learning System (ALS) non-formal education settings. While technological advancements through artificial intelligence (AI) in education and inclusive teaching methods and strategies offer promising avenues, systemic challenges such as inadequate teacher training and resource allocation and limitations persist. Addressing these issues through targeted policy interventions and collaborative efforts is essential to ensuring that all ALS learners, regardless of their abilities, have the opportunity to achieve literacy and reach their full potential.

METHODOLOGY

Research design, locale, subjects, sample size, and sampling technique

This action research employed a descriptive-quantitative approach, a descriptive-survey design focusing on selected ALS learners and teachers in the Division of Cavite Province. The research instrument consisted of two parts: one tailored for ALS learners and part two for ALS teachers. The study population included all ALS learners with disabilities enrolled during school year 2024-2025. Using Social Science Statistics Calculator, a minimum sample size of 28 was determined based on the following parameters: a precision level of $\pm 5\%$, a confidence level of 95%, and an estimated proportion of 0.5 (Stangroom, J., 2025). To account for potential unusable or unreturned forms, the sample size was increased to 30.

Respondents and Data Collection

The respondents for this study were ALS learners with disabilities from selected municipalities in the Division of Cavite Province during the school year 2024-2025. Learners from previous school years were excluded from the study. The researchers also considered the availability and willingness of ALS learners and teachers to participate in the study. The distributed survey forms show in table 1, a total of 35 forms were retrieved. However, 5 forms proved not usable. Hence, only 30 survey forms were used in the analysis. Data gathering lasted for one month. The assistance of ALS teachers assigned in the Community Learning Center (CLCs) with disabilities learners was sought in the distribution of the questionnaires. In addition, the learners post Functional Literacy Test (FLT) result was utilized in the study as a primary tool in data gathering to assess the learners' literacy acquisition.

Table 1. Distributed Survey Form

Municipality	Total Number of CLC	Selected CLC	No. of Forms Distributed	No. Retrieved Usable Forms	of Return Rate
CITY OF CARMONA	9	CES, CNHS, Bancal, Cabilang baybay, Milagrosa CLC	10	5	50%
CITY OF TRECE MARTIRES	22	Conchu, Gregorio, Trece Martires Elem, Hugo, Osorio, De Ocampo, Cabezas CLC	10	5	50%
TAGAYTAY CITY	36	Tagaytay City Science, South Buho, Central, San Jose, Sungay, Dapdap CLC	10	9	90%
SILANG	30	Paraclete, Litlit, San Miguel, Bulihan, Silang Elem, Biga, Banaba	10	6	60%
NAIC	24	Naic Elem, Timalan, San Roque, Labac, Mabolo, Palangue, Malainen Luma CLC	10	6	50%
		TOTAL	50	30	60%

RESULTS AND FINDING

Table 2 shows the demographic profile of the respondents that provides valuable insights into the composition of the population involved in the study. The table reveals that majority of the respondents are male, with 90% (27 out of 30), while only 10% are female. This gender disparity suggests a significant male with disabilities dominance in Alternative Learning System (ALS) basic education participation, which could be attributed to cultural, social, or logistical factors influencing the accessibility or enrollment of learners with disabilities in ALS program for out-of-school children, youth and adult. Further exploration into these gender-based differences could enhance the inclusivity of the program. In addition, in terms of teachers' respondents, the result show that 76.67 percent are female, and 23.33 percent are male.

In terms of age distribution, the largest proportion of respondents (63.33%) fall within the 17-20 age group, followed by 23.33% aged 21-30. This indicates that most learners are in their late teens to early twenties, which aligns with the target age range of many Alternative Learning System (ALS) programs aiming to provide opportunities for out-of-school youth and adults. However, a smaller percentage of learners (10%) belong to the 13-16 age group, and only 3.33% are above 30 years of age. This distribution highlights the potential for ALS programs to expand their reach to younger learners with disabilities who have dropped out early, as well as older adults who may seek literacy and continuing education opportunities.

Regarding the educational level, the overwhelming majority (63.33%) of respondents are enrolled in the A&E Junior High School program, with only 36.67% at the A&E Elementary level. This trend suggests that most learners entering the program have surpassed the elementary stage and are focused on secondary-level education, which is critical for workforce readiness and higher educational opportunities.

The distribution of disabilities among the respondents reflects a diverse set of needs. Thirty (30%) of the participants have writing-related disabilities, which significantly impacts their literacy development and highlights the importance of tailored strategies in these areas. Additionally, 26.67% have reading disabilities, while 20% have speech disabilities, 16% hearing impairments, and 2% seeing related disabilities. These figures underscore the necessity of assistive tools and differentiated instruction to address specific challenges, particularly in areas like speech, reading, and writing.

Overall, these findings emphasize the importance of assistive technologies like artificial intelligence (AI), gender-responsive, age-inclusive, and disability-sensitive approaches to enhance ALS learner's literacy. Targeted interventions should address the prevalent speech and writing challenges while ensuring equitable access for all demographic groups to foster a more inclusive learning environment.

Table 2: Demographic Profile of the Respondent

Variable	Frequency (N=30)	Percentage (%)
Sex		
Male	27	90
Female	3	10
Age		
13-16	3	10
17-20	19	63.33
21-30	7	23.33
31 above	1	3.33
Level		
A & E Elementary	11	36.67
A & E Junior High School	19	63.33
Disabilities		
Hearing	5	16.67
Speech	6	20
Writing	9	30
Seeing	2	6.67
Reading	8	26.67
ALS teacher		
Male	7	23.33
Female	23	76.67

The data presented on table 3 provides valuable insights into the adoption of innovative strategies for enhancing literacy among Alternative Learning System (ALS) learners with disabilities based on select ALS teacher's evaluation and insights across eighteen (18) municipalities in the Division of Cavite Province. The evaluation is categorized into three main areas: Assistive Technologies (AI), Adaptive Learning Platforms, and Differentiated Instruction.

In terms of Assistive technologies received the highest overall mean rating of 3.95, with respondents strongly agreeing on the importance of assistive technologies for learners with disabilities among the specific strategies, "Sign language to text AI" achieved the highest mean score of 4.00, indicating its exceptional utility in bridging communication gaps for learners with hearing impairments. Similarly, "Text to sign language AI" and "Speech to text AI" were also highly rated (means of 3.97 and 3.93, respectively), demonstrating their potential to address barriers related to speech and hearing disabilities. These findings underscore the critical role of AI-driven assistive tools in facilitating access to learning content and improving engagement for ALS learners with diverse needs.

Table 3: Innovative Strategies for ALS Learners with Disabilities

Indicators (N=30)	Mean	Verbal Interpretation
Assistive Technologies		
<i>Text to speech</i>	3.90	<i>Strongly agree</i>
<i>Speech to text</i>	3.93	<i>Strongly agree</i>
<i>Text to sign language</i>	3.97	<i>Strongly agree</i>
<i>Sign language to text</i>	4.00	<i>Strongly agree</i>
Overall total	3.95	Strongly agree
Adoptive Learning platform		
<i>Adoptive sequence platform</i>	3.77	<i>Strongly agree</i>
<i>Adoptive content platform</i>	3.83	<i>Strongly agree</i>
<i>Adoptive assessment platform</i>	3.97	<i>Strongly agree</i>
<i>Adoptive activity platform</i>	4.00	<i>Strongly agree</i>

Overall total	3.89	Strongly agree
Differentiated Instruction		
<i>Individualized Learning</i>	4.00	<i>Strongly agree</i>
<i>Scaffolded Learning</i>	3.70	<i>Strongly agree</i>
<i>Gamified Learning</i>	3.97	<i>Strongly agree</i>
<i>Interest-Based Learning</i>	3.80	<i>Strongly agree</i>
Overall total	3.87	Strongly agree

Legend: 1.00 -1.75 strongly disagree, 1.76-2.50 slightly agree, 2.51-3.25 agree, 3.26-4.00 strongly agree

Furthermore, adaptive learning platforms were rated slightly lower, with an overall mean of 3.89, but still fell within the "strongly agree" category. The "Adaptive activity platform" emerged as the most effective, with a mean of 4.00, reflecting its ability to tailor learning activities to individual needs and preferences. "Adaptive assessment platform" followed closely with a mean of 3.97, highlighting its importance in providing personalized feedback and tracking progress. However, the "Adaptive content platform" received a slightly lower rating (mean of 3.83). These findings suggest that while adaptive learning platforms are generally well-received, greater attention to content personalization could enhance the literacy acquisition of ALS learners with disabilities.

Moreover, differentiated instruction strategies were also highly regarded, with an overall mean of 3.87. Among the components, "Individualized learning" received the highest rating (mean of 4.00), reflecting its strong impact on addressing the unique needs of each learner. "Gamified learning" also performed well (mean of 3.97), highlighting the value of interactive and motivational approaches in literacy education. However, "Scaffolded learning" and "Interest-based learning" received slightly lower ratings (means of 3.70 and 3.80 respectively).

Overall, the results demonstrate that ALS teachers strongly value innovative strategies, particularly those that leverage technology and personalization to overcome traditional barriers to learning specifically for ALS learners with disabilities. The high ratings for assistive technologies and adaptive platforms underscore the importance of integrating these tools into ALS literacy programs for out-of-school youth and adult with disabilities. Meanwhile, differentiated instruction remains a vital strategy for fostering inclusive and engaging learning environments. These findings suggest a need for sustained investment in technology-driven solutions and teacher training to effectively implement these strategies.

DISCUSSIONS, RECOMMENDATIONS AND CONCLUSIONS

The purpose of this study was to do a preliminary examination of how Alternative Learning System (ALS) non-formal education learners with disabilities enhance their literacy through innovative strategies based on artificial intelligence (AI).

This study involving 30 out-of-school children, youth and adult learners with disabilities enrolled in ALS basic education program aged 13 years old and above in Elementary level and 16 years old above enrolled in Junior High School level was conducted and 30 ALS teachers. There were several limitations of this study. First, these findings are preliminary since this is the first research study carried out to examine the literacy development of ALS learners with disabilities in an ALS non-formal basic education program setting. Additional research with a larger sample size in other regions or divisions would be useful to get more insight into the needs of various ALS learners with disabilities continuum. Secondly, the study focused solely on the literacy enhancement of ALS learners with disabilities through artificial intelligence (AI) tools and platforms. Thirdly, some of ALS teachers did not suit the readiness of handling ALS learners with disabilities.

Conclusions

The study assesses the potential adoption of ALS non-formal education for learners with disabilities in learning sessions like screen readers, speech-to-text software, and customizable digital content on reading and writing skills. Furthermore, it investigates the role of non-formal education ALS teaching practices and curriculum modifications that accommodate diverse learning needs, fostering an environment where ALS learners with disabilities can thrive.

In conclusion, the findings suggest that incorporating artificial intelligence (AI) – as innovative strategies for learners with special needs can significantly enhance literacy outcomes by enabling a more accessible and supportive learning environment. The result emphasizes the importance of comprehensive teacher training, resource allocation, and policy support to fully implement these strategies within Alternative Learning System (ALS) in-formal education, the second chance education but not a second class. Finally, the findings underscore the importance of integrating technology, inclusivity, and pedagogy to create equitable and effective learning environments.

Recommendations

Based on the findings, the following recommendations are proposed:

Invest in Advanced Assistive Technologies (AI)

Prioritize funding and development for AI-powered tools, such as predictive text applications, voice recognition systems, and real-time translators, to enhance accessibility and personalized support for learners with disabilities.

Promote the Integration of Adaptive Learning Platforms

Encourage widespread adoption of adaptive platforms by training educators on their effective use and ensuring they are integrated into mainstream educational systems to benefit a larger population of learners with ALS disabilities. Expand Teachers Training on Differentiated Instruction, adaptive platform and assistive technologies

Provide professional development programs for educators focusing on implementing differentiated instruction strategies, adoptive platform and assistive technologies to cater to diverse learning needs effectively.

Enhance Collaboration between Stakeholders and Policy maker

Foster partnerships between technology developers, educators, and disability advocates to design, enhance policy for LWDs and refine tools and platforms that align closely with the unique needs of ALS learners.

Ultimately, this action research provides practical recommendations for technology developers' experts and advocate, educators, policymakers, and curriculum developers, underscoring the transformative potential of inclusive and accessible literacy programs. By addressing the specific needs of ALS learners with disabilities, this research contributes to a more equitable and empowering education system that ensures literacy development for all.

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