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TO STUDY THE PERCEPTION OF TEACHERS ON USAGE OF ASSISTIVE TECHNOLOGY TO ENHANCE THE INDEPENDENT LIVING SKILLS AMONG CHILDREN WITH MULTIPLE DISABILITIES

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ABSTRACT

This study explores the perceptions of teachers regarding on usage of assistive technology to enhance the independent living skills among children with multiple disabilities. Assistive technology plays an essential role in supporting the educational and developmental needs of children with multiple disabilities, offering various tools and devices to promote independence and functional capabilities. Although, understanding teachers' perspectives on the effectiveness, challenges, and opportunities associated with the integration of assistive technology for encouragement independent living skills in children with multiple disabilities is essential for enhancing its implementation in educational settings. Through qualitative interviews and surveys conducted with a diverse sample of teachers working in special education and inclusive classrooms, this research seeks to explicate teacher's viewpoints, experiences, and attitudes towards the use of assistive technology. The data collected will be analysed thematically to identify common themes, barriers, and facilitators influencing teachers' perceptions of assistive technology usage. The findings of this study will contribute to a deeper understanding of the role of assistive technology in promoting independent living skills among children with multiple disabilities and inform the development of interventions and support strategies to enhance their educational outcomes and overall quality of life among children with multiple disabilities.

Keywords: Assistive Technology, Multiple Disabilities, Teachers, Devices

1. INTRODUCTION

Assistive technology plays an essential role in supporting individuals with disabilities, particularly children with multiple disabilities, in enhancing their independent living skills. The perception of teachers regarding the use of assistive technology in this perspective is vital for understanding its impact on the educational outcomes and overall well-being of these children. Al-Zboon (2020) investigates teachers' perceptions of assistive technology for students with visual impairments in Jordan. The study reveals challenges in technology use, including computer accessibility and lack of training. It emphasizes the importance of addressing barriers and providing professional development to enhance assistive technology utilization in education for visually impaired students. Fernández-López

et al. (2012) present a mobile learning platform, Picaa, designed to support students with special education needs. The platform offers customizable educational activities tailored to students' requirements, leading to positive effects on learning skills development. The study suggests that Picaa enhances access to learning activities and increases students' interest and attention through electronic devices and multimedia content, highlighting its potential for supporting students with impairments.

Children with multiple disabilities face unique challenges that can significantly impact their ability to develop essential independent living skills. These challenges may include physical limitations, cognitive impairments, sensory deficits, and communication barriers, among others. Assistive technology offers a wide range of tools and devices designed to address these specific needs and empower individuals with disabilities to overcome difficulties and achieve greater independence. By examining the perceptions of teachers who interact daily with children with multiple disabilities, this research seeks to uncover valuable insights into the effectiveness, challenges, and opportunities associated with the use of assistive technology in enhancing independent living skills. Understanding how teachers view and implement assistive technology interventions can provide valuable guidance for educators, therapists, and policymakers in optimizing support strategies for children with multiple disabilities. Alghamdi (2022) investigates special education teachers' perceptions of assistive technology (AT) use for students with disabilities, highlighting the importance of AT in meeting educational needs. The study underscores the correlation between teachers' confidence levels and variables such as time spent in college programs and AT courses taken, emphasizing the necessity for specialized AT preparation programs.

To study the perception of teachers on usage of assistive technology to enhance the independent living skills among children with multiple disabilities and explore how assistive technology can be effectively integrated to improve their independence and quality of life. Lohmann et al. (2019) advocate for the use of assistive technology (AT) tools to support learning in inclusive preschool classrooms, particularly for children with disabilities. Their recommendations focus on AT for communication, mobility, and independence, aiming to enhance play and social interactions for young learners with disabilities.

1.2. OBJECTIVES OF THE STUDY

- To assess the current level of awareness among teachers regarding the potential of assistive technology in enhancing independent living skills among children with multiple disabilities.
- To investigate the extent to which teachers are currently integrating assistive technology into their instructional practices to support the development of independent living skills in children with multiple disabilities.
- To identify the perceived benefits and challenges associated with the implementation of assistive technology for enhancing independent living skills, as reported by teachers working with children with multiple disabilities.

2. PURPOSE OF THE STUDY

The purpose of this study is to explore the perceptions of teachers regarding the application of assistive technology aimed at enhancing the independent living skills of children with multiple disabilities. Exploring teachers perspectives, this research aims to gain insight into the effectiveness, challenges, and possible benefits of participating assistive technology into educational settings for children with multiple disabilities. Through this examination, the study seeks to contribute valuable insights to inform the development and implementation of assistive technology interventions personalized to the unique needs of children with multiple disabilities, ultimately development their independence and quality of life. Wen et al. (2020) explore teacher views on math e-learning tools for students with specific learning disabilities (SLDs), revealing challenges like text-heavy interfaces and limited feedback. Their study emphasizes the necessity for improved design of e-learning tools to better support students with SLDs in math education. Odom et al. (2014) examine technology interventions for adolescents with ASD, proposing a theoretical framework and reviewing efficacy literature. They emphasize technology's growing role in supporting ASD students in diverse environments.

3. REVIEW OF LITERATURE

Wen et al. (2020) investigate the efficacy of math e-learning tools for students with specific learning disabilities (SLDs). Their study, involving interviews with 12 teachers, highlights challenges in tool usability and the crucial need for personalized support. The authors underscore the importance of tailored e-learning solutions to enhance accessibility and effectiveness in math education for students with SLDs.

Al-Attiyah, Dababneh, Hamaidi, and Arouri (2022) investigate teachers' views on using assistive technologies for children with disabilities in early childhood education in Qatar. Their study reveals extensive adoption of assistive technology among teachers, emphasizing its importance in early intervention programs and offering valuable insights for future educational strategies.

Babb et al. (2018) study highlights the effectiveness of video VSDs on tablets for enhancing independent engagement and communication skills in adolescents with ASD and CCN during vocational activities. Their findings provide valuable insights into the potential of VSDs as a supportive tool for fostering autonomy and communication in this population.

Hutinger, Johanson, and Stoneburner (1996) study highlights the impact of assistive technology on educational programs for children with multiple disabilities. Despite challenges, it shows notable advancements, particularly in social and emotional development, suggesting the promising potential of assistive technology in improving learning outcomes for this demographic.

Hui, S., & Dimitropoulou, K. (2020). The iCan-Play guideline offers a comprehensive approach to enhancing play for children with severe multiple disabilities (SMD) through assistive technology (AT). By providing a systematic assessment and intervention framework, it aims to address barriers and promote developmentally appropriate play, highlighting the crucial role of AT in facilitating independent play experiences for children with SMD.

Mosher et al. (2021) review research on immersive technologies for teaching social skills to students with ASD, noting substantial improvements in social skills outcomes. Their study provides crucial insights and recommendations for enhancing intervention effectiveness in augmented reality (AR) and virtual reality

(VR) interventions, offering valuable guidance for researchers and practitioners in the field.

Demirok et al. (2019) study examines special education teachers' attitudes towards utilizing assistive technologies for students with reading difficulties. It highlights a moderate stance among teachers but suggests a positive trajectory towards greater acceptance and utilization of assistive technology in educational contexts.

Poon (2013) explores the use of blended learning to enhance students' learning experiences in higher education, focusing on a case study at Nottingham Trent University. The paper highlights the benefits of blended learning in influencing students' perceptions of the learning environment, leading to improved study experiences and academic achievement. Recommendations based on research findings aim to enhance teaching practices for better learning outcomes.

Khan, Hasan (2012) and Clement explore barriers to the integration of Information and Communication Technology (ICT) into education, focusing on the example of Bangladesh. Their review identifies factors influencing teachers' decisions on ICT implementation and offers recommendations to mitigate barriers, maximizing the beneficial use of technology in education.

Moore-Hayes (2011) examines the influence of technology integration preparedness on teacher efficacy. The study, conducted with pre-service and in-service teachers in Nova Scotia, indicates no significant difference in self-efficacy beliefs between the two groups regarding technology integration preparedness. However, both groups reported instances of low self-efficacy in technology integration practice, highlighting areas for improvement in teacher training and support.

Hui and Dimitropoulou's (2020) iCan-Play guideline provides an essential framework for supporting play in children with severe multiple disabilities (SMD). Through assistive technology, it enables personalized interventions, filling a significant gap in addressing the unique needs of this population. This comprehensive approach highlights the significance of inclusive and developmentally appropriate play, offering invaluable guidance for therapists and caregivers.

Khowaja et al. (2020) systematic review explores augmented reality (AR) interventions for children and adolescents with autism spectrum disorder (ASD), emphasizing its potential in enhancing skills, notably social communication. The study advocates for additional research to gauge AR's efficacy across different contexts and participant groups, providing crucial guidance for future endeavors to leverage AR technology for improving learning outcomes in individuals with ASD.

Aldabas (2020) study examines special education teachers' confidence levels in teaching students with severe disabilities in inclusive Saudi Arabian classrooms. It highlights disparities in confidence based on experience, disability severity, grade level, and classroom setting. The findings stress the significance of enhancing teacher preparedness to ensure effective inclusive education for students with severe disabilities.

Vlachou and Drigas (2017) examine the effectiveness of mobile technology for supporting individuals with autism spectrum disorders (ASD), underscoring its potential in addressing their diverse needs and bolstering academic skills. Their study emphasizes collaborative efforts among educators, caregivers, and ASD

individuals in designing and implementing apps, suggesting a promising avenue for optimizing outcomes and enhancing overall quality of life in the ASD community.

Kellems and Morningstar (2015) explore the effectiveness of video modeling via iPods in teaching vocational tasks to young adults with ASD. Their study reveals notable improvements in task performance and skill retention, alongside social acceptance of iPod-based interventions in community employment contexts. This underscores the potential of utilizing portable technology as a practical and accessible teaching method for individuals with ASD.

Ok and Rao (2019) underscore the effectiveness of Google Chrome apps and extensions in catering to diverse learning needs in inclusive classrooms, aligning with Universal Design for Learning principles. Their study offers valuable insights for educators aiming to enhance student engagement and academic achievement in inclusive settings.

Draper Rodríguez, Strnadová, (2013) and Cumming review the utilization of iPads for students with disabilities, highlighting positive outcomes on skills and academic engagement. Their insights into classroom implementation and challenges provide valuable guidance for educators, advancing the understanding of mobile technology's significance in special education.

3.1. RESEARCH QUESTION

1) What are the overall perceptions of teachers regarding the utilization of assistive technology for enhancing independent living skills among children with multiple disabilities?

4. METHODOLOGY

4.1. PARTICIPANTS

The survey was taken from the teachers in schools Chennai, using the questionnaire were distributed to the teachers in school, Questionnaire Name – Teachers the perception of teachers on usage of assistive technology to enhance the independent living skills among children with multiple disabilities. Totally from 50 teachers in schools in Chennai the data are collected. The Questionnaire annexure is enclosed in this paper.

4.2. METHODS AND INSTRUMENTS

This study is Quantitative Research, 5 rating scale- 1. Not helpful at all, Slightly helpful, Moderately helpful, Very helpful, Extremely helpful the questionnaire- Teachers the perception of teachers on usage of assistive technology to enhance the independent living skills among children with multiple disabilities are prepared with 10 questions and data was collected from the teacher in schools Chennai. Data analysis is done.

5. FINDINGS AND DISCUSSION

RQ: What are the overall perceptions of teachers regarding the utilization of assistive technology for enhancing independent living skills among children with multiple disabilities?

Table 1

Table 1 Table Showing the Result on Effectiveness Levels, Ranging from Less Effective to Extremely Helpful

Question	Not effective at all	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful
Question 1	7	10	4	5	24
Question 2	5	10	5	6	24
Question 3	11	15	3	5	16
Question 4	1	3	6	14	26
Question 5	4	7	7	10	22
Question 6	10	10	5	12	13
Question 7	10	10	4	5	21
Question 8	5	14	4	9	18
Question 9	9	9	4	8	20
Question 10	5	8	5	10	22
Total	67	96	47	84	206

Figure 1

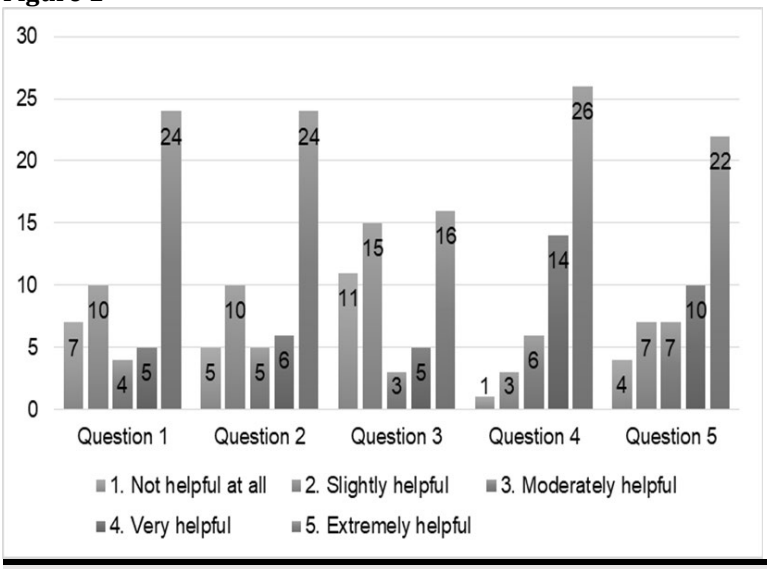

Figure 1 Graphical Representation of Result on Across Effectiveness Levels, Ranging from Less Effective to Extremely Effective- Question 1 To 5

Figure 2

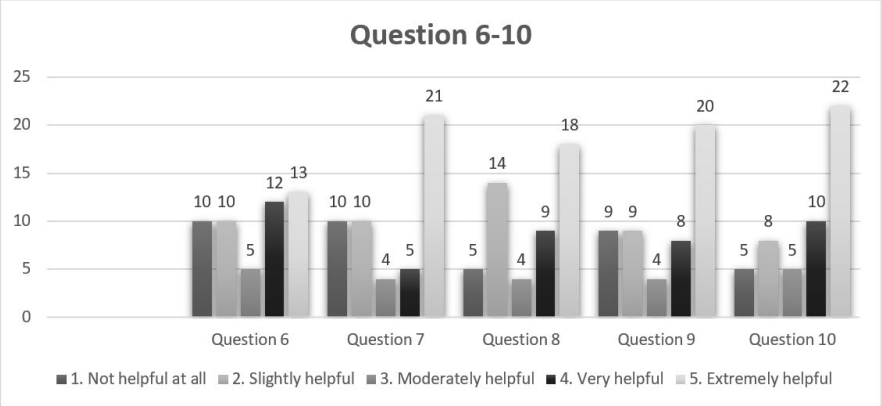

Figure 2 Graphical Representation of Result on Across Effectiveness Levels, Ranging from Less Effective to Extremely Effective- Question 6 To 10

6. FINDINGS

Question 1: The majority of respondents found it extremely helpful, with a significant number also finding it slightly helpful.

Question 2: Similar to Question 1, most respondents found it extremely helpful, with a few finding it slightly helpful.

Question 3: This question received a mix of ratings, with the majority finding it moderately helpful, and a notable number finding it slightly helpful.

Question 4: Respondents were divided in their assessment of this question, with a significant portion finding it extremely helpful and helpful, but also a notable number finding it not effective at all.

Question 5: Similar to Question 4, there was a split in responses, with many finding it extremely helpful or helpful, but a substantial minority rating it as not effective at all.

Question 6: This question received a varied response, with a notable number finding it slightly helpful or not effective at all.

Question 7: Responses were similar to Question 6, with a mix of ratings, though slightly more respondents found it helpful.

Question 8: Most respondents found this question helpful or moderately helpful, with only a few finding it not effective at all.

Question 9: Similar to Question 8, the majority of respondents rated it as helpful or moderately helpful.

Question 10: Responses were similar to Questions 8 and 9, with the majority finding it helpful or moderately helpful.

Overall, there is a trend of respondents generally finding the questions helpful or moderately helpful, with a few exceptions where opinions were more divided. The total scores indicate that the majority of respondents perceived the questions positively, but there is room for improvement in a few areas where the effectiveness was lower. Wass and Porayska-Pomsta (2013) examine cognitive training technologies for autism spectrum disorders (ASD), addressing emotion recognition, language, and social skills. Despite improvements within computerized training, challenges persist in generalizing skills to real-world contexts, indicating areas for further research in ASD interventions.

7. RECOMMENDATION

Based on the findings, it's advisable to focus on refining questions 3, 4, 5, and 6 to improve clarity and effectiveness. Additionally, incorporating qualitative follow-up or interviews could provide deeper insights into respondents' perceptions. Continuous monitoring and adjustment of survey design will be essential to enhance overall effectiveness in capturing teachers' perceptions of assistive technology for children with multiple disabilities. O'Sullivan et al. (2020) study teachers' perceptions and use of assistive technology (AT) in Ireland, revealing limited AT knowledge and support among educators. Their findings highlight the necessity for a robust AT system in education to facilitate successful integration in classrooms.

CONFLICT OF INTERESTS

None.

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