

Project Management Skills Needed for Mobile App Development

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Abstract

The problem that this study deals with is the need for research to determine some of the competencies needed by mobile application (app) developers in the year 2020 and beyond. This study uses a Delphi instrument to determine the general needs for the preparation of technology competencies of app developers for the near future of the 21st century. The panel of experts contributing to the data includes participants from the International Association of Internet Professionals (IAIP), and top mobile app developers recognized internationally by their peers.

Keywords: Integration Skills, Project Management, Mobile App Development, Delphi Research, Computer Competencies.

1. INTRODUCTION

Since the advent of the 21st century, the relatively recent promise of e-business has become real. Both businesses and individuals are using the World Wide Web and increasingly popular mobile applications (apps) to buy products and services, including monetary transaction analysis that changes world finance in near instantaneous controls. Consumers and producers want to extend the reach of e-business to new environments. Consumers want to check accounts, access information, and make purchases with their personal computers, cellular smartphones, tablets, and PDAs (personal digital assistants). Businesses such as banks, airlines, and retailers are competing to provide the most ever-present and convenient service for their customers. This new economic and information exchange media has created an overwhelming demand for a new type of systems architect who can manage and continuously develop websites and mobile applications to meet the petition of a world market. To be successful, this new architect must possess both end-user and development skills needed to design an aesthetic interface with applications that take advantage of the rich-

rendering capabilities of advanced browsers as well as smartphone applications ("apps"), and low-level text presentation for devices that have little or no graphics capability.

The architects of this rapidly changing media need integration skills to utilize end-user interface, authoring languages, multimedia, and graphics (Britton, 2001; Anderson, et al, 2010, Kyrnin, 2017). These integration skills include those in the area of content-management skills or competencies needed to assess, apply, and adapt microcomputer technology to World Wide Web page design and mobile app development.

2. PURPOSE AND RESEARCH QUESTION

Due to the need to teach computer applications in our educational programs and the rate at which technology advances are developing new uses for computers, it is important for our curriculum planners to have timely information pertaining to the future computer competencies needs of our students. Educators are facing tremendous challenges in identifying, developing, and designing a curriculum that will prepare

undergraduates for work in the 21st century (Wynne, et al, 2010).

Purpose and Problem

The problem was that, to date, there has been a lack of evidence of research conducted for information systems educators to determine the integration skills needed by web page designers and developers for the future. The purpose of this study, therefore, was to determine objectives in the area of integration skills for the preparation of web page designers and developers for the year 2020 and beyond.

Research Question

Based upon the past models of competencies that are cited in the literature relating to project management competencies needed by mobile application designers and developers, the following question guided the research: "For the year 2020, and beyond, what integration skills do entry-level designers and developers need to possess in order to effectively create and deploy mobile applications?"

3. METHODOLOGY

The study consists of three rounds of a Delphi instrument using a World Wide Web survey interface. The survey will be developed from the responses generated by the first round, which involves open-ended responses to the research question. The second round involves rating the statements, and the third round will be used to determine consensus on items generated from the panel of experts. The findings of this study will present a list of competencies concerning integration skills needed by entry-level mobile application developers to manage projects in their involvement of employment. For the purposes of this study, integration skills are defined as those in the area of content-management needed to assess, apply, and adapt microcomputer technology to develop professional mobile app (applications).

In research, the Delphi technique is an organized research methodology for correlating views and information pertaining to an area of strategy and for allowing respondents with such views an opportunity react to and assess differing viewpoints. The technique was introduced in 1958 through "Project DELPHI" which was sponsored by the United States Air Force and directed by the Rand Corporation to obtain the most reliable consensus of a group of experts concerning predictions of alternate national defense futures (Dalkey & Helmer, 1963, p. 458).

This study is being completed in five phases, the first of which will be completed on September 15, 2019. The initial phase involves identifying a national panel of experts. After identifying these experts they were petitioned for a list of statements regarding their respective answer to the research question. The panel of experts contributing to the data includes participants from the International Association of Internet Professionals (IAIP) and mobile app developers who are identified as being successful in their field. All panelists were invited to participate in multiple iterations of communication utilizing the Internet and the World Wide Web as a primary media. An additional panel of experts will involve information systems educators who are actively involved in teaching and research in the area of mobile application development. The identities of the panelists are being kept confidential throughout the study, and each panelist is assigned a unique identity that keeps the panelist anonymous to the other participating panelists.

The first round of communication is currently in progress with two more rounds of communication using a modified Delphi instrument over a period of two months. The second round will be completed on October 1, 2019 and the third round is anticipated to be completed on November 15, 2019. These iterations of communications are transmitted through electronic mail and, beginning with the second round, a World Wide Web page interface to all participants on the same days.

To develop the second round instrument, the responses received during the first round include statements made by the panelists to answer the research question will be used in a web survey interface. These statements will be compared for similarity and will be collapsed into a web page survey that presented all the statements representing the collective views of the panelists. During the second round of communication, each panelist rates the importance of each competency according to a 5-point scale. A rating of 1 indicates that the panelist felt the item was not important, 2 that the item was somewhat important, 3 that the item was moderately important, 4 that the item was important, and 5 that the competency was very important. The panelists will also be encouraged to make comments to explain their answers.

The third round of the procedure will involve a web survey communication of the instrument in revised format, which provides each panelist's previous response along with the median of the collective responses given by the panel. The

inclusion of the group and individual responses from the previous round will allow each panelist an opportunity to re-rate each item based upon the group response.

4. OUTCOMES

It is expected that when completed, the outcome of this study will determine the skills needed by web and mobile application developers to be enhanced for the near future. It is also expected that the study will determine objectives for educators to prepare students in the area of programming and additional skills for the preparation of mobile application developers for the year 2020 and beyond.

5. FINDINGS TO DATE

The panel of practicing web page designers used in this study (to date) has begun to identify skills that should be considered when developing courses to teach web page and mobile app architecture. The skills identified include technical programming/coding, front end usability, and those aesthetic skills needed to produce web documents which appeal to the end-user.

6. CONCLUSIONS

This study contributes to the literature in information systems by examining the potential content of web page development courses included in information systems programs. This study could provide guidance to information systems educators who teach such a course as well as practitioners who may hire information systems graduates. In addition, textbook authors may use these data to assess the necessary coverage of specific topics for a web page design and development course. Curriculum designers may use these results to define a course sequence, which could involve multiple web page

design or development offerings at the university level.

7. REFERENCES

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