

Instructional Strategies for Autistic Adults Learning Video Game Design

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Abstract

A diagnosis of Autism Spectrum Disorders (ASD) indicates that an individual has a complex neurological disorder which impairs communication, behavior, and social interaction. ASD persists throughout an individual's lifetime; many adults with ASD are very knowledgeable and skilled, but they tend to be unemployed and underemployed because of difficulties interacting, communicating, and securing positions for which they are qualified (Chappel & Somers, 2010; Hendricks & Wehman, 2009; Nesbitt, 2000). This poster describes instructional strategies that match the information processing needs of adults with ASD. The poster is based on findings from a qualitative pilot study designed to identify best practices for teaching adults with ASD video game design. Data from semi-structured interviews with adult learners revealed direct, interactive, and experiential learning as instructional preferences along with the elimination of stressors (competition with others, limited time, and test taking).

Keyword: adults, ASD, instruction, technology, Autism

Introduction

Autism is a spectrum of disorders; several conditions are included in the spectrum: Autistic Disorder, Asperger Syndrome or Asperger's Disorder, and Pervasive Developmental Disorder- Not Otherwise Specified (PDD-NOS). According to the CDC, 1 in 88 children have a diagnosis of ASD (Autism Society of America, 2012). A great deal has been written about the needs of children with ASD. Volumes of scholarly literature exists on early intervention, teaching strategies, needs of families, efficacious therapies, technology tools, and special programs for children, but little has been written about the needs and issues of adults in the spectrum. Because ASD persists over the lifetime of an individual, children with ASD will become adults with ASD, and they will need some level of support to ensure a healthy, productive, and fulfilling life. Many individuals with ASD are able to use technology and are motivated by it. The use of technology in intervention planning is gaining momentum and producing promising results (Wainer & Ingersoll, 2010). Data from a qualitative study of adult learners with ASD reveals needs in instructional delivery and confirms underemployment. These findings should be considered by institutions, educators, and employers. The wisdom gathered from semi-structured interviews with adults with ASD can be used to inform the scholarship of teaching and learning.

Goal of the Study

The goal of this study was to explore practices at a training facility for adults with ASD to determine the instructional strategies used to teach video game design. Seven adult learners with ASD provided their perspectives on their experiences at the institute, their preferences in instructional environments, and their employment experiences. The research questions are as follows:

1. What instructional strategies are used to teach video game design to adult learners with ASD?
2. What is the employment status of interviewees with ASD?

Theoretical Framework

Social Constructivism is the theoretical framework for this study. In this theory, learners build unique and individual understanding based on their prior knowledge and experience. Learning takes place at the fringe of what is already known. Novice learners collaborate with more experienced learners who model outcomes, beliefs, procedures, and behaviors. Over time, the novice learns and applies the concepts modeled. In Social Constructivism, interaction is critical for learning content; interaction between beginning and more advanced learners supports practice and develops a climate for sharing knowledge.

Method

In an attempt to understand the instructional strategies and work experience of adults with ASD, contact was made with a technology institute for adults with ASD. The organization teaches design engine features and tools, map creation, and 3D Modeling. A request to conduct face-to-face interviews with students of the institute was made and granted. Subsequent University IRB approval was sought and granted. Students were selected by the institute and interviewed by the primary researcher. A diverse group of seven adult learners was selected based on their articulation ability and willingness to talk with the researcher. Two participants were African-American Males, one was a Caucasian Female, three were Caucasian Males, and one was an Asian-American Male. The institute verified an ASD diagnosis for each participant; all individuals at the institute are required to have valid testing from a licensed professional before admittance. Before the interviews began, the institute reviewed all questions.

The interviews lasted between 25 to 40 minutes and took place in a comfortable and quiet environment. Questions about employment, learning with technology at the institute, previous education, future goals, and class structure were asked. The final question was open-ended and asked if the interviewee had any additional information to share. All student interviews were recorded, transcribed, and printed.

The primary researcher conducted follow-up interviews with each student as a member check to ensure validity and gain additional information. Once interviews were verified, the primary and secondary researchers utilized peer review to ensure reliability and validity of transcript data. The researchers worked together to identify and agree on themes, expand and group themes into overarching categories, and record the frequency of each theme.

Results

The interviews provided a wealth of information. Students' responses indicated that they prefer Direct, Interactive, and Experiential Instruction. Students at the institute are heavily involved in Direct Instruction through demonstrations and explicit teaching. They learn to manipulate 3D Models and game engines through modeling. A more advanced student or instructor walks them through features of the tools and explains how to use the tools effectively. Coaching, explanation, and supervision are used to deliver direct instruction that is individualized to meet the needs of each student. Comments from 57% of the students indicate that their learning is "self-paced," based on their "needs and aptitude," and "one-on-one."

In addition, students' comments indicate that they prefer interactive instruction. They mentioned "face-to-face instruction," "follow-up by their instructor (both electronically and face-to-face)," "encouragement," "feedback," and "positive praise" as essential characteristics of a learning environment. Students interact directly with their instructor and they also interact with other students in a variety of ways. The most significant interaction occurs in Production Teams where students work together to learn to develop products and learn workplace skills. One student said, "Well it feels like I'm a part of the workforce, and [I] actually contribute something big."

Experiential learning is used in several ways at the institute. Students report that they are able to "learn newer technologies," and "expand and learn more" through their experiences and through their interaction with tools and people. They have the opportunity to create games and play them when they need downtime or have a break. Their interaction with other gamers creates additional experiences for individual learning. One student indicated that he enjoyed the "The fact that I'm surrounded by gamers

like me – The whole organization revolves around Autism and video gaming. This microworld is easier than things in the real world.”

Participants in this study were also asked about their employment experiences to determine whether or not these matched findings in the literature - adults with ASD tend to be unemployed or underemployed because of social, communicative, or behavioral challenges (Chappel & Somers, 2010; Hendricks & Wehman, 2009; Nesbitt, 2000; Taylor & Seltzer, 2011). Underemployment was reported by students prior to attending the institute. One adult was working at Walmart (14.2%), two (28.6%) were employed – one delivering papers, and one at a Taco Shop. The remaining students (57.2%) were living at home or attending community college. One student had worked as an Engineer, but was no longer in that profession. Since attending the institute, three of the interviewees (42.8%) have been hired by the institute as full or part-time instructors. The institute hires its advanced students to deliver instruction. These students are proficient using the software, they understand ASD, and they are able to deliver instruction effectively. The institute eliminates underemployment for some adults with ASD.

Conclusion

Many adults with ASD are very capable and technology savvy. Their educational experiences need to contain direct, interactive, and experiential instruction in order to help them reach their full potential. More programs and services for adults with ASD are needed to help them develop high-tech skills; more employment opportunities and training are needed also.

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