

CREATING INTERACTIVE IBOOK FOR ACADEMIC WRITING AMONG UNDERGRADUATE STUDENTS IN A MALAYSIAN UNIVERSITY

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Abstract

The purpose of this study was to investigate the challenges to learning about and conducting research in academic writing project in the field of education and the types of content and design most suitable for a local interactive iBook on research in education. This research combined both a qualitative and quantitative approach within two phases of ADDEI model: Needs Analysis and Design Development (Bichelmeyer, 2005). The researcher randomly selected 20 undergraduate students in the field of education whom were doing their academic writing within the University of Malaya. The participants completed two questionnaires; Needs Analysis and iBook questionnaires to identify the challenges to learning and conducting research, and also the types of content and design most preferred in a local interactive iBook. The results of the study indicated that reviewing a literature review was to be the most significant challenge for students in conducting research in education. Another problem was be able to identify a research problem in their research area. Findings also indicated that students significantly preferred the iBook in facilitating their learning in conducting research.

Results suggested that the content of the iBook needed to be in a diagram manner with a clean layout, visible font size, and attractive colours. The most preferred design of the iBook is keynotes with animation to convey content that are generally difficult to understand only through text. The aid of a scrolling sidebar was found very effective when used in combination with video clips and interactive images in comprehension exercises for the learning process.

Keywords: Design Development, Interactive iBook, Needs Analysis

Introduction

This research investigated the challenges of academic writing of research in education among undergraduate students and explores the development of an interactive iBook for research in education using a research setting.

The expanding number of educators needed in Malaysia, especially in English subjects, leads to an increased number of undergraduate students in universities. As academic writing is a compulsory course to pass among undergraduate students, this shows the need for more references and resources, especially those that are produced locally. Furthermore, locally produced books are limited in number and are usually based on traditional books from the West. Realizing this as well as the emerging assistive technologies such as electronic books that can be employed as a form of differentiated instruction (Edyburn, 2007), it is crucial to look into the creation of something similar for the learning of academic writing.

This research is aimed at exploring the development and use of an interactive iBook,

which includes opportunities for readers to read independently and navigate through “transformative contents”. The showcase features will go well beyond those found in regular eBooks, such as text highlighting and note-taking. Contents designed with iBook Author and viewed through iBooks can be linked on multi-touch capabilities. Such capabilities include multiple-choice tests with immediate feedback within the text, the possibility of consolidating one’s notes and highlights into a single location as study cards, the ability to create glossaries for a specific set of words and to access them as note cards, to create swipe-through image galleries, to add interactive image captions, to explore embedded graphics and 3D animations, sharing videos, and much more. (Alberizzi, 2013)

Research Problem

Textbooks on research in education are too lengthy and limited in reference resources. Furthermore, locally produced books are limited in number. Malaysian students are dependent on books from Western publication. Students complained on having lack of resources and in experiencing difficulties in reading and understanding conventional textbook that had lengthy text.

Since current university students are actively engaged and updated with the use of online technology, language instruction at the university level now requires a multilayered learning environment that goes beyond the traditional classroom lecture and is accessible twenty-four hours a day, seven days a week.

Hence, smartphones and tablets, which are widely used by university students, are the ideal platforms to teach research in education to obtain both active and engaging learning.

This study embarks on the following objectives:

- 1) To investigate the challenges of learning about and conducting research among undergraduate students.
- 2) To determine the content and design of an interactive iBook for research in education among undergraduate students.

Review of Related Literature

In Malaysia, academic writing is a course that every undergraduate student of Faculty of Education must pass in order to graduate. This course carries a minimum of at least 9 credit hours, depending on each university’s requirements, which is a big chunk of their Cumulative Grade Point Average (CGPA). In preparation of the course, students faced difficulties in writing an academic paper. Presently, many ESL students at the tertiary level are often challenged while writing (Reid, 1993; Ismail et al., 2008), are unable to write critically, are disinterested in writing, and have a poor attitude (Bichelmeyer, 2005) towards writing (Osman & Bakar, 2009). Lack of critical-thinking skills has resulted in a lack of in-depth content in student writings and also dull presentation of essays. This is true for many tertiary-level students including those from the University of Malaya (UM).

Further, in a study conducted by Ismail et al. (2010) regarding the writing problems of tertiary-level students, it was revealed that the many problems students faced in writing concerned not only their weaknesses in the language but, more importantly, their inability to think critically when writing, which contributed to their poor writing performance. Therefore, tertiary-level students need to be guided and trained to think critically and provided with high comprehension techniques of writing when they are writing.

Research textbooks or reference books written and distributed worldwide are mostly published in the form of traditional paper-based books covering topics such as problem definition, research questions, literature review, methodology, data collection, data analysis and other sections which further describe research theories, types of research, and report writing. In Malaysia, such books from the West are highly referred to by students, academicians, and researchers to build expertise and skills in research. Some examples would include books by Cresswell (2007; 2009), Neuman (2011), and Miles and Huberman (2003). In Malaysia, the Ministry of Education is expanding the number of educators, especially English language Educators and this is stated in the latest Malaysia Education Blueprint (2013-2025). This is because the English language has now become a compulsory subject to pass in every level of secondary school education. With academic writing as a compulsory subject to pass before graduation, further assistance and help is needed to address the undergraduate students in conducting research in education. This growing number of researchers presents the need for more reading or reference resources, especially those which are produced locally to support various fields of research, and researches on different levels and skills in Malaysia. Additionally, as paper-based books, magazines, and newspapers are slowly reduced in publication (e.g Newsweek are no longer published in hardcopies) making way for their online versions, and as research books from the West can also be difficult for Asian beginning researchers to understand, particularly those whose first language is not English, there is a strong need for a locally produced online book to fit the demand of future researchers (who will be predominantly generation Y) (Glen, 2000).

The iPad iBooks software, iBooks and iBooks Author, offer an innovative way for students to explore and learn about the world; it is interactive, potentially sensitive to learner accessibility with features like text-to-speech and highlighting of critical information, and may be useful in advancing the executive functioning performance of students with disabilities (Barkley, 1997; Meltzer & Krishnan, 2007). Furthermore, the online learning environment of an iBook may be enhanced through features such as video and audio, interactivity, or note taking.

A large textbook publisher, Houghton Mifflin Harcourt (HMHCO), conducted a pilot study using an iPad textbook (HMHCO, 2013). Two middle school classrooms were randomly assigned one of two mathematics books: a traditional textbook or an iPad textbook. For the duration of the school year, students used that particular book format. Dependent variables included measures of mathematics test scores. Results indicated performance increased by 78% for students using the iPad format compared to 59% for traditional textbook users.

The aim of this study therefore, is to explore the processes involved in the development of an interactive iBook in a research setting. Currently in Malaysia, most online books or eBooks are traditional books made available through online stores or libraries. These books do not include online features (e.g., links), most look and feel very much like traditional books, which are generally read on a computer screen. The traditional page layout of a book or its online equivalent is far removed from the interactive iBook to be realized from this study. The interactive iBook for this paper contains elements from iBook author. iBook Author allows for the inclusion of enhanced contents that stimulate interactive and immersive learning. The feature that sets iBook Author apart from other ePub based editing software is the possibility of adding a series of interactive objects, that enhance the reading and learning experience. There are nine different modifiable default widgets in the program: Gallery, Media, Review, Keynote, Interactive Image, 3D, Scrolling Sidebar, Pop-Over, and HTML (Alberizzi, 2013). At a first glance, these objects may appear more suitable for contents intended for an audience of young learners, such as

elementary, middle, or high school students, than for tertiary level of educators aimed at more mature readers. However, this is not the case, and they can in fact be used to create meaningful and powerful contents.

Methods

This research was conducted to investigate the challenges to learning and conducting research and to explore the development of an interactive iBook. The research was conducted in two phases based on ADDEI Model namely: Needs Analysis and Design.

Phase 1 was the Needs Analysis phase (Willson & O'Regan, 2007) (Research Skills Development). During this phase, 20 undergraduate students were required to answer a set of questions on a questionnaire about the challenges they faced when learning about and conducting research.

Phase 2 was the Design phase. This phase considered two areas: content and design. The content and the design questionnaire addressed findings from the Needs Analysis phase. This phase took place to ensure the most suitable content and design for reading the interactive iBook and learning about research.

Data Analysis

Two questionnaire forms were administered to twenty undergraduate students. Respondents were from the Faculty of Education and had taken the Academic Writing Project course.

The students' responses of their challenges in research in education and their preferred development design for interactive iBook were recorded.

Table 1: Challenges in Learning and Conducting Research in the Field of Education

Types of Problems Faced	Frequency of Students
1. Identifying a research problem	8
2. Reviewing the literature	9
3. Specifying a purpose and research question or hypotheses	1
4. Identifying the methodology to be used	2
5. Other	0

Based on the result, it was found that **reviewing literature** ranked first as the main challenge of undergraduate students in conducting research in the field of education. This is due to the fact that writing a literature review is difficult and confusing among undergraduate students. Students are more likely to copy and paste the resources they found onto their own work. They have difficulties in constructing their own sentences, especially to relate to the resources found. Students also faced difficulties in paraphrasing the resources found for their work. Moreover, students found the guidelines given in the conventional textbooks very lengthy and difficult for them to understand, which affected their writing of the literature review.

Table 2: Preferred Design for Interactive iBook

Types of Design	Frequency of Students
1. Gallery	2
2. Media	0
3. Key note	9
4. Interactive Image	2
5. 3D	1
6. Scrolling Sidebar	6

The results show several designs preferred by undergraduate students for their interactive iBook. **Keynote presentations** ranked as the most preferred design for the content of iBook. This is due to the fact that keynotes are invaluable in that they allow visually conveying contents (for example, layout of a literature review) that are generally difficult to understand only through text. By blending text with animations the same information is conveyed twice, making it easier to understand and remember (Alberizzi, 2013). Interactive images and diagrams can be added each time there is a need to introduce specific information.

Conclusion

This paper highlights not only the problems and needs of resources for research in education among undergraduate students, but also suggests a framework that can be used as a basis for developing a suitable interactive iBook that can suit the learning and writing needs of undergraduate students. The design and development of interactive an iBook is seen as crucial to satisfy the needs of tertiary-level undergraduate students in their academic writing to enhance their writing ability and to guide them in writing techniques. In this paper, the elements suggested in the framework are derived from the findings of the Needs-Analysis of undergraduate students for their academic writing. Further, the suggested framework can also serve as a model for developing similar interactive iBooks in research in education. It is hoped that this framework will provide a new benchmark for other versions of the same book as well as other interactive iBooks, which will revolutionize learning tools for a leadership in research.

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