UNIVERSITI TEKNOLOGI MARA

ICT ELEMENTS OF VIRTUAL LEARNING SUPPORTING INSTRUCTIONAL MATERIALS FOR CAREGIVERS OF STUDENT WITH AUTISM

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ABSTRACT

Students with Autism Spectrum Disorder (ASD) experience considerable challenges in adapting to virtual learning environments due to their need for structured, consistent, and sensory-sensitive instruction. The COVID-19 pandemic accelerated the transition to online learning, exposing significant gaps in caregiver support, instructional design, and the use of ICT tools suitable for autistic learners. This study aims to address these challenges by developing instructional design elements that integrate relevant ICT components to support caregivers in facilitating virtual learning. The research objectives are to identify the issues and challenges associated with ICT elements during virtual learning for autistic students, to design instructional design elements that assist caregivers in using ICT tools effectively, and to evaluate the extent to which these elements are tailored to meet the specific needs of autistic learners. A dominant mixed-methods approach was adopted, incorporating surveys, interviews, and expert evaluations conducted at selected autism care centres in Malaysia. Thematic analysis of qualitative data revealed three key ICT dimensions which are strategies, methods, and skills as essential to supporting effective virtual instruction. These components were integrated into a structured instructional design elemnt and refined through expert input. This study offers a practical, theory-informed contribution to the field of inclusive virtual education and provides meaningful guidance for caregivers, educators, and policymakers working to improve virtual learning experiences for student with autism.

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INTRODUCTION

1.1 Introduction

This study aims to investigate the virtual teaching and learning (VTL) experiences of caregivers and educators who support children with Autism Spectrum Disorder (ASD) in Autism Care Centers (ACCs). The focus is on understanding how Information and Communication Technology (ICT) tools and strategies are utilized in VTL environments and their impact on the educational outcomes and developmental progress of ASD learners. Virtual learning poses distinct challenges for ASD students due to their unique cognitive, sensory, and behavioral needs, necessitating specialized approaches.

Guided by Albert Bandura's Social Cognitive Theory, this research underscores the significance of personalized learning approaches, collaborative efforts between caregivers and educators, and adaptive teaching strategies tailored to virtual contexts. The study also highlights critical barriers, including insufficient ICT infrastructure, inadequate training, and limited resources, which hinder the effective application of ICT tools in ACCs. These barriers reveal a gap between the theoretical promise of ICT in enhancing ASD education and the practical difficulties faced by stakeholders.

Albert Bandura's Social Cognitive Theory (SCT) was chosen as the guiding framework for this study because it provides a robust explanation of how individuals learn through interactions with their environment, emphasizing the importance of observational learning, imitation, and self-efficacy (Bandura, 1986). This theoretical foundation is particularly relevant to the context of VT for children with ASD because it aligns well with the unique needs of ASD learners, who often benefit from structured, visually supported, and modeled approaches to acquiring new skills.

SCT underscores the dynamic interplay between behavior, personal factors, and environmental influences, encapsulated in Bandura's concept of "reciprocal determinism." In the context of ASD education, this concept is essential for understanding how ICT tools can create environments that encourage active