


Chapter 11

How Game Designers Can Account for Those With Autism Spectrum Disorder (ASD) When Designing Game Experiences

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ABSTRACT

Autism Spectrum Disorder (ASD) is a prevalent neurodevelopmental disability among gamers where individuals belonging to this group of conditions have difficulty understanding non-verbal cues. Though game accessibility is a focal point in the games industry, there has been a keen focus placed on developing accessibility. Consequently, this study examines the perspective of video games from individuals who have autism to gain further insight into the needs of these individuals. The preliminary study is to discover if autistic users' difficulty reading non-verbal cues extends to their perception of a game environment and if these individuals can experience sensory distress while playing video games. A prototype was created to further understand the non-verbal cues to help shape the foundation of accessibility framework. The preliminary results concluded that autistic users frequently misread or fail to pick up on the non-verbal cues used by developers to drive game flow and narrative (e.g., sign-posting), in addition to experiencing sensory distress while playing video games.

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INTRODUCTION

Autism Spectrum Disorder (ASD) is an umbrella term for a range of cognitive impairments that affect a person's ability to communicate with others, interact socially, and influence their interests and behavioral patterns (Autism org uk, 2016). Those with Autism perceive the world differently to neurotypical people in a way that can be overwhelming and cause considerable emotional distress. For some individuals with Autism, everyday stimuli such crowded public places (Falkmer, et al., 2015), lighting (Grandin, 2009), sounds (Boddaert et al., 2003), and even touch (Kaiser et al., 2015) can be extremely unpleasant and, in some cases, painful (Marco et al., 2011). Individuals who have high-functioning Autism may appear outward and intelligent, often initiating communication and social interaction (Holland, 2018). These persons can typically take care of themselves and carry out rudimentary tasks without assistance, whereas others may need daily care. Strickland, (1997) stated, "As adults, about two-thirds of persons with Autism remain severely disabled and unable to provide even basic personal care".

ASD affects one in 59 minors in the United States alone, which accounts for between one and two percent of the country's population (Centers for Disease Control and Prevention, 2018). Similarly, one percent of the United Kingdom's population is also affected (Baron-Cohen, et al., 2009). Brown et al. (2011), expand on the research carried out by Baron-Cohen et al., (N.D) and indicate in the UK that, "Around 25 people in every thousand have mild or moderate intellectual disabilities and about four or five per thousand have severe intellectual disabilities". Brown et al. (2011), or as The Guardian Newspaper indicates, "One in every 100 people in the UK has ASD, with more boys diagnosed with the condition than girls" (Guardian Newspaper, 2018, P1). Literature does indicate that individuals with disabilities often have other forms of impairments from; sensory, excellent motor control to mobility impairments that restrict their everyday abilities. The authors indicates that through changes to more adaptable wide-spread screening approaches to Autism prevalence in the US (Wright, 2017) and other countries would likely be higher similar to that of the UK. Subsequently, more parents would be inclined to have their child(ren) tested for ASD if they did not incur significant medical bills (Buescher, Cidav, & Knapp, 2014; Shimabukuro et al., N.D.). As such, it is essential to consider that many people out there are playing video games utterly unaware of their developmental disorder (The Independent, 2018). These users have needs that differ from neurotypical persons, and yet there is minimal framework suggesting creative solutions to meet the needs of these consumers (Yeun et al., 2010; Torrente et al., 2012).

Accessibility in games is an area that is continually evolving (Barlet & Spohn, 2012); however, focal areas cater to the hard of hearing and those with motor impairments. Large companies such as Microsoft have produced peripherals that enable physically disabled individuals to play video games using adaptive hardware (Spencer, 2018). However, there has been minimal research into accessibility methods suitable for those with cognitive impairments (Brown et al., 2011). Researchers like Yeun et al. have outlined that, "A significant number of people encounter barriers when playing games due to a disability. Accessibility problems may include the following: (1) not being able to receive feedback; (2) not being able to determine in-game responses".

Through exploring accessibility and ASD, one of the main areas of literature is how to support and encourage diversity within the games industry. This would involve analyzing different variant gamer's abilities and facilitating them every need (Bierre, et al., 2019). When a user begins playing a video game for the first time, they met with the onboarding process, which is a core level design component for any game (Byrne, 2005). Onboarding is a method used to educate users on the fundamentals required to play the game. It introduces game mechanics, tools, and the necessary skills to be successful at the

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