Chapter 7

Gamification as an Assistive Tool for Children With Autism Spectrum Disorder

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ABSTRACT

Gamification can increase the efficiency and the benefits to be received from an educational content; therefore, it could be used as a novel tool to help the child to engage more with the content. Because studies have shown that through gamification and gamified educational content, children with ASD's motor, behavioural, and communication skills can improve. However, selecting a tool that is suited for the child's unique needs, and instruments that can be adjusted along the way depending on the child's progress, plays a key role to achieve this goal. Different from the traditional methods, gamification-based approaches are accessible to children with ASD both at home and in school environments. Through gamification and under the guidance of professionals, traditional methods can be delivered in a non-traditional way. This way parents can be involved in their children's education and can keep track of their children's progress through the measurement tools encompassed in the gamification method. This chapter focuses on the abovementioned issues and presents a literature survey.

INTRODUCTION

In recent years, technology has become a key driver behind learning and the development of curricula. Educators have been using state-of-the-art digital tools and novel strategies in their teaching methods to achieve better results from learners. One of the strategies they prefer for this goal is gamification. Gamification can be described as an attempt to enhance activities, services, systems, and organisations by creating similar experiences to those experienced while playing games (Hamari, 2023; Robson et al., 2015; Deterding et al., 2011). The purpose of involving gamification is to motivate and engage users to inspire collaborate, share and interact (Chans & Portuguez Castro, 2021). Because the brain works in harmony with gamification and that it leads to the release of dopamine, which gives players an increased feeling of enjoyment and motivation (Bromberg-Martin, Matsumoto, & Hikosaka, 2010).

Educators have been utilising gamified elements to impact student engagement and collaboration positively, with the goal of allowing them to learn more efficiently. Because when used in learning processes, gamification has the potential of providing many advantages over traditional learning approaches (Furdu, Tomozei, & Kose, 2017). In general, it increases learners' motivation levels, improves learners' knowledge retention, and provides learners' better engagement through social mechanisms like points, leaderboards, or badges (Dichev & Dicheva, 2017; Putz, Hofbauer, & Treiblmaier, 2020).

However, correct strategies should be applied for better effectiveness. If correctly applied, gamification not only improves learning and make it more engaging but also fosters lifelong skills such as critical thinking, social awareness, problem-solving, cooperation, and collaboration (Kalogiannakis, Papadakis, & Zourmpakis, 2021). Moreover, gamification can increase motivation levels and interest in certain subjects, enhance cognitive abilities, and reduce the rate of attrition among learners (Chans & Portuguez Castro, 2021).

Autism spectrum disorder (ASD) is characterised by persistent limitation in social communication and interaction, restrictive and repetitive behavioural patterns, and both verbal and/or non-verbal communication deficits (American Psychiatric Association, DSM-5 Task Force, 2013). While designing interventions for ASD is rather challenging, because of the complex clinical conditions and the broad range of symptoms covered by the disorder (Camargo et al., 2019), it is well-known that in the education of children with ASD, timely, regular and constant practice is crucial (Fuentes et al., 2021). Planning timely interventions and monitoring subsequent progress of individuals with ASD plays a key role to minimise the escalation of later problems (Fuentes et al., 2021).

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