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THE 13TH INTERNATIONAL INNOVATION, INVENTION & DESIGN COMPETITION 2024

EXTENDED ABSTRACTS

e-BOOK

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INNOVATION, INVENTION &
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ALPHACUBBIES: INTEGRATING ALPHABET LEARNING FOR SPECIAL NEEDS CHILDREN

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ABSTRACT

AlphaCubbies integrates storage solutions with immersive learning experiences for early childhood education, particularly targeting special needs children. Initially, 40 parents of special needs children from an urban area in Shah Alam, Selangor, were selected, with 35 of them responding to a questionnaire designed to evaluate the effectiveness of AlphaCubbies' approach. By gathering insights directly from parents, the study aimed to understand the impact of edutainment activities on therapy and developmental improvements through the installation of AlphaCubbies. The data analysis included quantitative methods to ensure a comprehensive understanding of parents' perspectives on the use of edutainment in therapy sessions for special needs children in an urban context. Findings show that the majority of respondents agree that incorporating edutainment activities benefits special needs children by sparking interest, enhancing development, and promoting enjoyable learning experiences. This research benefits special needs children by enhancing their therapy experience and improving developmental outcomes. It also supports parents, therapists, and policymakers by providing insights for more effective and engaging therapeutic practices.

Keyword: AlphaCubbies, special needs, edutainment, rehabilitation

1. INTRODUCTION

Transitioning a child with special needs to a rehabilitation programme can be challenging, particularly when the child is reluctant to enter the facility. Understanding the common issues and implementing supportive strategies can make this transition smoother for both the child and the parents. Children with special needs often experience significant difficulty with transitions, such as moving from one activity or location to another, because they thrive on routine and predictability. This makes the initial entry into a rehabilitation facility particularly challenging, as it involves multiple new and unfamiliar transitions all at once (Vasylenko, 2022).

Transitioning to new environments and carers can trigger resistance and anxiety in special needs children, requiring patience and support from parents and rehab staff (Nurhadi, Dewi, & Nurhalimah, 2021). Consistent routines, gradual introductions, and personalised strategies like play therapy are crucial during this period. In education, meeting the unique needs of special education students is an ongoing challenge, necessitating specialised support and innovative approaches for inclusivity and improved outcomes. AlphaCubbies revolutionises the learning journey for special needs children by combining personal storage with immersive education, fostering a love for learning and personal growth.

1.2 The Project Idea - AlphaCubbies

AlphaCubbies is a groundbreaking educational project designed to revolutionise the learning experience for special needs children (Figure 1). With its vibrant colours, playful designs, and interactive features, AlphaCubbies aims to transform the mundane task of alphabet learning into a captivating journey of discovery and exploration. According to Raynesa et. al. (2023), experts must utilise highly specialised teaching methods that cater to diverse learning environments, integrate social and emotional development with strong academic performance, and prepare children for real-world challenges. This comprehensive approach to instruction is inherently challenging.

AlphaCubbies is a cupboard that provides 26 storage units, each linked to a letter of the alphabet, creating a dynamic learning environment. As soon as the child enters the therapy centre, they will begin to learn by selecting one letter from the cupboard. After that, the chosen letter box will be opened, and objects related to the selected letter will be shown. The child will be allowed to touch and smell as a form of sensory therapy. Participation from the therapist and parents is crucial at this time to stimulate activities by giving information. Interactive activities like texture exploration and puzzles offer a fun, educational journey for children. Repetition in the therapy activities aids in transferring information to long-term memory and enhancing retention (Regis et. al., 2016). Scholars stress the importance of repetitive edutainment for reinforcing learning and therapeutic outcomes. Consistent engagement fosters developmental progress by solidifying concepts and ensuring long-term benefits. The enjoyable nature of edutainment keeps children motivated and positively engaged in therapy sessions.



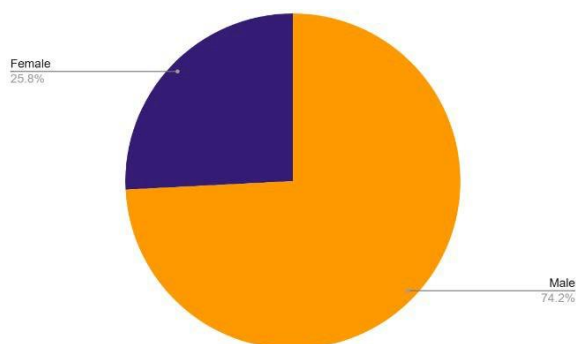
Figure 1 The proposed design of AlphaCubbies

2. METHODOLOGY

A total of 40 parents of special needs children from an urban area in Shah Alam, Selangor, were initially selected, with 35 providing responses. A comprehensive questionnaire with 20 questions was designed to cover various aspects of therapy and edutainment experiences, including child engagement, observed improvements, parental satisfaction, and post-therapy benefits or challenges. The questionnaire was distributed via Google Forms to ensure convenience and higher response rates among parents. The study aimed to gather detailed insights from parents, who have the most comprehensive understanding of their children's needs, regarding the effectiveness of edutainment activities in therapy and observed developmental improvements. This approach ensured relevant and insightful feedback for the study's findings. The collected data was then analysed to identify patterns and insights. This included quantitative analysis using dichotomous questions. This methodology ensured a comprehensive understanding of parents' perspectives on the use of edutainment in therapy sessions for special needs children in an urban context. The data gathered provided valuable feedback on the project's effectiveness and areas for improvement.

3. FINDINGS

This study involved 35 out of 40 selected parents' responses to understand the impact of edutainment activities on therapy and developmental improvements for their children. Data was collected from six therapy centres around Shah Alam. According to Chart 1, out of the 35 respondents who completed the Google Form, 10 (25.8%) of their children are female and 25 (74.2%) are male, with ages ranging from 5 to 12 years old with various types of disabilities. Graph 1 shows the types of disabilities, with autism (8 children) and speech delay (8 children) being the most common.



Graph 1 Type of disabilities

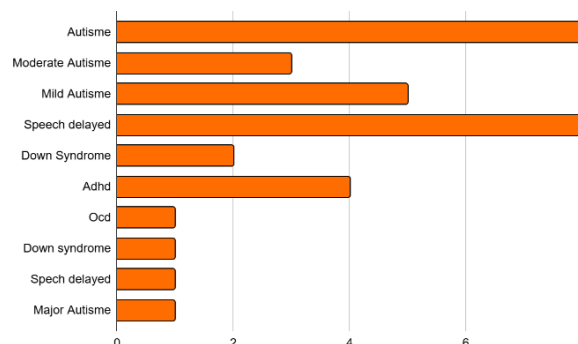
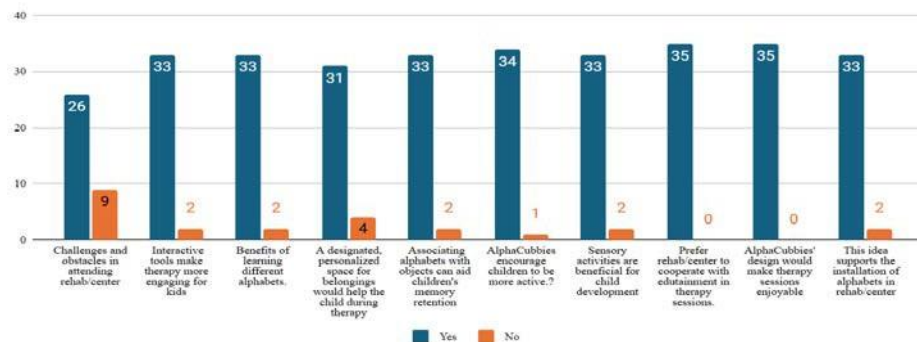


Chart 1 Gender

Graph 2 analyses the application process of AlphaCubies in rehabilitation or therapy centres. To identify the reasons why some children are reluctant to attend therapy sessions, respondents have been asked about the challenges and obstacles in transitioning their child to the therapy programme. It was found that 26 respondents answered 'yes' to experiencing issues, while 9 respondents did not have any problems bringing their children to therapy sessions. Additionally, all respondents (35)

indicated that installing AlphaCubbies in therapy centres is important, and all 35 respondents believe that this idea could bring joy to special needs children during their therapy sessions.



Graph 2 Respondents' perceptions of AlphaCubbies

4. CONCLUSION

As a conclusion, it has been found that special needs children develop more interest in therapy with playful and colourful activities. Interactive and vibrant features boost development, enhance memory, and make learning fun. In exploring new things, they enjoy sensory activities like visual, touch, and smell. Personalised storage and engaging tools like AlphaCubbies attract kids, making therapy enjoyable and effective. These entertaining and consistent sessions help them adapt and learn new skills. In addition, teachers play a crucial role in guiding and entertaining the kids and supporting their learning process. Overall, this approach ensures kids look forward to therapy and gain knowledge through enjoyable activities. This research improves therapy experiences and developmental outcomes for special needs children while also providing parents, therapists, and policymakers with insights to enhance therapeutic practices effectively and engagingly.

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