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Special Education Teachers Experiences Using Low-Technology Assistive Tools in Teaching Reading for Learners with Difficulty in Reading

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Abstract*—This study examined the lived experiences of special education teachers in Gingoog City in utilizing low-technology assistive tools for teaching reading to learners with reading difficulties. Guided by Kolb's Experiential Learning Theory, the research employed a qualitative phenomenological design involving ten (10) public elementary school special education teachers from five schools in the division. Data were gathered through semi-structured interviews and focus group discussions and were subjected to thematic analysis. The findings revealed that low-technology assistive tools, such as reading cards, portfolios, and reading kits, promoted learner engagement, personalization of instruction, and accessibility in resource-limited classrooms. Teachers highlighted that these tools strengthened teacher–learner interaction, supported individualized and mastery-based learning, and encouraged active participation. However, the study also identified challenges, including limited durability of materials, repetitive use that sometimes-reduced learner motivation, and additional workload for teachers in preparing customized resources. Despite these constraints, teachers demonstrated creativity and adaptability in maximizing the potential of low-technology assistive tools to address diverse learner needs. The study concludes that low-technology assistive tools remain indispensable in enhancing literacy instruction, particularly in contexts where high-technology solutions are not sustainable. It recommends sustained teacher training, administrative support, and resource allocation to strengthen inclusive education practices.*

***Keywords*—** *Assistive technology, low-technology tools, special education, reading difficulties, teacher experiences.*

I. Introduction

Assistive technology has become a central component in advancing equitable and inclusive education, particularly for learners with disabilities who require differentiated instructional support. The World Health Organization emphasizes that assistive tools promote educational access, independence, and meaningful participation in learning environments [1]. The use of assistive technologies ranges from high-tech digital platforms to low-tech, non-electronic teaching tools. While high-tech tools such as speech-to-text and screen readers offer advanced literacy support [2], their implementation in many low-resource educational contexts remains challenging due to unstable internet connectivity, budget limitations, and insufficient teacher training [3].

In the Philippines, the Department of Education advocates for integrating assistive technologies as part of inclusive education frameworks under Republic Act 10533. However, several public schools continue to rely on low-technology assistive tools because they are accessible, sustainable, and easily adaptable to learner needs [4]. Tools such as reading cards, portfolios, visual aids, and reading kits remain the most used supports for struggling readers, particularly in special education (SPED) classrooms where individualized instruction is essential.

Low-technology assistive tools have been widely recognized as effective components of literacy instruction. They promote multisensory learning, scaffold reading skills, and provide concrete experiences that enhance phonemic awareness, fluency, and comprehension [5], [6]. These tools also align with Kolb's Experiential Learning Theory (1984), which positions learning as a cyclical process involving concrete experiences, reflective observation, abstract conceptualization, and active experimentation. Through direct interaction with assistive tools, teachers continuously adapt strategies to meet diverse learner needs [7].

Despite strong national advocacy for assistive technologies, there remains limited documented research on how SPED teachers in Gingoog City Division navigate the instructional realities of using low-technology assistive tools in reading instruction. This knowledge gap underscores the need to explore teachers lived experiences, pedagogical strategies, and the reading improvements they observe among learners with reading difficulties.

This study therefore aims to explore the experiences of SPED teachers in Gingoog City in utilizing low-technology assistive tools for teaching reading. It seeks to document their instructional practices, challenges, and insights to contribute to the growing literature on inclusive education and inform policy development, teacher training, and classroom practice in similarly resource-constrained contexts.

II. Method

2.1 Research Design

A qualitative phenomenological research design was employed to explore the lived experiences of SPED teachers in using low-technology assistive tools for teaching reading. Phenomenology allows researchers to examine the meanings individuals assign to their experiences, focusing on the essence of their lived experiences rather than researcher interpretation. This design is appropriate for capturing teachers' authentic narratives regarding their instructional

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practices, strategies, and challenges. The design of this study is illustrated as shown:

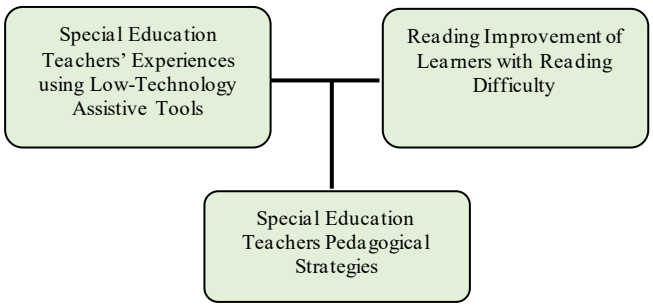

Figure 1

The study was conducted in the Division of Gingoog City, Philippines. Ten (10) SPED teachers from five public elementary schools participated: Don Restituto Baol Central School (3), Don Manuel Lugod Central School (4), Lunao Central School (1), Odiongan Central School (1), and Sta. Rita Elementary School (1). All participants had 5–10 years of teaching experience handling learners with reading difficulties.

2.2 Research Instrument

In the study, semi-structured interview and focus group discussion conducted in gathering the necessary data essential to this research. This includes open-ended questions beneath each of the study topics. They address every aspect of each study topic, both direct and open-ended. The interview guide questions were validated by the master teacher as the language expert and by the research expert from Gingoog City Division.

The intention of this study is to explore the experiences of special education teachers using low technology assistive tools in teaching reading, their pedagogical strategies, and the reading improvement of learners with reading difficulties. The transcribed data was examined with the researcher's field notes and organized into categories. Then, one or more themes was articulated based on the contents of each category.

2.3 Data Collection

Approval to conduct the study was secured from the Schools Division Superintendent and participating schools. Informed consent was obtained from all respondents. Interviews and FGDs were conducted at schedules convenient to the participants. The session was transcribed in verbatim and supplemented by researcher field notes.

A phenomenological data analysis approach was employed. Transcripts were coded using open, axial, and selective coding. Significant statements were grouped into meaning units and synthesized into themes that described the shared experiences of SPED teachers. Trustworthiness was ensured through triangulation of data sources, member checking, an audit trail, and reflexive journaling to minimize researcher bias.

III. Results and Discussion

Table 1 indicates that the themes *Fostering Engagement and Enjoyment in Reading* and *Personalization in Learning Connection* emerged most frequently (f = 3; 30%), demonstrating that teachers predominantly emphasized learner engagement, motivation, and individualized instructional experiences as their most memorable outcomes when using low-technology assistive tools. These findings underscore the capacity of simple instructional materials, such as flashcards, picture cards, and customized printed resources, to transform reading sessions into interactive and enjoyable learning experiences, thereby sustaining learner interest and strengthening confidence during reading instruction.

TABLE 1. Memorable Moments in Using Low-Tech Tools

Themes	Responses	Frequency	Percent	Rank
Foster Engagement and Enjoyment in Reading	*"The memorable moment in using low-tech tools was when my student used a flashcard during the reading activity. Their excitement in matching words showed me that simple tools can make learning engaging."*	3	30	1
Accessibility and Practicality	*"The positive memorable moment involving the use of low-tech tools you can access daily with low cost, accessible and always ready to use. Learners love to hold and explore on the pictures they see on the reading materials."*	2	20	2
Personalization in Learning Connection	*"When my learner felt excited when I gave her printed materials that was intended only for her. I let her write her name on the reading materials and I gave her task to read 1 page at home and let her parents sign at the bottom for me to know that she really read at home."*	3	30	1
Limitations in Appeal and Durability	*"Low tech tools do not suit to the pupils taste most of them."*	2	20	2

Consistent with existing literature, teachers reported that tactile and multimodal low-technology assistive tools enhanced learners' enthusiasm and active participation, particularly among those with reading difficulties. Prior studies have similarly established that multisensory and contextualized low-technology assistive tools increase learner engagement, promote deeper comprehension, and support the transition from frustration to instructional reading levels [8]. Furthermore, culturally relevant, and familiar materials were found to heighten learner involvement, even in resource-constrained contexts, reinforcing the importance of relevance and contextualization in literacy instruction [9].

The theme *Personalization in Learning Connection* highlights the role of individualized instructional adaptations, such as modified font size, color variation, inclusion of visuals, and name-labeled materials, in fostering learner autonomy, ownership, and self-confidence. Teachers' reflections suggest that such differentiation enables instruction to better align with diverse learning styles, a finding supported by local studies demonstrating strong associations between

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personalized instruction, learner engagement, and academic achievement [10]. In the Philippine special education context, where classroom resources are often limited and learner needs are highly heterogeneous, adaptive low-technology assistive tools play a critical role in bridging instructional gaps, enhancing accessibility, and cultivating inclusive learning environments [11].

The themes *Accessibility and Practicality* (f = 2; 20%) and *Limitations in Appeal and Durability* (f = 2; 20%) further reflect the dual nature of low-technology assistive tool use. On one hand, teachers valued these materials for their affordability, ease of reproduction, and consistent availability, making them reliable instructional resources in resource-limited classrooms. This finding aligns with research emphasizing that contextualized, low-cost instructional materials can sustain literacy interventions where technological infrastructure is insufficient [12]. On the other hand, teachers identified challenges related to material durability and declining learner interest, particularly when tools were used repetitively or deteriorated quickly. Such limitations increased teacher workload due to the need for frequent replacement or modification of materials and, in some cases, led to learner disengagement [13].

TABLE 2. Effects of Low-Tech Assistive Tools on Teaching Practice and Interaction with Learners

Themes	Responses	Frequency	Percent	Rank
Strengthen Teacher-Learner Interaction and Active Participation	*"Through these tools, I can build rapport or connection with my learners."*	6	60	1
Promote Individualized and Mastery-Based Learning	*"It helps a little and I have to make printed materials that are pleasing to the eyes of my learners, so I associate pictures to the words especially when I teach CVC family words."*	3	30	2
Less appealing	*"Low-tech assistive tools have positive and negative effect in my teaching practice with my learners. Some learners are effective for them and others find it boring to have a device like low-tech assistive tools."*	1	10	3

Table 2 shows that the theme *Strengthening Teacher–Learner Interaction and Active Participation* obtained the highest frequency (f = 6; 60%), ranking first among the identified effects of low-technology assistive tools on teaching practice. This finding indicates that teachers most frequently perceived these tools as effective in fostering meaningful interaction, strengthening rapport, and encouraging active learner participation during reading instruction. The use of tangible and interactive materials enabled learners to engage more openly, share progress, and participate confidently in classroom discussions. These results are consistent with previous studies demonstrating that hands-on and accessible low-technology assistive tools promote participatory learning and enhance classroom interaction, particularly in contexts with limited access to digital resources [14].

The theme *Promoting Individualized and Mastery-Based Learning* followed with a frequency of (f = 3; 30%), ranking second. Teachers emphasized that low-technology assistive tools supported differentiated instruction by allowing learners to progress at their own pace, particularly in phonics and word recognition activities. Scaffolded and repeated practice helped reduce learner frustration, foster independence, and support the gradual mastery of foundational reading skills. These findings align with prior research highlighting the effectiveness of learner-centered and scaffolded approaches in improving reading performance, especially among struggling readers in inclusive and resource-constrained settings [12].

The theme *Less Appealing* obtained the lowest frequency (f = 1; 10%), reflecting mixed perceptions regarding the sustained effectiveness of low-technology assistive tools. While generally beneficial, some teachers reported that learner engagement declined when activities became repetitive or lacked variation. This observation underscores the importance of creativity, material rotation, and contextual adaptation to sustain learner motivation. Similar concerns have been noted in the literature, which emphasizes that low-technology assistive tools must be continuously refined and integrated into supportive classroom environments to remain engaging and effective [15].

TABLE 3. Pedagogical Strategies Using Low-Tech Assistive Tools in Reading Instruction

Themes	Responses	Frequency	Percent	Rank
Integration of Accessible Instructional Materials	*"Hands-on activities, this strategy can let my learners explore the reading materials I gave especially if there are pictures."*	3	30	1
Emphasis on Phonics and Phonemic Awareness	*"I prefer phonemic awareness and phonics because it teaches sound-letter relationships and blending techniques."*	3	30	1
Individualized and Peer Instruction	*"The pedagogical strategies I used are one-on-one instruction and peer instruction, because in one-on-one instruction I can give focused on the reading skills of the learners, I can easily monitor their performance, while in peer instruction I gave the learners a chance to learn with peers with my supervision."*	2	20	2
Repetition and Play-Based Learning	*"Ang akong pedagogical strategies na ginagamit kay game-based learning activity nga dili na require ug electronic devices. Gigamit ni nako kay mas dali sila kakat-on kung magdula sila."*	2	20	2

Table 3 shows that the themes *Integration of Accessible Instructional Materials* and *Emphasis on Phonics and Phonemic Awareness* both obtained the highest frequency (f = 3; 30%), ranking first among the pedagogical strategies

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employed by teachers when using low-technology assistive tools in reading instruction. This indicates that teachers most frequently relied on hands-on, visually accessible materials, such as flashcards, big books, manipulatives, and word games, alongside explicit phonics-based approaches to support learners' reading development. These findings suggest that tangible instructional resources combined with systematic phonics instruction are essential in strengthening letter–sound relationships, decoding skills, and learner engagement, particularly among learners with reading difficulties [16].

The theme Individual and Peer Instruction ranked second (f = 2; 20%), reflecting teachers' use of both one-on-one and collaborative learning strategies to reinforce reading skills. Teachers reported that individualized instruction allowed them to address specific learner difficulties through focused scaffolding, while peer-assisted learning promoted collaboration, motivation, and social engagement. These findings align with studies indicating that individualized instruction supports mastery and confidence, whereas peer-supported approaches enhance engagement, reading performance, and learners' sense of belonging in inclusive classrooms [17].

Similarly, the theme *Repetition and Play-Based Learning* (f = 2; 20%) highlights the importance of repeated practice delivered through varied and enjoyable activities. Teachers emphasized that repetition, when integrated with games, hands-on tasks, and multisensory strategies, reinforced skill retention while preventing learner boredom. Prior research supports the effectiveness of structured repetition and play-based learning in improving fluency, phonemic awareness, and motivation, particularly among learners with reading difficulties in resource-limited contexts [18].

Overall, these findings imply that effective use of low-technology assistive tools is anchored in the strategic integration of accessible materials, explicit phonics instruction, and learner-centered pedagogical approaches. Combining structured phonics routines with individualized support, peer interaction, and playful repetition enhances learners' confidence, engagement, and mastery of foundational reading skills. Consistent with related literature, these strategies are particularly beneficial in resource-constrained classrooms, where low-technology assistive tools serve as practical and effective alternatives to digital resources [19]. Collectively, the results underscore the importance of thoughtful instructional design and pedagogical flexibility in maximizing the impact of low-technology assistive tools in reading instruction

Table 4 shows that the themes Improvement in *Basic Literacy Skills* and *Boost Confidence and Motivation* both obtained the highest frequency (f = 4; 40%), ranking first among the reported improvements in learners' reading skills through low-technology strategies. Teachers most frequently observed gains in foundational literacy competencies, particularly phonemic awareness, blending skills, and word recognition. Learners demonstrated progress in decoding CVC patterns, recognizing sight words, and advancing toward reading simple sentences. These findings affirm that systematic low-technology strategies, such as explicit phonics instruction and the Marungko Approach, are effective in strengthening early reading development, especially among learners with reading difficulties [20].

TABLE 4. Improvements in Learners' Reading Skills through Low-Tech Strategies

Themes	Responses	Frequency	Percent	Rank
Improvement in Basic Literacy Skills	*"Yes, since the learners can identify, produce phonetic sounds, they can now do blending that results to reading CVC pattern. Some can read sight words and later simple sentence."*	4	40	1
Boost Confidence and Motivation	*"Yes, it shows improvement because learners volunteers to choose the reading materials that they want to read and ask assistance if they cannot read and understand the words."*	4	40	2
Influence of Teaching Strategies and Resource Availability.	*"There is positive improvement of learners in reading skills because the sustainability of the program and the reading materials is available. The teacher can locate the improvements in using instructional materials in reading achieved."*	2	20	3

Equally prominent was the theme *Boost Confidence and Motivation* (f = 4; 40%), highlighting the affective benefits of low-technology strategies. Teachers reported that as learners experienced success in reading tasks, they became more confident, motivated, and willing to participate actively in reading activities. Learners increasingly volunteered to read, selected materials independently, and sought assistance when needed, reflecting growing self-efficacy and intrinsic motivation. These observations are consistent with research indicating that incremental reading successes foster confidence, persistence, and sustained engagement, which are critical for long-term literacy development [21].

The theme *Influence of Teaching Strategies and Resource Availability* obtained the lowest frequency (f = 2; 20%), underscoring teachers' recognition that learner progress is also shaped by the consistency of instructional practices and the availability of appropriate resources. Teachers emphasized that sustained access to reading materials and the regular application of effective teaching strategies enabled them to monitor progress and adjust instruction responsively. This finding aligns with studies highlighting that contextualized and consistently implemented instructional resources are essential for maintaining skill retention and ensuring equitable literacy outcomes in resource-constrained settings [22]

Overall, the findings suggest that low-technology strategies contribute significantly to both cognitive and affective improvements in learners' reading development. By strengthening basic literacy skills while simultaneously enhancing confidence and motivation, these strategies create supportive learning environments conducive to reading success. However, the results also emphasize that the long-

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term effectiveness of low-technology approaches depends on sustained resource availability, pedagogical consistency, and teachers' capacity to adapt instruction creatively. Consistent with related literature, strategic planning and instructional flexibility are essential to maximizing the impact of low-technology strategies for learners with reading difficulties in resource-limited contexts [23].

TABLE 5. Aspects of Strategies Contributing Most to Learner Improvement

Themes	Responses	Frequency	Percent	Rank
Repetition, Consistency, and Active Engagement	*"The strategy contributed for the improvement is the consistency and repetition and practice of the words that are appropriate to their reading level or skills."*	2	20	2
Value of Manipulatives and Contextualized Materials	*"Use of manipulatives like letter tiles, word cards they use every day."*	2	20	2
Importance of Phonics and Direct Instruction	*"The use of direct instruction because it is more focused on clear and structured instruction which the learner needs."*	3	30	1
Adaptability of Teaching Based on Learners' Needs	*"By observing the pupil's attitude or reaction towards the style of presenting the strategy, change for the better."*	2	20	2
Role of Parents' Cooperation	*"Collaboration with the parents."*	1	10	3

Table 5 indicates that the theme *Importance of Phonics and Direct Instruction* obtained the highest frequency (f = 3; 30%), ranking first among the aspects of strategies that contributed most to learner improvement. This finding highlight teacher's strong emphasis on explicit, structured, and teacher-guided phonics instruction as a key factor in improving learners' reading skills. Clear instruction on letter–sound relationships, decoding, and blending enabled learners to develop foundational literacy competencies more effectively, particularly those experiencing reading difficulties. Consistent with prior research, systematic phonics instruction has been shown to significantly enhance decoding accuracy, word recognition, and early reading proficiency, especially in special education and low-resource contexts [24].

The themes Repetition, Consistency, and Active Engagement, Value of Manipulatives and Contextualized Materials, and Adaptability of Teaching Based on Learners' Needs each obtained a frequency of (f = 2; 20%), ranking second. Teachers recognized that repeated practice and consistent routines strengthen skill retention and promote fluency, particularly when paired with active learner engagement. Research supports that deliberate repetition and guided practice foster automaticity and comprehension among struggling readers [25]. Moreover, the use of manipulatives and contextualized materials such as letter tiles, word cards, and locally relevant texts made learning more concrete and meaningful, enhancing motivation and comprehension [26].

Adaptability in instruction further enhanced learner improvement, as teachers adjusted pacing, strategies, and materials based on learners' responses and progress. Flexible and differentiated approaches allowed teachers to address individual needs, sustain motivation, and prevent cognitive overload, particularly in inclusive and resource-constrained classrooms [27]. This adaptability aligns with experiential teaching practices, where continuous observation and reflection inform instructional refinement and promote equitable learning opportunities.

The theme *Role of Parents' Cooperation* obtained the lowest frequency (f = 1; 10%), ranking third, suggesting that while parental involvement was acknowledged as beneficial, it was less frequently identified as a primary contributor to learner improvement compared to classroom-based strategies. Nevertheless, existing literature emphasizes that structured home–school collaboration reinforces reading practice and sustains learner progress, particularly for learners with reading difficulties [28]. Overall, the findings underscore that learner improvement in reading is most strongly driven by structured phonics instruction, reinforced through repetition, engagement, concrete materials, and responsive teaching, with parental support serving as a complementary factor in maximizing the effectiveness of low-technology assistive tools.

TABLE 6. Challenges in Using Low-Tech Assistive Tools

Themes	Responses	Frequency	Percent	Rank
Durability and Sustainability of Materials	*"The challenges that I encountered using low-tech assistive tools when the materials are broken and fade because of daily use."*	5	50	1
Difficulty in Sustaining Learners' Motivation and Participation	*"Some students find it boring and does not find it interesting and makes it difficult for them to make any analysis."*	2	20	2
Teacher Workload and Time Constraints	*"Low-technology assistive tools require more effort from the teacher to be an effective tool in reading. It is a plain technology for the child to manipulate."*	2	20	3
Limited Customization	*"Limited customization for individual needs since it is not "one size fits all" design. Limited engagement or motivation."*	1	10	4

Table 6 reveals that *Durability and Sustainability of Materials* emerged as the most frequently cited challenge (f = 5; 50%) in the use of low-technology assistive tools for reading instruction. Teachers consistently reported that printed and handcrafted materials such as flashcards, charts, and reading cards deteriorate quickly due to frequent classroom use, leading to fading, breakage, or loss. This issue necessitates repeated reproduction and repair, increasing teacher workload and disrupting instructional continuity. Consistent with these findings, studies in resource-constrained educational settings indicate that limited material durability

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undermines the long-term effectiveness of low-technology interventions and diverts teachers' time away from instruction [29]. Ensuring material sustainability is therefore critical for maintaining consistent reading practice, particularly in special education contexts where continuity is essential for learner progress.

The themes *Difficulty in Sustaining Learners' Motivation and Participation* and *Teacher Workload and Time Constraints both* obtained a frequency of (f = 2; 20%), ranking second and third, respectively. Teachers observed that repetitive use of low-technology assistive tools may lead to reduced learner engagement over time, especially when activities lack variation or contextual relevance. Research supports that while repetition aids skill acquisition, excessive monotony can negatively affect learner motivation unless complemented by interactive and meaningful tasks [30]. Additionally, teachers reported that the preparation, modification, and maintenance of low-technology materials significantly increase instructional workload, competing with other essential responsibilities such as lesson planning and individualized learner support. Similar studies highlight that special education teachers in low-resource settings often shoulder the dual burden of material development and instruction, which can lead to fatigue and reduced instructional efficiency without adequate institutional support [31].

The theme *Limited Customization* obtained the lowest frequency (f = 1; 10%), yet it underscores an important challenge in addressing diverse learner needs. Teachers expressed concerns that standardized low-technology assistive tools are not always adaptable to individual learning profiles, particularly for learners with varying levels of reading difficulty or additional learning needs. This finding aligns with literature emphasizing that one-size-fits-all instructional materials often fall short in inclusive classrooms, where differentiated and flexible approaches are necessary to ensure equitable learning opportunities [32]. Limited customization may therefore restrict learner engagement and instructional responsiveness, especially in special education settings.

Overall, the findings suggest that while low-technology assistive tools are practical, accessible, and effective for reading instruction, their implementation is constrained by challenges related to material durability, learner motivation, teacher workload, and adaptability. Consistent with existing research, these challenges point to the need for stronger institutional support, such as provision of more durable materials, shared resource systems, and professional development focused on creative and sustainable instructional practices [12]. Addressing these constraints is essential to maximizing the long-term effectiveness of low-technology assistive tools in supporting learners with reading difficulties, particularly in resource-limited educational contexts.

Table 7 shows that *Practical and Ease of Use* obtained the highest frequency (f = 4; 40%), ranking first among the identified insights and best practices in using low-technology assistive tools. Teachers emphasized that the accessibility, affordability, and simplicity of these tools enable their seamless integration into daily reading instruction, even in resource-limited settings. Teachers can implement reading activities consistently without extensive preparation because these materials are easy to prepare, replicate, and use. This finding aligns with research indicating that simple, tangible instructional resources such as printed texts, flashcards, and manipulatives remain highly effective in supporting early literacy, particularly for learners with reading difficulties [33]. The practicality of low-technology assistive tools thus supports instructional continuity and sustained learner practice.

TABLE 7. Insights and Best Practices in Using Low-Tech Assistive Tools

Themes	Responses	Frequency	Percent	Rank
Practical and Ease of Use	*"Low-tech tools are accessible and convenient; this can be effective reading strategies if teachers know how to maximize the use of these tools. Make these tools effective by integrating different activities even if these are just printed materials."*	4	40	1
Integration of Multi-Sensory and Adaptive Techniques	*"substituting phonemes shown in a series of cards with the equivalent activity sheets given is one of the best practices that helps my learners improve reading skills."*	3	30	2
Teachers' Key Contribution in Enhancing Effectiveness	*"Teacher is the key factor to improve the reading skills of the learners. Teachers plus assistive tools are the key. Teachers must make reading more fun even if you only use printed materials."*	2	20	3
Consistency and Flexibility in Tool Application	*"Low-tech tools is effective if we use it consistently and modify reading materials if needed. Provide pictures and read with the learners."*	1	10	4

The theme *Integration of Multi-Sensory and Adaptive Techniques* ranked second (f = 3; 30%), reflecting teachers' recognition of the value of engaging learners through visual, tactile, auditory, and kinesthetic modalities. Teachers reported that combining printed materials with manipulatives, pictures, movement, and guided reading activities enhanced learner engagement, comprehension, and retention. These findings are consistent with studies demonstrating that multisensory instruction strengthens decoding, comprehension, and motivation among struggling readers and learners with special needs [34]. Adaptive multisensory approaches allow low-technology assistive tools to function as dynamic instructional supports that accommodate diverse learning styles and reinforce meaning through hands-on experiences.

The theme *Teachers' Key Contribution in Enhancing Effectiveness* obtained a frequency of (f = 2; 20%), underscoring the central role of teachers' creativity, instructional decisions, and pedagogical expertise in maximizing the impact of low-technology assistive tools. Teachers emphasized that these tools are most effective when intentionally modified, contextualized, and embedded in

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engaging activities. Supporting this finding, previous studies highlight that teacher agency and instructional skill exert a stronger influence on reading outcomes than the tools themselves, particularly in inclusive and resource-constrained classrooms [35]. Through purposeful scaffolding, pacing, and contextualization, teachers transform simple materials into meaningful literacy supports that respond to learners' needs.

The theme *Consistency and Flexibility in Tool Application* obtained the lowest frequency (f = 1; 10%), yet it remains an important best practice in sustaining instructional effectiveness. Teachers acknowledged that consistent use of low-technology assistive tools reinforces foundational reading skills, while flexibility in modifying materials and activities ensures responsiveness to learners' progress and interests. Research supports that struggling readers benefit most from instructional routines that balance structure with adaptability, allowing repeated exposure while accommodating individual learning trajectories [36]. Overall, the findings suggest that best practices in using low-technology assistive tools center on practicality, multisensory engagement, and teacher-driven adaptability, highlighting the critical role of reflective and responsive teaching in maximizing reading outcomes for learners with reading difficulties.

IV. Conclusions and Recommendations

The implementation of low-technology assistive tools in reading instruction within special education classrooms in Gingoog City demonstrates the transformative potential of accessible and context-responsive pedagogy in addressing literacy challenges among learners with reading difficulties. Despite persistent limitations in infrastructure and instructional resources, special education teachers exhibited notable adaptability, creativity, and resilience in utilizing low-tech tools to enhance learner engagement, scaffold foundational literacy skills, and promote inclusive educational practices.

Anchored in Kolb's Experiential Learning Theory, the findings revealed that teachers' instructional practices evolve through continuous cycles of concrete experience, reflective observation, abstract conceptualization, and active experimentation. This dynamic process enables teachers to refine instructional strategies, respond effectively to individual learner needs, and sustain learner motivation. The consistent application of phonics-based instruction, multisensory engagement, and contextualized learning materials resulted in observable improvements in learners' decoding skills, reading fluency, and confidence, affirming the instructional value of low-technology assistive tools when supported by responsive pedagogy. However, the study also identified persistent challenges, including the limited durability of materials, the time-intensive nature of preparation, and constraints in customizing tools to accommodate diverse learner needs. These challenges highlight the necessity of sustained institutional support, particularly in the areas of funding, professional development, and collaborative structures that enable teachers to maintain and expand effective instructional practices.

Based on the findings of this study, sustained institutional support is essential to maximize the effectiveness of low-technology assistive tools in special education reading instruction. School administrators and education leaders are encouraged to institutionalize structured support systems that ensure the availability, maintenance, and continuous development of low-technology assistive tools. This includes allocating dedicated budgets for material reproduction and replacement, establishing school-based resource centers for shared assistive tools, and integrating assistive technology planning into school improvement and literacy programs. Strengthening collaboration between special education and general education teachers is likewise recommended to promote inclusive literacy practices and shared responsibility in addressing the needs of learners with reading difficulties.

At the instructional level, special education teachers are encouraged to sustain learner-centered and differentiated teaching practices that integrate low-technology assistive tools with structured reading instruction. Consistent use of phonics-based strategies, multisensory engagement, and contextualized learning materials should be prioritized to support mastery-based learning and learner confidence. Teachers are also encouraged to promote learner autonomy by incorporating choice-based reading activities, peer-assisted learning opportunities, and home-based reinforcement strategies. Participation in professional learning communities may further support the documentation and sharing of effective practices, fostering innovation and instructional flexibility in low-resource classroom environments.

In terms of capacity building and future inquiry, it is recommended that the Department of Education and local school divisions provide regular and targeted professional development programs focusing on the effective use of low-technology assistive tools in reading instruction. These programs should emphasize differentiated instruction, multisensory teaching approaches, classroom-based assessment, and material design to ensure responsiveness to diverse learner needs. Future researchers are encouraged to expand the scope of investigation by incorporating learner perspectives, quantitative measures of reading development, and longitudinal analyses of instructional impact. Comparative studies examining low- and high-technology interventions across varied educational contexts may further contribute to a more comprehensive understanding of inclusive literacy instruction in resource-constrained settings.

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