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ENGAGING STUDENTS WITH MOBILE APPLICATION IS CONCEPTS THROUGH CREATING VIDEO VIGNETTES

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ABSTRACT

This teaching case presents a method for teaching IS concepts related to mobile commerce through a series of video vignettes. These student-created vignettes provide participants with the opportunity to explore and demonstrate the three key mobile commerce characteristics of Ubiquity, Context Awareness, and Identifiability. These three characteristics are essential to revenue generation and product differentiation for most mobile applications. Most college students use them on a daily basis; however, they are unaware of the strategic importance of these characteristics. Yet, it is the authors' experience that quantifying, demonstrating, and discussing these concepts present students with significant difficulty. Thus, this case highlights how students in introductory IS courses have an opportunity to investigate and explore IS concepts outside of a traditional classroom format. The hands-on interactive use and demonstration of mobile application features made possible through these video vignettes can lead to measurably increased learning of IS concepts in classroom implementations.

Keywords

Mobile Commerce, Mobile applications, Ubiquity, Context Awareness, Identifiability, Active Learning, Video Vignettes

INTRODUCTION

There is a case for allowing business students to engage in creative endeavors in order to spur innovation in the business world. Many companies have noted that the top three skills that recent college graduates lack are interpersonal or people skills, problem-solving skills, and oral communication Skills (Press Room | Career Builder, 2015). Computing academics also agree as they have identified "analytical and critical thinking, including creativity and ethical analysis" as being a primary skill that should be developed from IS coursework (Topi et al., 2010). Mobile applications are an exciting topic for students and provide a great deal of opportunity to thoroughly examine mobile applications and extract relevant technical and business aspects. The skills and knowledge that students can acquire after engaging in a mobile application activity can have multiple benefits. Those benefits can include, but are not limited to (1) sparking interest in the IS field that may not have existed before, (2) sparking interest in complementing a core business discipline with and IS minor (i.e. Marketing IS or Management IS), and (3) developing presentation skills, collaborative work skills, and analytical skills.

A challenge that IS faculty encounter is to effectively engage in a mobile application activity when students have very little to no formal training in the content area. There are numerous ways that faculty can engage in high-level concepts in an introductory Information Systems (IS) course. Bloom's updated taxonomy on learning highlights multiple levels of learning (Anderson, Krathwohl, & Bloom, 2001), where faculty can create environments in class where students do not have to wait until they have extensive knowledge in the content area in order to begin to analyze how it is represented in other forms. For example, there are many coding camps for K-12 students that specifically aim to introduce students to complex programming concepts from a young age. MIT created Scratch, Microsoft Research created Kodu gaming lab, and Carnegie Mellon created Alice – all programs that teach fundamentals of complex programming (loops, variables, etc.) through easy-to-use and innovative technology. Thus, we believe that core business IS aspects of mobile applications can be presented in the introductory IS course.

The remainder of the paper is organized as follows. First, we will discuss the benefits of this activity for students, specifically focusing on its application in the broader scheme of educational goals for graduates of IS programs and curriculum. Second, we will provide a literature review of mobile commerce and mobile applications, focusing on the business and information systems (BIS) perspective rather than on the technological perspective. Third, we will discuss the importance of active learning and examine how video vignettes provide a flipped learning classroom experience for students. Lastly, we will provide guidance on how to implement this activity as a case-based activity and conclude with future research directions.

BENEFITS FOR STUDENTS

Today's students are looking for engaging approaches to learning content. Lecture-style teaching has its place in academia, however, it is incumbent upon IS faculty to be on the forefront of using technology in innovative ways in the classroom. It is also imperative for faculty members to ensure that the teaching style is used in an effective manner, ensuring that the content is explicitly identified in order to ensure that students are learning the material. In the next section, we discuss the learning outcomes of the activity and identify how the active learning approach will better support knowledge attainment and retention of the content at hand.

The IS 2010 guidelines identify high-level outcomes for graduates that IS curriculum aims to address (Topi et al., 2010). This mobile application activity focuses on engaging students to understand how individuals and organizations "exploit opportunities created by technology innovations" (Topi et al., 2010). More specifically, the guidelines identify three main categories that describe the knowledge and skills that students should gain when engaging with IS curriculum: IS specific, Foundational, and Domain. A select few of these guiding principles have been adapted to provide a useful framework for the outcomes of an activity that engages in complex IS concepts on an introductory level (shown in Table 1).

	IS Specific Knowledge and Skills
1	Improving various stakeholders' experience in interacting with the organization, including issues in human-computer interaction.
2	Evaluating cultural differences for options that cross-geographical boundaries.
	Foundational Knowledge and Skills
3	Communication using video creation and editing skills
4	Analyzing the ethical and legal implications of mobile application
5	Analyzing the risks associated with use of the mobile application
6	Enhancing innovation and creativity in oneself and others
	Domain Fundamentals
7	Key specializations within the mobile application domain
8	Evaluation of performance within the mobile application domain

Table 1. Knowledge and Skills Developed in Mobile Application Activity

LITERATURE REVIEW

Mobile commerce is a significant part of the global economy (Ashraf, Thongpapanl, Menguc, & Northey, 2016) and the core technological foundation of mobile commerce relies upon mobile applications. In 2017, it is estimated that annual mobile application downloads on smart devices has reached $187 billion (Ghose & Han, 2014). Mobile applications have become the central way that individuals interact with organizations on smart devices. Thus, many students have a genuine interest in exploring the topic of mobile applications. In the introductory IS course, faculty aim to expose students to the foundational IS concepts and to peak student's interests in the many domain areas that are impacted by technological developments. However, we also aim to broaden student understanding of the technology that they sue on an everyday basis, from a strategic organizational perspective. Thus, we aimed to find a way to examine mobile application concepts in a palatable manner where students can begin to think from a technological and organizational perspective about mobile applications.

Core BIS Aspects of Mobile Apps

Various research studies have examined ways to analyze mobile applications. A majority of the studies focus on the more technical aspects of mobile applications, specifically design (Sopha & Balkan, 2014), development (Esakia & McCrickard, 2016), or usability (Hoehle & Venkatesh, 2015). Other research focused on the interactions between the user and the application (Nickerson, Muntermann, Varshney, & Isaac, 2009). However, these approaches to analyzing mobile applications did not directly tackle the "IS" in the mobile application phenomenon, the unique intersection of business concepts and technology concepts. Therefore, we adapted some of these technical concepts and integrated important business concepts to identify three business information systems (BIS) aspects of mobile applications.

Ubiquity

Ubiquity is a concept much discussed in the mobile application context. Ubiquity refers to "the idea of anytime, anywhere" where users can gain information at the touch of a screen and business can reach customers far and wide (Green, Hechter, Tysinger, & Chassereau, 2014; Siau, Ee-Peng, & Shen, 2001). Ubiquity as a BIS concept has exponentially expanded its importance due to the emergence of the Internet of Things (IoT) where numerous smart devices are used to track all types of user activity. For example, mass adoption of consumer wearables (Perez & Zeadally, 2017), especially by millennials (Jump & Escherich, 2017), provide an avenue for an in-depth discussion of the implications of ubiquitous use of smart devices.

Context awareness

Context awareness refers to a mobile application's ability to know where a device is and what it is doing in order to "deliver the right type of information … at the right time and the right location" (Emmanouilidis, Koutsiamanis, & Tasidou, 2013). Many applications use context awareness functionality as an important means of both creating entertaining and easy-to-use software, while at the same time relying on context awareness for revenue generation. Many interesting examples of context awareness have already been implemented in a variety of scenarios such as helping to deliver pizzas and even in teaching astronomy. As one example, social networking applications like "find my friends" use context awareness to display the location of other nearby users. These same types of applications may also deliver advertisements to users based on their geographical proximity to stores and retailers.

Identifiability

Identifiability refers to the inherent personal nature of mobile devices, where mobile applications have the ability to connect the device with the user's offline identity (Woo, 2006). Mobile devices are most often the property of one individual, and mobile applications take extensive advantage of this fact when presenting services and recommending products. Device-spanning identifiability is the crux of Google's Android operating system, which seeks to develop a data-sharing platform that distributes and shares data for one particular Google user across the entire offering of Google products. The assumption of identifiability allows the device to tailor most aspects of the user experience across any application currently running.

ACTIVE LEARNING

Active Learning engages students in the learning process, by doing more than just listening. They fully engage with material through higher-order thinking such as analysis, synthesis, and evaluation (Anderson, Krathwohl, & Bloom, 2001). Carrington (2016) provides a "pedagogy wheel" which is integrated with Bloom's learning taxonomy and helps teachers strategically use technology enhancements in the classroom. YouTube is listed as an educational application in the "Evaluate" section where the application "improve[s] the user's ability to judge material or methods based on criteria set by themselves or external sources. They help students judge content reliability, accuracy, quality, effectiveness, and reach informed decisions" (Carrington, 2016). YouTube is an ideal platform for the dissemination of video vignettes created by students.

Video vignettes have been used in education from a teaching perspective, where the videos contain content that the instructor wishes to teach to students using an alternative method from lecturing (Visser et al., 2016; Wright, Newman, Cardinale, & Teese, 2016). Many faculty start a new topic with a short video that gets students interested in the topic before delving into the particulars of the content. However, this activity uses the creation of the video vignette by the students as a for them to explain the content to their peers. This "flipped learning" approach (Hwang, Lai, & Wang, 2015) is similar to having students create a PowerPoint presentation and teach the class a part of the topic. Alternatively, this activity takes advantage of student's interest in mobile technology. Rather than engaging in the ongoing and ever present debate on whether or not to allow technology in the classroom (Armstrong, 2014) as it may be a distraction, this activity highlights how mobile devices can be embraced in the classroom and used as a teaching and learning tool. Also, requiring students to create the video vignette in a short 2-minute time frame requires student to reduce extraneous statements, focus on a concise description of the app, the important BIS concepts, all while ensuring that the video vignettes is entertaining.

IMPLEMENTATION GUIDANCE

The activity is introduced to students as a case study where the output is a 2-minute long video that is uploaded to YouTube (Figure 1). Students are given ample to identify an existing mobile application that they would like to examine. Prior approval by the instructor is required to ensure the suitability of the mobile application for the case study. Students are given freedom as to how they would like to create the video. Some students use their mobile device to record the video; other students use audio over a PowerPoint presentation. Almost all students develop a script that they used to ensure the three core BIS concepts are directly addressed in the video vignettes. After all video vignette submissions are assessed, the class selects the top three video vignettes that best addressed the three concepts and were entertaining.

CASE 4: MOBILE APP VIDEOS

For this assignment, you will develop a short video (Minimum: 1 minute 30 seconds; Maximum 2 minutes) discussing your assigned mobile app. In the video, be sure to discuss any ways in which your technology implements some of the characteristics of mobile commerce that we have discussed. Specifically, actively show and demonstrate your app's features around ubiquity, context awareness, and identifiability.

- You may work in groups of three for this assignment
- All groups MUST get instructor approval for your topic. Topics that have not been approved will not be accepted!
- Your video MUST be uploaded to YouTube
- Submit the URL linking to your video in the discussion forum

Figure 1. Case Instructions

FUTURE RESEARCH AND CONCLUSION

The authors' implemented a "proof of concept" version of this activity in the Introduction to IS course in a southeastern American university. More recently, the authors' updated the activity to include the specific BIS concepts discussed above and the activity will be replicated in other universities. We have also developed a survey to collect pre- and post-activity data on student understanding of the BIS topics addressed in this activity at the beginning of the semester and at the end of the semester. This will allow the faculty to better understand the impact of the activity on student learning outcomes and help faculty improve on the activity for future iterations.

There are academic and practical implications of using this activity in an Introduction to IS course. Mobile commerce and mobile applications are both deeply intertwined in today's business world. It is important for students of all majors to have a better understanding of the complex BIS underpinnings of mobile applications. For practice, this activity helps students develop concise communication skills using a video platform that allows students to engage in creative expression. This also helps students who are unsure about which domain to choose in the business school consider IS as a major. Since IS is truly the intersection of technology and business, this activity allows students to engage fully in both aspects of IS and have fun while learning.

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