

Teaching Multisensory Approach to Child with Intellectual Disability: A Case Study

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Abstract

For learners with severe and multiple impairments, such as intellectual disabilities, learning to read offers substantial problems. The emphasis of teaching these learners was on teaching sight words. The study aims to evaluate multisensory approaches in phonics-based learning for learners with Intellectual Disabilities by describing the teacher's experiences using the method. The researchers chose the learner's teacher and family member from Villa Kananga Integrated School in Butuan City to be the study participants. Open-ended interview questions were prepared, checked by the research Advisor and validated by a language expert. The researchers used a thematic analysis method to examine the data, look for patterns and generate themes on the experiences in teaching letter sound utilizing the approach.

The researchers gathered data to describe the experiences in teaching using a multisensory approach showing the process and its impact on participants. The data showed that teaching through a multi-sensory approach in one on one basis is efficient in teaching Children with Intellectual disabilities. Moreover, understanding a person's sensory processing capacity is a crucial first step to maximizing the benefits of the intervention.

Keywords: Intellectual Disability; Multisensory Approach; Case study

1. Introduction

Literacy acquisition is widely acknowledged as a core skill for all facets of adult life (Bochner, Outhred, & Pieterse, 2001). In a literate society, the ability to read and write is regarded as a highly valued social function that improves one's quality of life. Nevertheless, literacy acquisition may be complex for students with intellectual disability.

In this sense, literacy acquisition presents significant challenges for students with severe and multiple disabilities, such as intellectual disability. The DSM-5 defines intellectual disability as a neurodevelopmental condition that begins in childhood and is marked by intellectual impairments and challenges in conceptual, social, and practical areas of functioning (American Psychiatric Association, 2013). According to Barker et al. (2010), students with intellectual disability often lag behind their peers in achieving literacy skills due to the academic difficulties that they have because of their intellectual disability.

Hence, there is an underlying problem between literacy acquisition and intellectual disability. With that, acquiring literacy skills is vital, especially for those with intellectual disability. It is highlighted that learning to read leads to more independence in life and participation in society (Bochner et al., 2001; Forts & Luckasson, 2011). The primary emphasis of teaching individuals with intellectual disability was on teaching sight words to improve daily living skills (Connors, 1992; Houston & Torgensen, 2004). However, Browder (2006) criticized this strategy for solely emphasizing word recognition and other independent reading abilities. According to Mohammadain (2016), teaching English to mentally disabled students is more complicated than teaching it to other students. He argued that teaching English to mentally disabled people is problematic because it requires specialized

strategies and procedures. Effective intervention to address academic issues in school-aged children is desperately needed (Shapiro, 2010).

Moreover, the first systematic assessment of research examining the effectiveness of phonics-based education for kids with ID was published by Corners (1992). The author reviewed seven studies and evaluated the efficacy of phonetic methods in teaching children with Intellectual Disability. Conner concluded that these children with mild Intellectual disability adapt to various types of phonics teaching. It was determined that children with intellectual impairments require intensive practice and training to enhance their reading skills and that this practice and instruction should be offered explicitly, methodically, and regularly (Alnahdi, Ghaleb Hamad, 2015). By this means, the study aims to examine the effectiveness of using a multisensory approach to enhance letter-sound learning in children with mild intellectual disability.

1.1 Problem Statement

The study aims to evaluate multisensory approaches in phonics-based learning for learners with Intellectual disabilities.

a. Describe the experiences of a teacher in teaching letter sounds using a multisensory approach.

1.2 Review of Related Literature

Importance of Teaching Reading Skills to Students with Intellectual Disability

Donahue and Prescott (1988) emphasize the importance of teaching reading skills to students with intellectual disability, as it enables them to be more accepted in society. On top of that, Bradford et al. (2006) note that a lack of reading skills can limit the quality of life for students with mild intellectual disability.

Wood and Mcemore (2001) stated that students learn first the letters, then they learn to associate the letters with their sounds. After that, they can learn the phonemic awareness skills to read words. Additionally, Share (2004) demonstrated that learning to name the letters and their sounds is critical to learning phonics instructions. Letter knowledge and phonological awareness are significant determinants of reading ability. They are learning to read for the first time, especially in young children, as mentioned (Ehri, 2004; Share, Jorm, MacLean, & Matthews, 1984). Nietupski (1979) states that detailed instructions are essential for teaching letter-sound correspondence. In a research conducted by Bradford et al. (2006), kids with intellectual disabilities could learn word analysis skills, such as sound-letter correspondence and blending these sounds to comprehend words; nevertheless, some students did not perform well in telescoping.

Effectiveness of Multisensory Approaches

Allor et al. (2010) encourage teachers to seek additional resources that promote a comprehensive approach to reading instruction and make interventions meaningful to students. According to Laird (1985), effective learning occurs when all senses are activated. According to this theory, stimulating different senses increases the chance of understanding. In this sense, Lotan and Gold (2009) conducted a meta-analysis of twenty-eight research studies and concluded that multisensory approaches effectively improve adaptive behaviors for individuals with intellectual disabilities.

Furthermore, according to Mercer & Mercer, of 1993 a multisensory approach, "also known as VAKT (visual-auditory-kinesthetic-tactile) revealed that students learn best when information is presented in different modalities". This theory implies that students learn a new concept best when it is taught using the four modalities. The prevailing problems concerning teaching reading skills to students with an intellectual disability include utilizing the multisensory approach, also known as the Orton Gillingham (O&G) method. It uses different senses to teach reading (Davis, 2011). It involves seeing, pronouncing, and writing letters to enhance learning. Cameron (2001) recommends teaching students to make connections between what they see, hear, and produce while learning to read and suggests using different modes and senses to introduce new information.

On the other hand, Farokhbakht.Nejadansari (2015) states that the multisensory approach is adequate for various populations, including hard-of-hearing or deaf students, dyslexic children, disabled or poor readers, and underachievers. Also, Mohler (2002) highlights the phonics approach as a vital component of the multisensory approach, which reinforces word recognition and enhances learning.

The multisensory method incorporates visual, auditory, and kinesthetic-tactile modalities in the teaching and learning process (Proulx et al., 2014; Purinton & Burke, 2019; Schneider & Ming, 2019; Raihan Sapi'ee & Kim Hua Tan, 2020). Visual applications, such as pictures and videos, help students understand abstract concepts by relating them to their experiences (Gorijan et al., 2019). Tactile applications, such as tray sand and clay modeling, improve fine motor skills (Gorijan et al., 2019). Kinesthetic activities involve movement and help improve math and reading proficiency (McQuagge, 2020). Meanwhile, Multisensory approaches create a learning network that increases phonological awareness, fosters students' interest, and focuses on reading skills (Wesson in Maheshwari, 2016; Ngong, 2019).

A study was conducted by Philips and Feng (2012) using a multisensory approach. They followed a specific routine and systematic instruction in implementing the activities set. This teaching style has been proven effective and vital in enhancing pupils' reading abilities and found that students learned, according to these researchers. In addition, the approach's effectiveness was also examined by Mohd Zuri Ghani (2016) in teaching intellectual disability in identifying the name and the sound of the English alphabet, as it showed a significant difference in the pre-test and post-test. Furthermore, the significant difference was explained by the sensory approach activities that helped the students learn the letter-sound correspondence.

2. Methodology

2.1 Research Design

A single case study qualitative research is used in this study. A research methodology helps explore a phenomenon within some particular context through various data sources, and it undertakes the exploration through various lenses to reveal multiple facets of the phenomenon (Baxter & Jack, 2008). It is used to evaluate the method and the success of an intervention or treatment in a specific case. It also provides evidence about the general effectiveness of the intervention using a small sample size.

The study aims to describe the experiences and challenges of a teacher in teaching letter-sound through a multisensory approach. The design implementation allows the researcher to study the approach's efficacy in learning phonics. The researchers compared the data gathered before the participant received the intervention to the behavior during and after the intervention.

2.2 Participants of the Study

The study was participated by the primary respondent named Jane, a child with an intellectual disability. On top of that, Jane's adviser and another teacher also served as the study's respondents.

In that regard, Jane was the primary participant in the study. She received intervention using the multisensory approach. On the other hand, Jane's adviser was the primary person providing the intervention to Jane. The adviser has direct contact with Jane and delivers the multisensory approach. Meanwhile, Jane's other teacher was responsible for handling Jane's education and had the opportunity to observe her during the study.

2.3 Sampling Procedure

This study employed a purposive sampling approach to select the participant. Purposive sampling is a non-probability sampling technique where investigation units are chosen at the researcher's discretion. The participant selection was based on their previous experiences and current situation, aligning with the specific criteria set by the researcher. This sampling approach enabled the researcher to gather ample information and effectively use limited resources. Additionally, it involved identifying and selecting individuals or groups who possessed a deep understanding or expertise in the phenomenon of interest. Using purposive sampling, the researcher ensured that the chosen participant would provide valuable insights, experiences, and perspectives relevant to the study. The data collected from this participant would contribute to a comprehensive understanding of the research topic.

2.4 Research Instrument

The research instrument for this study includes two components: careful observation and interviews.

In careful observation the researchers closely observed the child during the implementation of the intervention. In line with this, the observation focused on the child's correspondence to the letter sound. Afterward, the researchers carefully documented and analyzed the child's responses and interactions during the intervention.

There were two sets of interviews in the interview process: one with the participant's teachers and another with a family member. With that, the researchers used an open-ended question format for the interviews. Using the multisensory approach, the interviews aimed to gather in-depth information and insights about the participants' experiences with teaching letter sounds. Furthermore, the interviews aimed to understand the perspectives, practices, and challenges the teachers and family members encountered in implementing the strategy. Also, the interview process allowed the participants to share their stories and provide valuable insights into the effectiveness and impact of the multisensory approach.

Combining careful observation and interviews allows the research instrument to explore the child's response to the intervention comprehensively. The multisensory approach provides a deeper understanding of the experiences and perspectives of the teachers and the family member involved in teaching letter sounds.

2.5 Data Gathering Procedure

The data-gathering procedure of the study has four processes to follow: (1) Questionnaire Development, (2) Informed Consent, (3) Interview Process, and (4) Data Privacy.

In developing the questionnaire, the researchers created open-ended questions to guide the interviews. Using the multisensory approach, the questions were designed to gather comprehensive and detailed information about the participants' experiences with teaching letter sounds. The research advisor reviewed and checked the questionnaires to ensure clarity and relevance. A language expert validated the questionnaires to ensure their appropriateness and effectiveness.

The participants were provided with a consent form before the interview to inform consent. The consent form explained the purpose of the data collection and sought the participants' permission to participate in the interviews. The participants were assured that their identities were kept confidential and that their privacy would be protected.

During the interview process, the interviews were conducted with the participants, the teachers. Also, the interviews were audio or video recorded to ensure accurate capture of the participants' responses and enable later analysis. The researchers followed the open-ended interview questions to guide the conversation. The interviews were conducted in a supportive and conversational manner, allowing participants to freely share their experiences and perspectives.

The recorded interviews and any other collected data were handled with utmost confidentiality to ensure data privacy. Participants' identities were kept private and protected throughout the research process. The data was securely stored and accessible only to authorized researchers involved.

By following this data-gathering procedure, the researchers ensured the development of well-crafted interview questions, obtained informed consent from the participants, recorded the interviews for accurate data capture, and prioritized data privacy and confidentiality throughout the research process.

2.6 Role of the Researcher

In qualitative research, the researchers have multiple roles and responsibilities throughout the study, such as Interviewer, Observer, Transcriber, Encoder, and Analyst.

The researchers established rapport with the participants as an interviewer to create a comfortable and trusting environment. The researchers asked probing questions during interviews to encourage participants to share their thoughts and feelings. Active listening and critical thinking skills are employed to understand and explore participants' experiences fully.

As an observer, the researchers carefully observed the participants during the interviews and other relevant interactions. The researchers focused on non-verbal cues, emotions, and contextual factors that may provide additional insights.

As transcribers and translators, the researchers accurately transcribed all recorded interviews, ensuring the participants' words were faithfully represented. They may also translate interviews from one language to another to facilitate analysis and understanding.

As an encoder, the researchers organized and structured the transcribed interviews into standard English statements or written text. The researchers ensured clarity and coherence in the encoded data to facilitate further analysis.

As an analyst, the researchers employed thematic analysis techniques to identify the data's patterns, themes, and underlying meanings. The researchers interpreted the participants' points of view and uncovered hidden insights in their responses. Through careful analysis, the researchers aim to understand the research topic comprehensively.

By assuming these roles, the researchers navigate the complexities of qualitative research, engaging with participants, documenting their experiences, and deriving meaningful interpretations from the collected data.

2.7 Data Analysis

The data were analyzed using thematic analysis, a qualitative data analysis process that involves identifying patterns and themes in the meaning of the data. The data analysis process will consist of the following steps: (1) Familiarization of the data, (2) Generating themes and codes, (3) Evaluation of the themes, and (4) Report writing.

In familiarizing the data, the researchers immersed themselves in it by reading and re-reading the transcriptions to become familiar with the content. This step allowed the researchers to understand the data and comprehensively identify initial ideas or patterns.

In generating themes and codes, the researchers systematically identify and label codes or categories that capture essential aspects of the data. The researchers assigned codes to relevant data segments representing specific concepts, ideas, or patterns.

In evaluating the themes, the researchers examined the coded data segments and identified potential themes from the analysis. The researchers explored relationships between different codes and themes, looking for commonalities, patterns, and variations.

In finalizing themes, the researchers refined and completed the identified themes, ensuring they accurately reflect the data and capture the main findings. Also, the researchers reviewed and revised the themes as needed, considering the data's depth and richness, and relevance to the research objectives.

In report writing, the researchers documented the identified themes and their supporting evidence in a cohesive and organized manner. The researchers interpreted and discussed the themes, providing comprehensive data analysis and their implications for the research topic.

2.8 Ethical Considerations

In this qualitative study, the researchers prioritized ethical considerations to ensure the participants' confidentiality and privacy. Measures were taken to ensure that the participants could not be identified in the reports, safeguarding their identities. The researchers were mindful of the participants' daily activities, ensuring that their involvement in the study did not disrupt their routines.

or well-being. Informed consent was obtained from participants providing detailed information about the study's purpose, procedures, and voluntary nature. Participants were provided with a permission letter outlining the study's key components, and they will be allowed to sign the consent form, indicating their understanding and willingness to participate. The researchers committed to maintaining confidentiality, refraining from disclosing the participants' names in any publications or presentations. These ethical considerations aim to prevent any potential harm and protect the collected data from unauthorized access, reinforcing the integrity of the study.

3. Results and Discussion

Jane was diagnosed with Intellectual Disability. New knowledge is challenging for her to comprehend. When teaching a class on letters, Jane's former teacher noticed that she struggled to distinguish the different notes and that even after the discussion, she frequently needed to remember what she had learned. In the classroom, she is timid, lacks concentration, and often wanders the room. Jane finds it challenging to listen to directions during a discussion. As a result, she needed help to complete her work on time and frequently made mistakes on the worksheets.

Through a multi-sensory approach that included visual, tactile, kinesthetic, and auditory drills, the process of teaching Jane to identify and recognize the sounds of the letters was carried out. The goal was to help the learner connect all of these activities with the skills of identifying the sounds. Through these exercises, every sound was introduced to the pupil. In the following paragraphs, the researchers provide examples of introducing new sounds.

Visual Activities

The teacher showed the student the card with the letter and said the sound to the student; for example, The sound of this letter is /aaaaaa/. The teacher asked the student to repeat the sound when she showed him the card with the letter A. Next, the teacher gave the student a worksheet with many letters and asked the student to circle the sound of the letter A. Finally, the teacher asked the student to look for sound A in a place.

Auditory activities

The teacher showed a flashcard to the student and asked her to say the letter's sound. After the student told the sound correctly, the teacher tested her ability to distinguish between the sounds by placing some notes in front of the student and asking her to pick one up after hearing it.

Kinaesthetic exercises

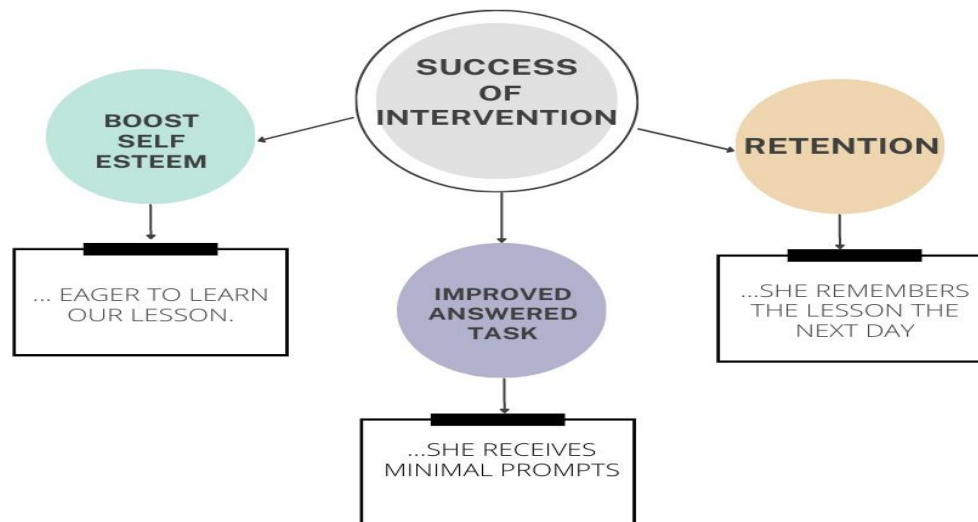
The student was instructed to draw the letter's sound in the air as soon as the teacher said it. She was also instructed to use her fingers to paint the letter while saying the letter's sound.

Tactile exercises

The student was given clay by the teacher and was asked to shape the letters and pronounce them when the teacher showed her a model of the letter. Another tactile technique involves having the student draw the letter while saying the letter's sound on her hands or arms. This prompts the student to remember the letter's shape. After analyzing the data gathered, the researchers categorized the relevant

data on the experiences in teaching letter sound using a multisensory approach from the recorded interview.

This concept was linked to the responses mainly from the parent and Teachers 1 & 2, who expressed their experiences:



"Si Jane karon kay interested na kaayo siya sa mga buhatonon sa eskwelahan. Ganahan na siya maminaw ug malingaw siya sa mga activities nga ginahatag sa iyaha. Makasabot na siya ug madumduman na niya ang lesson nga gi-discuss ana nga higayona."

Translation: "Jane is now very interested in our activities. She likes to listen now and is having fun with the activities given to her. She understands and remembers what was discussed on that day."

"Ganahan na mobuhat sa activities si Jane og kung pangutan-on siya, makadumdum pod siya kung unsa ang among gi-discuss na. Ganahan siya sa mga activities especially molding clay and coloring."

Translation: "She likes our activities, and when asked, she can now answer and remember our discussion. She wants our activities especially molding clay and coloring."

Responses from Parents and Teachers 1 & 2:

"Sa pagstart ni Jane sa akong class, di jud siya maka-focus ug sige ra siya suroy2 sa classroom. So mao to, ako siyang gi-one-on-one para ma-focus akong paghatag sa iyaha og instructions og matutukan sa pagtudlo."

Translation: "At the beginning of our class, she is not paying attention and is always roaming around the classroom. I decided to teach her one-on-one so that I could give her clear instructions and can focus on her needs."

"Sa akong class, individualized instruction akong gina-conduct kay Jane labi na kay dili pa siya kaayo makabalo unsaon pagbuhat sa activities ug para mainsakto ang iyang pag-answer."

Translation: "In my class, I give her individualized instruction as she has difficulty doing our activities. I did this to guide her in doing the activities."

Learners with Intellectual Disabilities have challenges in conceptual, social, and practical areas of functioning as defined by DSM-5. Therefore, they need to catch up in these areas and need instructions that they can follow. As Mohammadain (2016) mentioned, teaching English to children with an intellectual disability is problematic because it has to have specialized strategies and procedures. The process includes the way of giving instructions to these learners. Jane was able to cope and

accomplish the task through explicit instruction. She has to be guided to ensure the precision of the process. Through this, the learner can follow the instructions and accomplish the tasks with minimal prompts. Explicit instruction allows the learners to receive positive and corrective feedback in learning the letter sound.

Responses from Parents and Teachers 1 & 2:

"very shy si Jane because of that, dili siya participative, uninterested kay shy man siya niya feeling niya dili siya kabalo."

Translation: "Jane is timid, which hinders her from participating in our class. She is uninterested in the lesson because she does not know how to do it."

Jane was remarkably a shy student. Her teacher has noticed that she is quiet and has low self-esteem because she does not know how to read, as transcribed in the interview. This observation implies that low self-esteem affects motivation in the learning process.

The participant also observed that she could remember the letter taught the next day. As a result, she is seen to be eager to learn using the approach. It proves Maheshwari's (2016) citation of Wesson (2002) that students learn best when they study new items with their senses and get a deeper grasp of them. Consequently, this improvement has boosted her confidence and motivated her to learn more. Jane was also observed to have improvements in learning letter sound. She received minimal prompts from the teacher compared to before the implementation of the intervention.

3.1 Findings

The participants described that using the multisensory approach boosted the learner's confidence, allowing her to follow the lesson. The child has significantly changed from a non-participative to an active learner. The said approach also catered to the child's interest and caught her attention, leading her to finish the task. Moreover, through the sensory inputs in presenting the letter sound, the child has shown increased participation and retention of the lesson. The approach followed a pattern that has helped the child understand the concept. This supports the claim of Philips and Feng (2012) in their study that this style of instruction is effective and vital in enhancing the pupil's reading ability.

After the part mentioned above, the result of the study shows the effectiveness of using the multisensory approach in phonics-based learning for a child with an Intellectual Disability as described by the teacher's experiences in teaching letter sound.

4. Conclusion

According to the study's findings, the multisensory approach is effective for students with mild intellectual disabilities presented in individualized instruction. The multisensory approach specifies a number of activities that may be useful and effective for these types of learners. When examining the effectiveness of the multisensory strategy used with kids who have intellectual disabilities, the researchers discover promising results given the quick progress Jane has shown in acquiring letter sounds with the help of the classroom teacher. It is evident that through this strategy, the learner was exposed to different sensory stimulants that immensely helped in processing the information given to them. Furthermore, these sensory activities should be carried out explicitly, allowing these learners to follow and accomplish tasks. Moreover, understanding a person's sensory processing capacity is a crucial first step to maximizing the benefits of the intervention.

5. Recommendation

The study revealed the effectiveness of a multisensory approach in teaching letter-sound to children with Intellectual Disability. On this basis, future research suggests creating activities in school

that will include these learners to impose their reading skills and enable them to enhance and develop their reading capacity. Furthermore, providing interventions and specialized strategies to support these learners is suggested. Also, establishing activities for students with Intellectual Disability will enhance and develop their reading skills, enabling them to practice and develop their reading capacity.

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