My iPad: A New Learning Tool for Classrooms

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Abstract. The iPad is a well-known handheld interactive multimedia tool that has been quite popular lately among educators and students. Previous research investigating the iPad's role as a learning device indicated that the iPad encourages young children to feel engaged with learning and related activities, helps to bridge the communication gap between educators and students, supports educational literacy, collaborative work practices and helps the leaner connect with his or her peers. However, empirical and conceptual studies focused on the iPad are still in short supply at the moment. There is a growing need to examine the use of the iPad in educational arenas, such as classrooms and laboratories. Additionally, a thorough examination of the instructional and pedagogical advantages and disadvantages of using iPad for educational reasons is also required. Finally, longitudinal user studies with students (ipad users and potential ipad users) will bring a newer perspective to the body of research, which examines the use of iPad as a learning tool. With this aim in mind, an e-learning research project was launched at Salman Bin Abdulaziz University in Saudi Arabia. The aim of this research was to examine new forms of digital technology (namely the iPad) and ascertain if and how this device might act as a learning tool for Saudi students. This submission (a work in progress) will present the aims and objectives of this study, research methodology, research questions, and ultimately outline some research objectives based upon our recent extensive literature review on the use of iPad for educational reasons.

Keywords: Classrooms, iPad, instruction, learning, pedagogy, technology integration and technology acceptance.

1 Introduction

The past few years have witnessed the emergence of newer forms of interactive technology aids that have revolutionised the educational sector as a whole. Some of these highly-used interactive technologies include electronic teaching-boards, interactive markers, multi-touch interfaces and augmented reality based learning tools which are known for providing newer means of presenting concepts, ideas and opinions in educational settings [1, 2, 4, 6]. In this work in progress, we present a quick summary of our ongoing research, which is focused on evaluating the use of the iPad tablet as a learning tool in classrooms in Saudi Arabia. This evaluation requires careful examination of various internal and external factors: for example, the effect of iPad use on

academic performance of students, learning and academic responsibilities. Furthermore, the potential effect of the iPad on various educational stakeholders should be discussed on both a short and long-term scale. Earlier research about developing educational technology for Arabic speaking students is scarce at the moment e.g. [1, 2, 3], and subsequently the current research topic becomes more appealing and necessary at the present time. Most countries are now making efforts to implement large-scale reforms in their traditional educational systems, so as to experience the potential benefits of educational technology [7]. Saudi Arabia has emerged as one of the top spenders in the field of education, spending 55 billion USD during the financial year of 2013: 10% of country's total GDP (especially relevant as more than 50% of its total population is below 25 years old) [9]. Part of this educational spending was an e-learning research project launched at Salman Bin Abdulaziz University. The aim of this research is to examine new forms of digital technology, namely the iPad, and ascertain if and how this device can act as a learning tool for Saudi students. This on-going research is very relevant for the Saudi educational community and society, considering the fact that lately Saudi Arabia has emerged as one of the top spenders in education related budget. The aforementioned reasons make the Saudi educational scenario very lucrative for the iPad and other digital handheld devices capable of providing learning aid to students. The iPad is now considered a preferred tool for learning and performing various educational instructions due to its smaller screen size, multimedia support, longer battery life and light-weight [8, 10]. In 2012 Churchill noted that the iPad came to commercial market only in 2010 but within two and half years had successfully made an impact in the educational sector [10]. Due to the relatively new use of the iPad in education, instances of its use and integration of iPad as a learning aid are still scarce and they are considered as relatively unexplored learning and educational tools [10, 11]. This work in progress submission will present the aims and objectives of this study, research methodology, and research questions and finally outline some research objectives determined based on our recent extensive literature review on use of iPad for educational reasons.

2   Our Study and Research Methodology

The research methodology of this long-term and multidisciplinary study (which involves technology specialists, e-learning experts and educational researchers) has been influenced by the social science principle of triangulation that aims to combine qualitative and quantitative data to offer rich insight about any underlying problems and challenges [12]. The research methodology behind this study consists of various qualitative and quantitative methods. Our on-going research involves qualitative methods namely sentence completion, interviews, an open-ended questionnaire, focus groups and brainstorming, while the quantitative part mainly includes survey questionnaires. The primary study participants are students (mainly at university level, which includes undergraduate, graduate and post-graduates), teachers (both junior and senior) and other people involved in the education policy and decision-making procedures at University level. Based on our literature review, four emerging and open research questions have been outlined in the context of the use of an iPad as a learning tool in classrooms and educational environment. The open research questions are:

Study Research Questions:

1. How can we effectively examine and evaluate various instructional benefits of iPad use in context to educational domain?
2. What are the long-term effects of iPad use on students' literacy skills, academic performance, learning outcomes, educational policies, and pedagogical and instructional skills of the educators and responsibilities of different educational stakeholders in this regard?
3. What are the different tools, techniques, methods and strategies that educators can adopt for making use of the iPad in order to have a positive impact on students' learning and their various academic responsibilities?
4. Finally, what are the potential challenges, constraints and hurdles in the successful integration of the iPad or similar interactive digital technology into educational settings?

Research Objectives:

1. **Effect of iPad**: In order to properly capture the effect of iPad use on various attributes (for example learning, academic performance, classroom instruction and pedagogy), well-designed and controlled experiments that are long enough to assess the impact of iPad before and after the adoption of it as a learning mechanism.
2. **iPad and Educational Stakeholders**: Proper examination of various implications of using the iPad on different stakeholders of our education system including students (learners), teachers (educators) and education policy makers.
3. **iPad and Learning**: Experiment-based analysis of the possible impact of iPad use on the learning process, which includes reading, comprehension, and problem-solving skills in science, mathematics and other related subjects.
4. **Innovative ways of utilizing iPad in day-to-day classroom instruction**: Integrating the iPad with already existing devices and technologies such as smart boards, creating an orchestrated environment using iPad so that educational stakeholders can interact and collaborate throughout the learning process, and finding other similar mechanisms of preparing iPad based instruction, which are more engaging.
5. **Guidelines and recommendations**: Developing various guidelines and recommendations governing new curricula, instruction and pedagogy so that iPad-based instruction becomes smooth and easy for educators. Similarly, providing guidelines for application developers so that due focus can be given on developing education-oriented iPad based applications
6. **Developing Frameworks**: Preparing technology-independent analysis and design frameworks for education, as they are needed. These frameworks should be based on a solid educational, collaborative, and psychological learning ground, so that smooth implementation of the best educational technology and easy transition from one form of educational technology to another can takes place. If this vision is not practically realised then we might experience negative consequences in economical technological, and motivational terms, as a result of out-dated and constraining technologies at our educational institutions.

3   Challenges of iPad Integration into Classrooms

Existing studies on the subject have informed us that the iPad shares the workload of teachers, helping them in various classroom activities by enabling easy and quick content production [13]. Earlier literature on the teachers' attitude towards the adoption of educational technology has reflected that teachers have a high impact on whether or not technology is adopted in the educational space, as teachers influence their students' habits and behaviour [14, 15]. For this reason, Dhir et. al., argued that teachers might also influence the successful integration of newer technologies into the classroom environment e.g. iPad [4] and Twitter [5]. There are many challenges in this regard, namely teachers' limited IT backgrounds, their lack of troubleshooting skills required for regular iPad use [15], unfavourable school infrastructure, pedagogical and administrative obstacles as schools might want to stick with old traditional curriculum [11]. In this regard, Dhir et. al., [4] gave recommendations and guidelines that might ensure the successful integration of iPad use into an educational context. They included: (i) Customization of the iPad (such as screen size, language and images) so as to comply with the needs of students and teachers; (ii) Determining newer, innovative ways of organising and evaluating students' assignments; (iii) Proper IT training for teachers, so that they can address troubleshooting if and when needed; (iv) Understanding the needs and expectations of different stakeholders in our education system regarding iPad use; (v) Schools should calibrate their existing instructional strategies and curriculum so as to integrate iPad into the existing settings in a smooth fashion; (vi) Introducing iPad supported teaching strategies that can inculcate playful interaction, feedback and engaging learning among students in classroom environment.

4   Conclusions and Future Work

The iPad tablet offers tempting technological features for both learners and educators, due to its inbuilt support for advanced usability and ease of use. Lately, educators have emphasized the incorporation and integration of iPad into mainstream educational instruction and learning. However, research governing iPad use in an educational context is relatively new and scientific studies are scarce. At present, there is a pressing need to answer questions related to the potential impact of iPad use on students' literacy skills, academic performance and learning. Similarly what is the impact of iPad use on educational policies, pedagogical and instructional skills of the educators? Furthermore, the long-term effects of iPad use on learning outcomes, instruction, academic performance, learning and responsibilities of different educational stakeholders is worth investigation. This work in progress submission will present the aims and objectives of this study, research methodology, and research questions and finally outline some research objectives determined based on our recent extensive literature review on use of iPad for educational reasons.

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