

Assessing Fun and Engagement in Mobile Applications for Children with Speech Delay

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Abstract. This paper presents the fun and engagement elements, and the assessment methods of these two elements for children. Fun to children is something they do that is amusing or enjoyable. Engagement refers to how a child shares a positive connection to peers or activities. Both of these elements could be an important factor to support and strengthen learning among children. We employed the Again-again table and the Adaptive Behaviour Scale [24] from Bayley-III to measure and to assess fun and engagement, particularly in educational mobile apps for children with speech delay. A local prototype of speech therapy mobile application was used in the experiment, and the results have shown that both fun and engagement are correlated.

Introduction

The general term fun as defined in the American Heritage Dictionary of English Fourth Edition [1] is a source of enjoyment, amusement, or pleasure. Yusoff et al. [2] define fun as activities that are enjoyable and amusing for a person. A quote by Carroll [3], "things are fun when they attract, capture, and hold our attention by provoking new or unusual perceptions, arousing emotions in contexts that typically arouse none, or arousing emotions not typically aroused in a given contexts". It can be seen that the term fun is constantly related to positive emotions and feelings, such as happiness, laughter, excitement, and others. Based on Dorman [4], fun consists of elements of humour, chuckles, delight, laughter, joy, happiness, play, and many more. Fun is when one is experiencing liberated playfulness that ignites smiles as it brings a feeling of satisfaction that is pleasurable to their body and mind [5].

Fun to children is when they are extremely excited to play and to talk, which usually comes with lots of laughter and playfulness [6]. As fun could attract and holds ones attention easily especially for children in a learning activities, fun becomes an important factor and element to support and strengthen learning among children [7], [8], [9], [10]. This paper will describe the fun factor in designing educational mobile tools for children as well as the engaging factor used to measure the fun element. In this study, we recruited normal growing pre-school children with speech delay aged 3 to 6 year old. Ten random children were selected for the experiment.

In designing and developing children educational mobile apps, fun element in the design is important in order to provide an engaging learning for children [11]. Prensky [8] justified this view and stated that a combination of fun element could makes games more engaging for children. It was also stated that the engagement factor in any playful learning activities among children is valuable and useful in learning [8], [11]. There are plenty of exiting mobile apps for children and mostly are education mobile apps. As we are focussing on educational mobile apps for children with speech delay, most of these apps are for normal growing children. In getting feedbacks on how effective and useful these apps from these children could be challenging, as they have difficulties in articulating their thoughts, and their comprehension and understanding are very limited [14], [19]. Asking a good question to capture any child's opinion is also not an easy task. Borgers & Hox [13]