

Title: Kinesiology Mobile Application Purchase

Curriculum Affected: Health & Physical Education (HPE), Health Promotion & Fitness Management (HPFM), and Athletic Training (AT).

Name: Dr. Barbara K. Fralinger, PI
fralinger@rowan.edu
856-256-4500 ext. 3708

Objectives of the Proposal

This proposal seeks to implement a Kinesiology Mobile Application, a collaborative effort between Rowan University and B2C Fitness Integrated Education System. The project aims to achieve the following two major goals: **1.)** Increase access to educational materials for students in the Health & Exercise Department and **2.)** Improve student learning outcomes of course content related to human movement science. The Kinesiology Mobile Application provides an opportunity for students to gain immediate access to learning tools constructed specifically for the course. All programs and services provided by the Mobile “App” will be tailored to meet the needs of a variety of learning styles. The objectives of this project are to: **1.)** Purchase a mobile application that contains universally accessible measures to information on the core subsystems of the human body; **2.)** Provide instructional training sessions on application usage to students in the HES department; and **3.)** Monitor ease of usage and efficacy of the mobile application by project participants.

Background Information/Need

Students in the HPFM, Teacher Certification, and Athletic Training programs of the Health & Exercise Science department are required to take a series of science courses to fulfill corresponding degree requirements (i.e., Structure & Function of the Human Body I & II, Kinesiology, and Exercise Physiology). The HES faculty are continually looking for ways to improve student performance in these courses, as they seem to struggle with the content and application of the material presented. In both the HPFM and Teacher Certification tracks, students must earn a minimum grade of C- in all core courses to move forward in their respective programs; students in the AT program must earn a minimum grade of C. This benchmark has been the one that students have had the most difficulty meeting, which has resulted in either delayed graduation or dismissal from their respective programs. In particular, Kinesiology is the course that the majority of delayed/dismissed students do not pass.

As a professor currently teaching Kinesiology in the HES department, I implement strategies that cater to a variety of learning styles. In an effort to improve the success of students taking my course in the Spring 2013 semester, I gained support from the HES department to fund an 8-hour Functional Anatomy workshop conducted by Mr. Brent Brookbush, an instructor for the National Academy of Sports Medicine (NASM) and President of B2C Fitness Integrated Education System. In a short eight hour period, Mr. Brookbush covered the majority of content we teach in a semester of Kinesiology. More importantly, he was able to help students easily visualize and apply the content, which is the main obstacle we have been working to overcome in all of the sciences. Student evaluations on the effectiveness of the workshop indicated that of the 23 students surveyed, the majority rated both the instructor and his teaching strategies as “very effective” in increasing their learning and comprehension of material taught within the three academic tracks of the Health and Exercise Science curriculum. Mr. Brookbush has a wealth of online human movement science content and is constructing an App, incorporating a variety of his learning strategies into its content delivery.

Description of the Specific Innovation

Although there are several mobile applications currently available for personal fitness and access to college course materials (e.g., MyFitnessPal, Blackboard Mobile Learn, etc.), none of these are tailored to meet the needs of students learning to apply concepts related to human movement science. There is a need to devote effort to the development of supplemental course materials for individuals studying to be health & physical educators, personal trainers, physical therapists, etc. The proposed project would provide a tailored application (App) that increases the opportunities for students in the Health & Exercise Science department to learn, understand, and apply kinesiological concepts. The App will also provide insight to department faculty and B2C Fitness on the efficacy of mobile technology in teaching/relaying information to individuals studying to be human movement science professionals. Furthermore the increased access to health and exercise science products will allow for a greater number of individuals in the community to be educated through Rowan University and B2C Fitness on concepts, thereby improving the knowledge and practice of professionals who may already be working in the field. Using the Kinesiology mobile app during classroom sessions will also enhance student understanding of functional anatomy information and corresponding exercise prescription.

The pilot testing of the Kinesiology mobile application will occur over the 2013-2014 academic year. Approximately 100 students taking Kinesiology will be recruited to participate in the pilot test. Through the installation of electronic markers in the mobile application, usage of the application among this population will be determined. Data gathered from process, impact, and outcome evaluation measures (i.e., surveys and participant interviews) will be used to determine the ease of usage and efficacy of the Mobile App in improving learning of course material.

Features of the Kinesiology Mobile Application

The focus and key features of the Kinesiology Mobile Application are images, icons, videos, research articles, and test banks. The application includes specific information relating to the core subsystems of the human body. Specifically, users will be able to select a content topic and receive scientific articles, images, videos, and real-life applications/scenarios related to that topic. There will also be a link to a test bank that will include questions for students to gauge their knowledge and comprehension of the material. Students will receive feedback on their results and given suggestions to improve their understanding of the content. The application will track user progression in course content through test completion and display motivational images (e.g., stars, smiles, etc.) when they make correct choices. This will serve as a reward system whereby users can “earn” more stars and move to different content as they complete each section of test questions.

Pilot Testing the Kinesiology Mobile Application

The target population of this project will include individuals taking Kinesiology in the Health & Exercise Science Department. A sample of approximately 100 subjects will be invited to participate in the Mobile App project. This study seeks to answer the following major research question: *Does the implementation of a Kinesiology Mobile App help to improve student knowledge and comprehension of Human Movement Science concepts?* A major reason for conducting a pilot study is to determine initial data for the primary outcome measure, in order to perform a sample size calculation for a larger trial (Ross-McGill et al., 2000; Stevinson & Ernst, 2000). As a result, there is no clear methodological guidance as to what constitutes or justifies an adequate sample size for the pilot study itself (Lancaster, Dodd, & Williamson, 2002). Therefore, we chose a convenience sample of 100 subjects from the Kinesiology courses currently being offered at Rowan University.

Mobile App Training Sessions

Students will be taught how to use the App during a classroom lecture period. Baseline data will be collected through personal interviews and survey distribution to determine participant knowledge and usage of mobile applications. Next, each element of the Kinesiology Mobile App will be thoroughly explained to ensure that participants understand the purpose and benefits of the content and test bank components. After going through the operations of the App, participants will be asked to demonstrate their knowledge. Time will be allotted for participants to ask any questions about the functionality of the App.

Instructional Video

There will be an instructional video created using Microsoft Power Point and voice over technology to again demonstrate the functions of the App. The video will have voice commands with screen shots of a user going through the application. This will serve as a reinforcement tool for current program participants and could be a future internet download option for those who may use the App. but cannot attend a training session.

Required Instructional Technology Support

In developing this proposal and equipment request, we consulted with B2C Fitness Integrated Education System, the designer of the Kinesiology App. We may also seek the expertise of Instructional Technology support to ensure that our purchases are compatible with both iPhone and Android phones and other hardware and software that we currently use in the classroom.

The instructor will use funding from the grant to purchase the B2C Fitness Mobile Kinesiology App. This App will be uploaded onto student mobile phones or tablets rented out from the College of Education. The request totals \$2,000 (See budget on next page). Specific costs deal with the App content, including the following:

Imagery Software – Pictures of Core Subsystems of the Human Body and associated content.

Test Bank – Access to questions for content comprehension.

Application Download from B2C Fitness – All 100 students will have access to the downloadable App on either their smartphones or tablets.

Evaluating and Sustaining the Innovation

Process Evaluation

Process evaluation deals with evaluation of the program during implementation to see if it is being implemented as planned and to make modifications if necessary. When performing process evaluation with this program, participants will be interviewed and surveyed with a 5-point Likert scale survey (strongly agree to strongly disagree) to gain their perceptions of the effectiveness of the training session and the Mobile App itself. Therefore, process variables would include effectiveness of the training/instructors, and effectiveness of the Mobile Application. Survey questions such as, “The use of visual aids is beneficial”, or “Instructors clearly demonstrated how to use the Kinesiology Mobile App”, would be incorporated into the Likert scale portion of the survey. Additional data for these variables would be obtained by interviewing the instructors and selected participants. It is important to look at these

variables so that one can be sure that the program is being implemented as it was originally planned and so changes can be made if the program is not being positively received by participants.

Impact Evaluation

Impact evaluation deals with the immediate effects of the program and is done right after the program ends. Impact evaluation in this program will be done by calculating the number of times the Mobile App was used throughout the course (through installation of markers within the App) and posttesting the participants with regard to their perceptions and usage of the Mobile App. The results/data would be compared to pretest data gathered during the first training session. Impact variables would therefore include frequency of Mobile App usage, ease of Mobile App usage, and perceptions of Mobile App effectiveness in improving knowledge and comprehension of concepts learned in Kinesiology. These variables are important because there has to be a way to quantify whether the training sessions and the App itself are effective, and by gathering statistical data, one can compare the numbers to those observed at baseline to determine whether the project had an impact. This data would be gathered using a 5-point Likert scale survey with ratings from “strongly agree” to “strongly disagree” and “very confident” to “not at all confident.” Questions such as “I know how to use the Mobile App to access content and test banks” and “The information on the Mobile App helped me learn about the core subsystems of the human body” would be included.

Outcome Evaluation

Outcome evaluation deals with whether the program met its stated long-term goals. Outcome evaluation could be done by doing a one-year follow-up survey with project participants. The variables assessed at impact would serve as outcome variables (frequency of Mobile App usage, ease of Mobile App usage, and perceptions of Mobile App effectiveness in knowledge, comprehension, and application). These variables are important to study in order to determine whether the Mobile App actually contributed to increased learning of course material.

Data Analysis Methods

Data analysis will include both quantitative and qualitative measures. Quantitative descriptive statistics are procedures used for classifying and summarizing, or describing, numerical data (Hinkle, Wiersma, & Jurs, 1998). By using descriptive statistics, one is able to describe distributions and individual scores, and determine the relationship between variables (Hinkle, Wiersma, & Jurs, 1998). In this primarily descriptive study, statistics including frequencies, means, medians, modes and standard deviations will be calculated and used to examine trends in the Likert Scale scores for the questions presented in the evaluation surveys. Data obtained from each of the completed surveys will be coded and entered into the Statistical Package for Social Sciences (SPSS) computer software program.

Further, personal interviews will be conducted with participants and serve as the primary method of qualitative data collection. Responses will be grouped according to similarities and presented in themes. The logic behind the qualitative analysis will be to gain an in-depth understanding of participants' responses to the Likert Scale survey items.

Finally, because this project is a pilot study, some limitations are present in terms of the generalizability of results obtained. As with much survey-based research, potential limitations such as honesty of responses by participants and issues pertaining to external validity may exist. If results of this research yield overall positive perceptions from participants regarding the effectiveness of the Mobile App in improving the learning of Human Movement Science concepts, more experimentation will be needed with larger sample sizes in order to make definite conclusions about the efficacy of the App.

Budget

<u>Item</u>	<u>Cost</u>
Imagery Software	\$1000
Test Bank Access	\$500
Application Download for 100 students from B2C Fitness	\$500