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### Recommended Citation

Balkan, Sule and Sopha, Matthew, "I'm Going Mobile: Teaching Freshmen Business Students Mobile Application Development" (2012). *AMCIS 2012 Proceedings*. 25.

<http://aisel.aisnet.org/amcis2012/proceedings/ISEducation/25>

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# I'm Going Mobile: Teaching Freshmen Business Students Mobile Application Development

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## ABSTRACT

IS enrollment has been declining in recent years. In an attempt to introduce key Information Systems concepts to freshmen business students in a fun and engaging way, we introduced a mobile application design project that recently allowed them to develop a live application on real smartphones. While going through this process, students learned some of the basic tenets of the discipline of Information Systems while simultaneously realizing the relevance and applicability to their future lives as 21st Century professionals. In this paper, we outline the core course progression for a typical Information Systems department, detail the process through which we engaged the students, and confirm our assertions through textual analysis of self-reported comments on their experience with this mobile application project.

## Keywords

Mobile Apps, Teaching methods, IS Enrollment

## INTRODUCTION

One of the many challenges the Information Systems (IS) discipline currently faces is low enrollment. Reports of enrollment declines of 70% or more are not uncommon (Granger, Dick, McKinnel Jacobson, and Van Sluke, 2007). Introductory IS classes are limited in scope and lack the depth and breadth to demonstrate the opportunities an IS degree can provide to students for their future careers. Demonstrating the practical application of the course work and linking business and technology are identified among the subject matter interest (smi) factors for selecting IS as a major (Ferratt, Hall, Prasad, and Wynn, 2010). Recently in the Department of Information Systems at Arizona State University (ASU), we experimented with a new method of teaching the Introductory IS class to incoming business honors students: we provided smartphones to student groups and asked them to develop a proposal to build their dream mobile application. Mobile applications, or apps, refer to small-scale software applications developed to best utilize the interface found on thin mobile computer clients, such as smartphones and tablets. Gartner's list of top strategic technologies for 2012 boils down to one word: Mobility. Since "there's an app for that" has become ubiquitous in the college freshman vernacular, we wanted to seize this opportunity to generate curiosity, and to demonstrate the relevance of a degree in IS to freshmen business students.

As use and development of mobile applications are multiplying annually, employing mobile app development as a curriculum enhancement tool in the *Introduction to Information Systems* class is a powerful method to demonstrate how relevant and critical the skills learned in the IS discipline are for business students. In addressing the credibility crisis in IS, Firth, King, Koch, Clayton, Pavlou, and Trauth (2011) mention the importance of relevant teaching which involves understanding the skills that graduates need. In this paper we review the steps taken to develop apps with students with no technical background. We summarize our methodology and the impact of using such a popular subject to teach the fundamentals of IS. First we review the literature around IS teaching methods and the use of programming and game design methodology in business schools. Then we review the objectives of an introductory IS class for business students: how mobile app development was made relevant to the learning objectives while analyzing the traditional method to build the knowledge and skills necessary to design and develop an app. Next, we explain our journey with freshmen honors students, how they dealt with knowledge limitations and the limitations imposed by the available technology. Working with the AppMakr web tool, we see through the eyes of students as they compare what they "want" to do against what they "can" do. We finish the paper with student feedback and next steps.

## IS TEACHING METHODS – LITERATURE REVIEW

McBride and Hackney (2003) discusses establishing the principles of IS teaching, emphasizing the interdisciplinary nature of IS, a key feature being multidisciplinary content involving a variety of reference topics and approaches. IS consistently draws upon concepts and material from diverse subject areas while playing a role in many disciplines (Baskerville and Myers,

2002). It's broad subject base ranges from management, sociology and social psychology, to formal logic and relational algebra (McBride and Hackney, 2003). A common denominator for all IS teaching is the need to encourage innovation and creativity within the theory and practice of IS (Davis, 2000). The design and implementation of strategic applications to improve business performance and deliver service enhancements requires this innovation and creativity. The recognition and development of these systems requires an "artistic flair" which is not normally associated with IS teaching. But as IS teachers we need to be aware of the artistic and creative elements of our discipline (Koch, Van Slyke, Watson, Wells, and Wilson, 2002).

Yet there is a need to strike a balance between being too technical vs. being too artistic when designing a class for students with limited technical backgrounds. Similar to our experiment, other business schools have experimented using programming on non-technical audiences. Gaskin and Berente used video game design in an MBA class to teach complex concepts to business students which was received with enthusiasm, providing a unique and memorable experience for students to draw on as they encounter situations requiring design thinking in the future (Gaskin and Berente, 2011). Wyner and Lubin explain how MBA students with non-technical background were given a hands-on introduction to the concept of an application programming interface (API) with a similar goal: to teach students not only *what* an API is, but also a sense of *how* APIs work and *why* they are important – and thus why analogous concepts across computing and web architectures are likewise important (Wyner and Lubin, 2011). The major difference between these studies and ours is their audience: MBA students vs. new freshmen. Yet these studies all focus on teaching IS concepts to students with non-technical backgrounds using hands on programming tools.

### **INTRODUCTORY IS COURSE LEARNING OBJECTIVES**

ASU business honors students take the *Introduction to Information System* class as freshmen. This class bundles the *Computer Applications and Information Technology* class with a core IS course that introduces the competitive and strategic uses of information systems. The first evaluates information systems from a business intelligence perspective for efficient and effective problem solving via database and spreadsheet application packages. The second introduces the competitive and strategic uses of information systems: how information systems are transforming organizations and the issues, difficulties, and opportunities facing technology professionals and business managers. So, students not only learn basic applications (ex. Excel, Access), but also how to transform businesses through information technology and become familiar with central IS concepts.

The class ends introducing the system development life cycle (SDLC) to students, explaining the various methods of analyzing and designing a system to show them what awaits an IS major at the capstone class. Students work on a group project to understand the systems analysis concepts and steps. The project consists of selecting a process that is manual or semi-manual, writing a business case to identify the "as is" process and then explain, in detail, the steps of how to automate it via the "to be" process, finally identifying and analyzing the requirements based on the five component framework of IS.

Recently we began presenting the project as a mobile app concept where students go through the steps mentioned above through creating an app, aiming to make them more aware of the scope and audience. The intention of the mobile app project is to introduce freshmen honors students to the SDLC in a more relevant form. The project is divided into several steps to make sure that students learn the steps of systems analysis by living the experience. First students come up with their dream app ideas, sorting and scoping the ideas, making sure their idea can be executed in app form. The students then propose their simple, small-scale mobile application and proceed through a guided, modified version of the SDLC. The project introduces concepts such as: Cost-benefit analysis using NPV, database design using E-R diagrams, the client-server relationship, As-is vs. To-be process analysis using activity diagrams, and writing professional business proposals. The projects stop short of any implementation portion of the SDLC as freshmen classes possess technical and skill set limitations...until very recently.

### **AN IS PROGRAM TEACHING MOBILE APP DEVELOPMENT?**

There are two fundamental approaches to mobile app development, each with their own unique perspectives and pedagogical techniques. These represent a top-down and bottom-up approach to application design and development. The technical approach is more the purview of Computer Science (CS) programs, while the managerial approach aligns more with the mission statement of IS programs. Our focus is on using information technology to improve the way business is done.

Examination of existing curriculum for creating mobile apps at several major universities reveals what appears to be a slight underestimation of the importance to electronic markets that mobile apps represent. Most CS departments offer nothing more than electives on the subject while an overwhelming majority of IS departments do not even cover the subject beyond a cursory reference or a textbook chapter. The challenge here is two-fold: 1) how do you make a strong technology-focused course path relevant to IS majors? and 2) how do you make said course path without a large Venn overlap into the CS

discipline? We have been working on developing a two-term course to address these needs directly but this is still in the early planning phases, and lies outside the scope of our discussion here. Through the lens of the experience with the freshman honors students, a strategy emerges for how to a) introduce systems/application development early and effectively to untrained students, b) make something complicated into something fun and relevant which has the side-effect of c) driving up CIS enrollment.

### Existing IS Curriculum

A typical IS undergraduate program follows the logic of introducing students to business computing technology concepts in the core program while offering a base of experience in general business concepts through electives in other departments. Taking an example from one top rated IS department, the core IS curriculum adheres to the structure enumerated in Table 1.

| Course Title                                     | Course Description   |
|--|--|
| <b>Year One</b>                                  |  |
| Computer Applications and Information Technology | Introduction to computing technologies and their business applications                     |
| <b>Year Two</b>                                  |  |
| Introduction to Information Systems              | Overview of the important concepts related to IS   |
| <b>Year Three</b>                                |  |
| Business Information System Development I        | Applying the SDLC with UML to small-scale application development                          |
| Business Information System Development II       | Solving business problems with basic OOP   |
| Business Database Concepts                       | Theory, design, and application of relational database systems                             |
| <b>Year Four</b>                                 |  |
| Electronic Commerce Strategy                     | E-commerce theory and basic web design   |
| Networks and Distributed Systems                 | Communications protocols, distributed systems, network security, and client-server systems |
| Systems Design and Electronic Commerce           | Capstone course: enterprise systems design with a focus on project management              |

**Table 1. Existing CIS Curriculum Example**

If you examine the subject matter of these courses in relation to the skills required for mobile app development, you can see a significant degree of overlap. Students in this IS department learn the importance and application of these fundamentals of IS and are better prepared to be effective members of the 21st Century workforce. What is more essential is to create awareness of the marketability and usability of these skills for business majors. That is when the Introduction to Information Systems class comes into the picture.

### USING SMARTPHONES TO TEACH SDLC

A freshman introduction to IS course is by no means sufficient to acquire the skills necessary to build an app. But a student with a degree in Information Systems will possess the knowledge and skills to create an app. Microsoft's Campus Engagement Program provided an opportunity for us to implement our mobile app projects on actual smartphones. With the new approach the students were expected to implement apps on the phones they were provided by the end of the semester. This created a pronounced awareness of the scale and scope of the project. This gave us a great opportunity to see firsthand how incoming business majors would deal with identifying and implementing the technical solutions they proposed.

### App Design Made Manageable

The students are encouraged to develop ideas for apps that they, as university students, would like to have. They are tasked with evaluating their routines to determine what recurring processes could be made more efficient through the use of a mobile app. Many of the ideas were incredibly creative, regardless of their scope and scale. For example, some of the more innovative thinkers among the groups designed app ideas such as: a "check in/out system for dormitory recreation lounge

items” or “an interactive map of the accessible restrooms on campus” or even “an app to determine campus traffic congestion hot spots and times.”

Possibility of the actual implementation changed the project scope more than we could have imagined. While they would still go through the same design process as in years past, the approval process for their app ideas was more rigorous. Their ideas would need to be proposed in person, and they would be required to address questions up-front that would encourage a deeper level of thinking about the practicality and design needs. For example, one group, who pitched an idea for an app that would require buy-in by university dining were asked questions similar to Table 3.

| Question   | Related Topic(s)                                       |
|--|--|
| Is there a "back end" that gets managed by someone in campus administration?   | Databases, UML, OOP, strategy, business administration |
| How would you incentivize this for the university so they would find this beneficial and not simply develop their own app? | Strategy, business administration                      |
| How would you utilize the GPS functionality of the phone? Also, where would you get the maps of the locations on campus?   | OOP, systems design                                    |
| What would the algorithm for matching dietary concerns with food choices work?   | Databases, UML, OOP                                    |
| How will this make money or at least be revenue neutral?   | Strategy, business administration                      |

**Table 2. Sample App Project Questions Posed to Students**

The new project approach required students to reduce the scope and scale of their target markets. To their credit, many students have lofty ambitions when proposing their ideas, but the appeal should not reach beyond the needs of students at the university. A significant majority of the app ideas proposed simply did too many things, requiring them to scale back the functionality of their apps. Most groups were asked to explain the core functionality of their apps in one sentence; once they accomplished this, they discovered their app ideas were more manageable, and could see a path to finishing a leaner, more useful design. Going through this exercise of thinking through some of the more complex issues up-front allowed students to have a better understanding of their own idea, the high-level of expectation for this project, and a stronger awareness of what system design entails.

Up to this point, the work they had done was from the top-down perspective. While a small number of students had some idea of what to expect writing code, a majority of the students had no real sense of the work of programming mobile applications. This type of hands on app creation gave the students who participated a new perspective on how apps should be designed and gave them a small glimpse into the work that goes on in the proverbial guts of a mobile app. Students contacted software or service companies, conducted interviews with business owners, brainstormed with their engineering friends, and did extensive research to find all the components to make their dream apps work with a positive NPV. Some groups shopped for servers, others decided to use cloud-based platforms. Even database solutions varied. Most importantly, students heard about all the projects during the week of presentations and witnessed several new business ideas that were made possible with information technology. The classroom during presentations week created focus group discussions beyond the dreams of any marketing firm.

### AppMakr

The most important new aspect of the projects was the introduction of students actually implementing a simple mobile app. Using a set of test phones loaned to the department, running Microsoft Windows 7 Mobile, students were given a walk-through of the process needed for creating an app via a WYSIWYG web tool, AppMakr ([www.appmakr.com](http://www.appmakr.com)). The AppMakr tool is limited to creating “mashups,” aggregating information feeds from different sources. The students would be tasked with creating a mashup for the Barrett Honor’s College at Arizona State University, in which the entire population of these students was enrolled. The walk-through detailed steps for 1) Creating a developer account through Microsoft, 2) Installing the SDK for the mobile environment, 3) Generating a mashup app via AppMakr, 4) An example of how to generate a feed if one does not previously exist, 5) Deploying their app in an emulator on their local machine, and 6) Deploying the app to an actual mobile device for testing.

The process for generating an app of this type is not terribly complex, but it allowed the students to see some of the steps necessary for utilizing actual tools and processes that they would encounter if there were to develop an app in a “real world” environment. As they wrapped up the walk-through they were shown examples of what decompiled code generated by

AppMakr looked like in Visual Studio 2010. Given that they felt the SDLC was already a difficult, but fun, process, many of the students were amazed at some of the complex things they saw in the code examples.

The key realization here had to do with the gap in their existing skillset compared with what they needed to realize their dream apps. By creating a simple mashup and seeing some of the inherent complexities even for something like this made students take a step back and reevaluate their own apps. The SDLC project they had been working on required them to go through essential planning steps that resulted in relational database diagrams, interface mockups, basic technology requirements, and activity diagrams. But most all of these young students had no real experience with actually creating any of the items in their designs.

This is where the IS program came back into their sights. The IS degree program outlined above gives students hands on experience working with the SDLC, UML, basic OOP, database creation, and chances to apply these in various contexts. These represent a piece of the hard skills needed to create their dream apps that AppMakr simply could not handle. AppMakr does not: generate local data storage, provide access to custom data beyond what is offered in RSS/XML feeds nor allow for complex interfaces. AppMakr is wonderful for creating simple aggregation of existing content but not for making their dream apps. For that, they would need skills like those introduced in the IS program.

### BARRETT HONORS COLLEGE APP

The news that freshmen students were working on a real mobile app project spread quickly and the Vice Dean of Barrett Honors College wanted to see the project. A group of enterprising students (many of whom have enrolled as IS majors or are double majoring) with their professor, presented a demonstration of the Barrett mashup app they created with AppMakr to the Vice Dean of the Barrett Honors College at ASU.

During this presentation they explored what they had learned during their time both in class and through their mobile app project, followed by a demonstration Barrett mashup app. The students could have simply stopped at this point, as the dean was clearly impressed with not only their app, but with these students themselves. However, the students wanted to present the limitations of the current mashup app and highlight how they could proceed with a full-featured Barrett mobile app if given the time and the necessary education with the IS department.



**Figure 1. Barrett Honors College Mashup App Screenshots**

The Barrett mashup app was designed to aggregate interesting information relevant to Barrett. It pulled existing and user generated RSS/XML feeds from: the Barrett Flickr photo tour, the Barrett news feed, the Barrett Twitter page, the Barrett Facebook page, W.P. Carey School of Business news, and the IS Newsletter (KnowWPC-www.knowwpcarey.com). Screens from the app are shown in Figure 1. This is a nice app that can demonstrate what freshman students could create given the tools and means to express their creativity and skills with technology. But this was only the beginning.

Presenting the limitations of AppMakr as well as the potential that they could achieve with the IS department, the students proposed a fully realized Barrett app that can incorporate the existing functionality in the mashup app but add functionality inherently relevant to these students' everyday life at the university. These items, in their own words, are shown in Figure 2, from their presentation to the vice dean.

ARIZONA STATE UNIVERSITY

## What's Next?

- Student Designed and Developed Barrett Mobile App
  - Barrett news and events
  - Honors calendar and requirements
  - Check-in to lounges
  - Check-out supplies
  - Searchable database of department contacts
- We are limited only by our imagination
  - Examples seen in CIS 236 proposals




**Figure 2. Proposed Barrett Honors College App Features**

They went on to list what a future “Dream Barrett App” could potentially do, displayed in Figure 3, in the students' own words. This entire experience and their future ambitions were driven entirely by their experience in the *Introduction to Information Systems* class. Expressing what they can do married with what they can learn, the students impressed the Barrett Vice Dean, driving the point home with the sentiment that they “are only limited by their imagination.” This initiative was also broadcast in the IS Department e-newsletter KnowIT (<http://knowwpcarey.com/article.cfm?cid=14&aid=1110>).

ARIZONA STATE UNIVERSITY

## A Dream Barrett App Would...

- Use ASURITE to verify a student's Barrett status
- Have an events option that allows Barrett students to RSVP to events
- Have a news tab that displays the latest ASU/Barrett news
- Have a menu section that displays today's Barrett cafeteria menu
- Utilize a searchable database of Barrett directory and staff
- Offer a support area where you can submit questions regarding Barrett
- Check-in and/or reserve lounges
- Check-out supplies at the front desk
- Thesis calendar, announcements and notifications
- And many more....




**Figure 3. Barrett Honors College Dream App Features**

### STUDENT FEEDBACK AND DISCUSSION

End of the semester student evaluations showed that students were pleased with what they were able to do and accomplish within one semester. The uncertainty introduced into the project with doing research to identify specific requirements (hardware, software) and related choices caused some discomfort for a minority of students. Overall academic rigor metric for the class, measured on end-of-semester student evaluations, increased by 0.5-0.7 points to 6.7 out of 7 from previous semesters that featured only a conceptual mobile app. We observed a 10% increase in the number of students who wanted to

major or dual major in CIS. Beyond overall course evaluations, two specific questions were posed to our students, adapted from Wyner et al.'s (2011) classroom experiment with MBA students:

1. Why do you think it is useful to learn building a mobile phone app in an introductory IS class for business students?
2. How did this hands-on experience change your perception about the capabilities of information technologies and the methods by which they can be developed in the service of an organization?

Recurring answers for the first question included: 'being able to access the technology,' 'keeping up with the modern technology curve,' 'a great way to understand the information systems application and technology,' and 'to learn how new technologies used in a business environment.' Most students mentioned the importance and necessity of business majors knowing technology and how business and technology go hand in hand.

To analyze the responses (n=121), we utilized the text analytics software Clarabridge. Clarabridge transforms the available text data using Natural Language Processing (NLP), categorizes the content, performs sentiment scoring, and delivers text analytics through a robust dashboard (www.clarabridge.com). For our analysis we used "create a new model – generate using machine clustering for advanced users" option. We limited the number of categories to 10 with both categorization and clustering with an option to apply machine learning to supplement categorization results.

Student answers to the first question had 121 verbatim with 304 sentences. The sentiment analysis for question one responses is depicted in Figure 4.

| Category                                      | Distinct Verbatim | % of Verbatim | Sentiment Score | Preview |
|---|-------------------|---------------|-----------------|---------|
| Type: Category (10 Item)                      |                   |               |                 |         |
| 8 BUILD -> APP; USEFUL -> LEARN               | 78                | 64.46         | 0.76            |         |
| 7 DEVELOP -> APP; MAKE -> APP                 | 55                | 45.45         | 0.70            |         |
| 1 PROJECT -> APP; GIVE -> PROJECT             | 53                | 43.80         | 0.55            |         |
| 9 LEARN -> LOT; WORLD -> REAL                 | 43                | 35.54         | 0.71            |         |
| 5 WORLD -> BUSINESS; PLAN -> BUSINESS         | 40                | 33.06         | 0.71            |         |
| 4 PROCESS -> BUSINESS; INVOLVE -> PROCESS     | 39                | 32.23         | 0.78            |         |
| 6 SYSTEM -> INFORMATION; PHASE -> DEVELOPMENT | 25                | 20.66         | 0.02            |         |
| 3 TEACH -> APPLICATION; MAKE -> APPLICATION   | 20                | 16.53         | 0.48            |         |
| 2 GIVE -> EXPERIENCE; OPPORTUNITY -> GREAT    | 18                | 14.88         | 0.99            |         |
| 0 COLLEGE -> THROUGHOUT; FORM -> LAST         | 15                | 12.40         | 0.27            |         |
| Type: Others (1 Item)                         |                   |               |                 |         |
| Global Other                                  | 13                | 10.74         | 0.96            |         |

**Figure 4. Sentiment Analysis Report for Question 1**

Mining students' reasoning to "why it is useful to learn these skills," these clusters of verbatim identified what components of the project made the greatest impression. The top two categories captured the verbatim from the question but studying the remainder of the categories in Figure 4 demonstrates that the project provided a real world experience for students about business processes and development phases. It was encouraging to see that nine out of ten categories had strong positive sentiment scores indicating mostly positive responses. Take category 4 (PROCESS->BUSINESS; INVOLVE->PROCESS), 39 sentences showed business process skills. Category 2 has the highest sentiment score (indicating the category included sentences with the most positive sentiments) with 18 distinct verbatim with (GIVE-> EXPERIENCE; OPPORTUNITY->GREAT). A subset of sample sentences from category 4 is shown in Figure 5. As can be seen from the sample verbatim students' perception of IS was positively changed due to this experience.



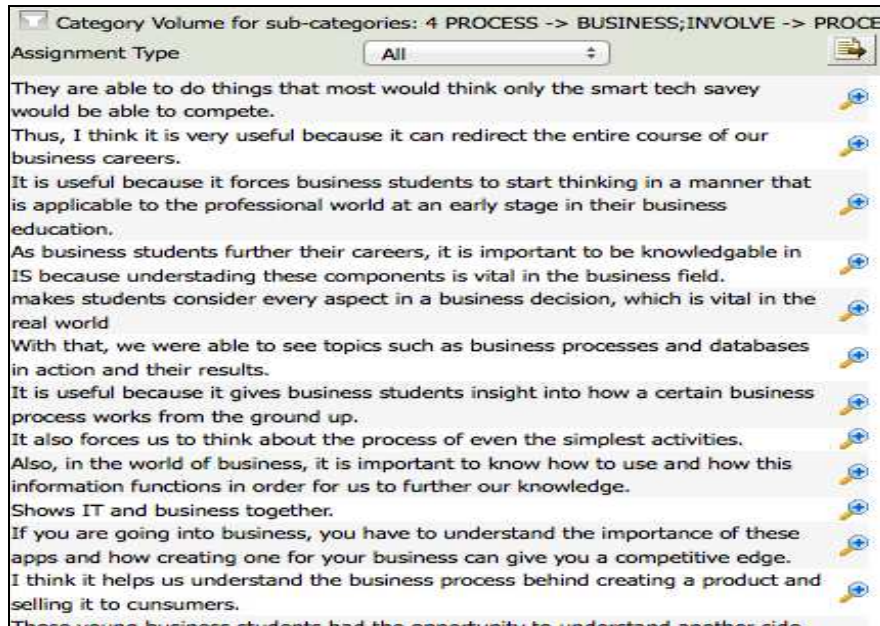


Figure 5. Sample Sentences from Category 4

Question two was more open-ended, as we were interested in understanding how this experience changed their perception about the capabilities of IT. Analysis showed that students learned about utilizing information technologies and value and capabilities brought to business by IS. Figure 6 shows the sentiment analysis to student responses. These verbatim clusters surround: understanding business processes, capabilities of IT, changing perceptions, and this being an eye opening experience.

| Category  | Distinct Verbatim | % of Verbatim | Sentiment Score | Pre |
|---|-------------------|---------------|-----------------|-----|
| Type: Category (10 Item)                          |                   |               |                 |     |
| 8 ENTER -> CLASS; DEFINITION -> SYSTEM            | 52                | 42.98         | 0.39            |     |
| 7 PROCESS -> BUSINESS; BECOME -> BUSINESS         | 46                | 38.02         | 0.00            |     |
| 5 TECHNOLOGY -> INFORMATION; CAPABILITY -> TECHNC | 43                | 35.54         | 0.04            |     |
| 9 MAKE -> APP; HELP -> BUSINESS                   | 43                | 35.54         | 0.28            |     |
| 0 CHART -> TO-BE; BRIDGE -> USER                  | 33                | 27.27         | -0.02           |     |
| 1 SERVICE -> ORGANIZATION; METHOD -> DEPLOY       | 33                | 27.27         | 0.48            |     |
| 3 CREATE -> APP; APP -> MOBILE                    | 32                | 26.45         | 0.40            |     |
| 4 CHANGE -> PERCEPTION; CHANGE -> EXPERIENCE      | 26                | 21.49         | 0.08            |     |
| 2 OPEN -> EYE; OPEN -> EXPERIENCE                 | 25                | 20.66         | 0.02            |     |
| 6 HELP -> TECHNOLOGY; HELP -> MARKETING           | 16                | 13.22         | 0.53            |     |
| Type: Others (1 Item)                             |                   |               |                 |     |
| Global Other                                      | 15                | 12.40         | 0.99            |     |

Figure 6. Sentiment Analysis Report to Student Answers to Question 2

Figure 7 is a short list of sample from category 7, demonstrating students realizing how much technology was involved in every step of business processes, how imperative and relevant it is to learn IT. It is amazing to see how our project helped students understand the value of IS for business this early in their student careers through a real life experience. More detailed evaluation of student feedback is available upon request.

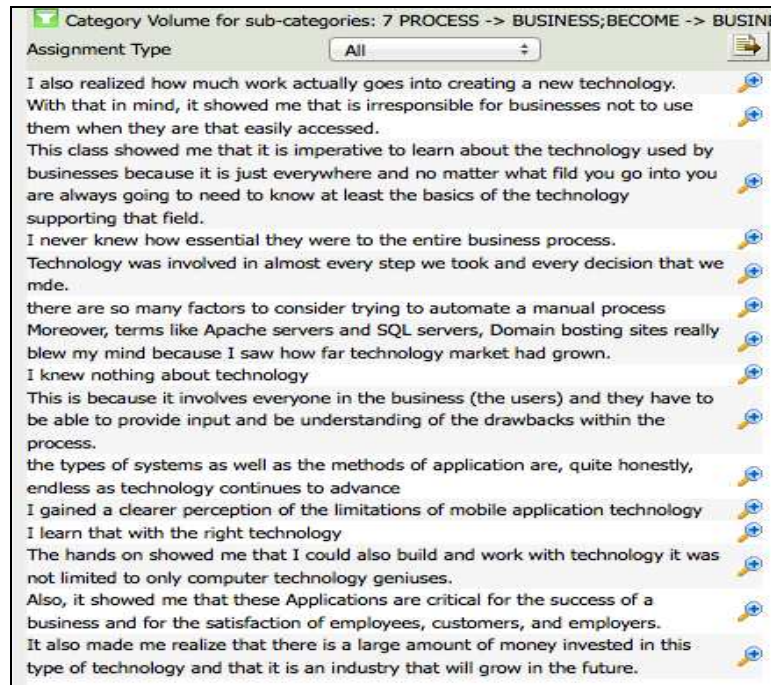


Figure 7. Sample Sentences from Category 7

## CONCLUSION AND NEXT STEPS

This paper examines our journey with 121 freshmen students who began their business school education at ASU by creating a mobile app in an *introduction* to IS class. We feel that we have succeeded in demonstrating the practical application of the course work, and relevance of IS major to business students. In 2011, there were 6 billion mobile subscriptions worldwide. While mobile phones have become ubiquitous in the developed world, where mobile penetration is measured at around 118%, we are seeing a steady rise in the developing world, where mobile penetration is nearing 79% total among those nations (ICT 2011). This growth, paired with the explosion of the mobile app marketplace, which is expected to surpass \$35 billion by 2014 (up from an estimated \$4.9 billion this year), creates immeasurable opportunities. Companies of all sizes have the potential to get a taste of success in this booming industry. Our students are starting their education with the awareness of skills required to compete in this new era. But this is only a start.

Universities must get involved early and educate the future technology-driven business leaders in how to best harness the mobile app to generate revenues, develop more efficient processes, and make the world a better place. The enthusiasm demonstrated by the Barrett Honors College Vice Dean when shown a simple mashup app is a clear example of the fact that major universities have not even begun to realize the potential here. And the potential for IS degree programs to be at the front of this charge is quite apparent, if they address the need for managers to have more robust hard skills to effectively lead teams of technologists into the 21st Century.

Our next step is developing a class tailored to IS majors to move to the next level of building mobile apps for which we are currently in the planning phases. As for the dream Barrett app, the requirements gathering phase is almost complete. What remains is the actual building and launching of the app. Students who showed interest in a “sequel” class are divided: some want to stay on the business side while the others want to dive into the technical side. This presents wonderful opportunities for teams with different responsibilities, scopes, and roles, teaching the need for alignment across teams to keep business and technical skills balanced. Our findings summarized here and the requirements depicted in Figures 2 and 3 make designing the class relatively straightforward. We will share the results from the next phase once we launch the class and collect more student feedback.

It is difficult to predict accurately what the future holds for the mobile application industry but if things continue to progress as they have, it certainly holds a bright future ahead. Just as our students realized, that while they may not yet have a firm grasp of the skills demanded by the technology, they are ultimately “only limited by their imagination.”

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