

Initial Plan: Is it possible to establish an agreed set of reasonable adjustments for creating gamified interventions to ensure that they are accessible to users with autism and enhance their UX?

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Module Code: CM3203

Module Name: One Semester Project

Credits Due: 40

### Project Description

Through a Systematic Review, Heuristic Evaluation and Thematic Analysis, I will evaluate tools and outline regulations which applications should follow to be more appropriate and considerate for children with autism. Mostly, my focus will be towards gamified learning interventions such as serious interactive games.

### Project Aims and Objectives

By evaluating pre-existing gamified tools, I will assess how suitable their features are for children with autism and then suggest a set of guidelines and recommendations which I think future applications need to implement.

I will use a systematic review to identify what methods are currently being used within gamified interventions for children with autism and whether they are effectively inclusive. I will also be comparing these to games designed for children, but not specifically children with autism, to assess how easily these games can be altered to be more accessible. For example, children with autism often have some sensory issues meaning that they can become overstimulated by some pre-existing game interventions. This can be accounted for within games by including adjustable settings for brightness and sound. The ideal aim for my project would be to design a tool which can allow game intervention and serious games to be available to all children.

I plan to carry out interviews with Dr Katherine Jones, a psychologist at Cardiff University who specialises in Autism and with Dr Andrew Bates, a psychologist who works with autistic adults. This will give me a chance to discuss what ideas I have drawn from my systematic review regarding a criterion for applications and hopefully gain their insights too.

My interviews will require ethical approval as they involve human participation and completion of the Research Integrity Online Training Programme. I will give both participants a brief before the interview and a debrief afterwards.

Another consideration I will evaluate is how physically available these games are to all children. For example: simplicity to use, whether they are free and regarding user experience (UX).

As the data I am evaluating will be in the form of reports and literature, which are classed as qualitative data, I will also conduct a thematic analysis to see if I can identify any patterns or ideas that are consistently used when designing gamified interventions for children with autism. Hopefully with the information I collect from this I can begin to form my criteria for future games.

Once both my systematic review and thematic analysis are completed, I shall conduct a heuristic evaluation where I will be personally measuring the usability of existing serious games and gamified interventions against the guidelines I have created and suggest ways to enhance product usability for autistic children.

### Background

An example of different processing techniques used by children with autism which may not be considered by thus-far gamified technology is 'bottom-up' abstract thinking. 'Bottom-up' thinking is the process of compiling a bigger picture through specific small details, whereas the neurotypical approach to this would be to assess the concept before the details. Individuals with autism have

been recognised to have near effortless associative thinking skills which can be used as an advantage within gamified interventions.

### Work Plan

10<sup>th</sup> February – Ethics Form Submitted in preparation for my interviews.

24<sup>th</sup> February – By this date I hope to have my Systematic Report completed and a suitable outline for a potential criterion which applications should meet for autistic children.

2<sup>nd</sup> March – Both interviews with my participants will be completed. This meeting will be to discuss the ideas and solutions I have formulated during my Systematic Review. I will write a brief and debrief to send to them before and after the meeting.

15<sup>th</sup> March – My Thematic Analysis will be completed by this date. I will analyse around fifteen pieces of texts by various authors regarding current practices for gamified intervention designs, studies on autism and effects this will have on learning and measures being taken on specifically game interventions for children with autism.

23<sup>rd</sup> March – My Heuristic Evaluation will be completed, which is my final form of analysis for this project. I am hoping to assess up to 10 gamified interventions and this will help me to develop the criterion that I have written for applications and assess how simply these guidelines can be inputted.

I will be having meetings with my Supervisor, Dr Daniel Finnegan, once a week where I will be able to discuss the work I have finished in that week and he can recommend areas where I can approve and what to elaborate on next.