

## Evaluating the Factors Influencing E-book Technology Acceptance among School Children Using TOPSIS Technique

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### Abstract

Technology can change the nature of learning environment. Moreover, different modes of education enhance the ways in which school children learn. Nowadays, the classroom technology includes interactive learning technology, for example, electronic book (e-book) technology. The e-book is a book that is displayed on a computer screen or on an electronic device that is held in the hand, instead of being printed on paper. Acceptance of a new technology such as e-book technology is important for school children in Malaysia. Despite many claimed benefits, the school children would not accept technology without interaction with a computer. The purpose of this study is to identify determinants of usability and interface factors of Children Computer Interaction (CCI) leading to e-book behaviour intention to use for school children. Through the theoretical background unification of behaviour use intention, in particular, the Technology Acceptance Model (TAM) and interdisciplinary literature review relevant to e-book technology, a comprehensive set of constructs and their interrelationship were found as research hypotheses. The research hypotheses build the development of measurement framework, which was specified in an instrument. To find the importance of factors incorporated in the proposed framework, the data is collected by conducting a survey through a structured questionnaire-based instrument comprising 5-point Likert-type scale and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is applied. The results from this study analyses are discussed and a future research is suggested.

Keywords: Technology Acceptance Model, Interactive learning technology, School children learning, Child Computer Interaction, TOPSIS

### 1. Introduction

There has been an increase in the use of smartphones and tablet devices by adults and children alike in recent years. Unlike older generations, children nowadays grow up using IT devices as part of their daily routine and habit. On one hand, this phenomenon has not gone unnoticed by the IT industry and service providers who view child users as a growing market segment. On the other hand, educators are becoming more concerned about the role of IT devices in the development of children's skills and abilities. It is clear that there is an urgent and present need for more studies about the understanding on the interaction that takes place between children and the technology.

Electronic books (e-books) are but one of the many information technology, which children tend to use it in their learning. E-books are classified as self-contained digital texts, which mimic traditional books but are viewed on an electronic display (Felvégi and Matthew, 2012). The Oxford Advanced Learner's dictionary describes e-book as "a book that is displayed on a computer screen or on an

electronic device that is held in the hand, instead of being printed on paper" (Oxford, 2011). Over the past years, advancement in software and hardware has spawned the development of e-books. E-books have become very popular with the wide deployment of smart tablets and smartphones. Presently, several e-book formats are available in the market, particularly in HTML and Portable Document Format (PDF). The text is easy to download in HTML format and users are able to copy and paste it to other programs. Presently, PDF is the most utilized and common format for e-books in the market. Cavanaugh (2006) explained the reason for the widespread adoption of PDF in e-books is that several major software developers and electronic devices, like Android devices, Sony Readers, Microsoft Windows and Apple, utilize this format.

Despite the increasing popularity of IT-based education and the wide range of targeted subject domains and education levels, Wang and Yang (2014) mentioned that there has not been a consensus about their affordance for elementary learners in published research. For example, Grimshaw *et al.* (2007) found that multimedia features such