UNIVERSITY OF BALTIMORE

Application for Approval of Research Involving Human Subjects

This form is to be completed by the investigator who will submit it to the Institutional Review Board (IRB) for review and approval. Answer all the questions completely and spell out any acronyms. Include a copy of any applicable survey instruments with your application. When the IRB has approved the application, the investigator will be notified in writing. **Any changes to an approved protocol will have to be re-submitted for review and approval.**

	Researcher 1	Researcher 2
Name	Julie Gilliam	
Department	Division of Science, Information Arts and Technologies	
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Email	Julie.gilliam@ubalt.edu	
Status Faculty/ Staff/Student	**Student**	
If student, faculty sponsor	Dr. Deborah Kohl	

Project Title	Investigating the role of a multi-touch textbook using the principles of human centered design			
Agency Sponsor (if applicable)	N/A			
Grant number (if applicable)	N/A			
Project Duration	Estimated Start Date	5/10/12	Estimated End Date	10/1/12
Submission Date	4/23/12			

Exempt Status Do you believe your proposal is exempt from IRB Review?	In order to be exempt, you must answer the questions and satisfy the criteria in Parts A and B below. (Please answer after you complete checklists A & B.)			
	Yes	**Yes**		**No**
Expedited Review: Are you applying for expedited review?	Expedited review is possible only in one of two circumstances: 1. There is minimal risk to the participants and the researcher is not requesting the IRB to waive the normally required informed consent procedures. **or** 2. The IRB review is to evaluate minor changes in previously approved research.			
	Yes	**Yes**		**No**

It is possible that your research is exempt from IRB review. Please complete Parts A and B below, regardless of whether you believe your research is exempt.

Part A – Please check Yes or No for each item, To be considered exempt, all answers must be No.		
Yes	**No**	**Item**
	No	1 Does the research involve as subjects prisoners, fetuses, pregnant women, the seriously ill, or mentally or cognitively compromised adults.
	No	2 Does the research involve the collection or recording of behavior which, if known outside the research, could reasonably place subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.
	No	3 Does the research involve the collection of information regarding sensitive aspects of subjects' behavior (e.g., drug or alcohol use, illegal conduct, sexual behavior)?
	No	4 Does the research involve subjects under the age of 18 (except as they are participating in projects that fall under categories 1, 3, 4, and/or 5 in Part B)? Category B 2 studies that include minors should be submitted for expedited review.
	No	5 Does the research involve deception? (see question C.5.)
	No	6 Do the research procedures generate any evident or foreseeable risk to the subjects?
	No	7 Is the researcher requesting that the IRB grant a waiver of the required informed consent procedures? (Note: informed consent procedures are not required when the research involves only observation of public behavior and in those cases a request for a waiver is unnecessary.)

Part B – Please mark Yes or No for each item below, regardless of whether you believe your research is exempt. To be considered exempt, at least one must be marked yes.		
Yes	**No**	**Item**
Yes		1 Will the research be conducted in established or commonly accepted educational settings and involve normal educational practices (e.g., research on regular and special education instructional strategies, research on instructional techniques, curricula, or classroom management methods).
Yes		2 Will the research involve the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, <u>where information is recorded anonymously</u> (i.e., so that the human subject cannot be identified, directly or indirectly through identifiers linked to the subject)? [Note - All survey/ interview/observational research in which elected or appointed public officials or candidates for public office serve as subjects is exempt, whether or not data collection is anonymous.]
Yes		3 If the research involves the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens then are these sources either a.) publicly available <u>or</u> b.) is the information being collected and recorded anonymously (i.e., in such a manner that subjects cannot be identified, directly or through identifiers linked to the subject)?
	No	4 Is the research (including demonstration projects) being conducted by or subject to the approval of federal department or agency heads <u>and</u> is it designed to study, evaluate, or otherwise examine one or more of the following: (i) public benefit or service programs (e.g., social security, welfare, etc.); (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs?
	No	5 Does the research involve taste or food quality evaluations or consumer acceptance studies and are the tested products wholesome foods without additives, or foods which contain additives at or below levels found to be safe by the EPA of the Food Safety and Inspection Service of the U.S. Department of Agriculture?

Is Your Research Exempt?

If your answers to Part A above are all No and at least one of your answers in Part B is yes, please answer YES to the exempt status question on the cover page of this application before continuing on. Even if you believe you satisfy the criteria for exemption, the Institutional Review Board needs to review your proposal to confirm that.

Therefore, whether or not you have indicated that you are seeking exempt status, please CONTINUE ON to answer the questions in Part C.

Part C: About the Proposed Research – please answer all the questions in this section. Please be clear and concise, but provide enough detail so the Board can make an informed determination.

1. Describe the purpose of the proposed research and your research protocol. Avoid using acronyms or technical jargon, unless they are defined. Attach additional pages when necessary.

Augmenting the Family Connections Intervention Manual (DePanfilis, Lane, Girvin, & Strieder, 2006), the proposed qualitative study will seek to answer the question, "How do multi-touch textbooks on an iPad facilitate learning and memory of a complex knowledge domain?" The goal is to discover if and how learning occurs and if learning can be retrieved on a mobile device. The application will incorporate aspects of cognitive theory which have been demonstrated to promote good learning and memory. Additionally, the development and pilot testing of this application will occur during this study.

According to the National Association of Social Workers & Boards (2005), current and future information technologies are transforming the essence of the practice of social work. As a result, the role of the social worker is evolving and social workers need to adapt to the different requests for practice in the information age (National Association of Social Workers & Boards, 2005). In addition of the pressures to become technologically competent, social workers are also required to master an ever-growing body of knowledge to function well in the practice setting. Given these pressures, and current mechanisms for training and educating social workers, the proposed project examines whether a multi-touch textbook on an iPad might facilitate the learning and memory of a complex, practice-based body of knowledge. A multi-touch textbook will be developed for the Apple's iPad. This textbook will contain the following four capabilities: 1) the ability to view dynamic content; 2) note-taking functions; 3) a glossary function; and, 4) audio/visual viewing functions.

This study will use a triangluation approach of user centered research, survey, and the innovation diffusion process. The user center research approach will involve the practitioner in the design process of the multi-touch textbook and seek to understand what the user needs. The survey method will be employed to collect information from social work educational community about their current learning and retrieval methods in field practice settings. The researcher will also want to assess the practitioners technology skills, mobile device use, and motivational factors for adopting new technology. The innovation decision process based from the innovation diffusion framework will be used to determine to either adopt or reject a decision to not adopt the Family Connections Intervention multi-touch textbook prototype. This process asks the user if there is a benefit of considering this

innovation as being better over the current idea it replaced (Rogers, 2003).

DePanfilis, D., Lane, M., Girvin, H., & Strieder, F., (2006). Family Connections Intervention Manual: Helping Families Meet the Basic Needs of Their Children, Baltimore: University of Maryland School of Social Work, Baltimore. Retrieved March 25, 2012, from http://www.family.umaryland.edu

National Association of Social Workers, & Boards, A. O. S. W. (2005). *NASW & ASWB standards for technology and social work practice* (p. 22).

Rogers, Everett M. (2003). Diffusion of Innovations, 5th Edition. Simon & Schuster, Inc. Kindle Edition.

2. Describe the human subject population (size, age, gender, and racial distribution) and how participants will be selected for inclusion in the research. If you are limiting your study to certain specific groups, please justify why. What is your relationship to the subject population (fellow student, co-worker, supervisor, government agent, law enforcement)?

The human subject population will be composed of diverse, government organizations, nonprofit organizations, community agencies, social workers, educators and advocates. Participation in the study will be voluntary. The rationale for selecting participants who want to try an alternative method would be to have users who are open to learning a new way to accessing information. The focus would be to assist participants who are having difficulty learning and retrieving information with the paper format.

3. Describe the type of data you will be collecting and how it will be collected, e.g., survey, interview, focus group, record review, etc. (Attach a copy of the questionnaire, interview guide, or other collection instruments.)

Type of Data	Description
*Contextual Inquiries (10 participants) Method – Field Interviews	Understanding the current processes, workflows, and environmental factors
*Survey (Unlimited participants for a two week timeframe)	Collection of data on demographics, learning methods, technology skills, mobile technology resources and experience, practice setting information retrieval methods, future use of technology
Use Cases (Method–Field Interview)	Examine Workflows (Coordination, strategy, and information structures)
Audience and Task Analysis	Assess current tasks and develop proposed task flows
Test Participant Screener	Identifies target user groups needed for multi-touch textbook user research testing.
Test Scripts	Developed for tests in assisting with prioritizing tasks (frequency, criticality) and decide which tasks to test.
*User Research Testing/Innovation Diffusion Theory/Retroactive Think Aloud - (12 participants at University of Maryland School of Social Work)	Collection of evidence and evaluation
* Indicates the data collection from participants	

The researcher plans to investigate this problem by conducting 10 contextual inquiries from experienced practitioners who have learned and retrieved practice-based knowledge using a paper-based manual. The goal would be to understand how these practitioners used the traditional paper format to learn and retrieve policies and procedures to serve their clients. The researcher will focus the questions based on gaining an understanding of the practitioners current tasks, work processes, and environmental factors of the practice setting.

The next step would be to collect information from social work educational community about the their current learning and retrieval methods in field practice settings. The researcher will also want to assess the practitioners technology skills, mobile device use, and motivational factors for adopting new technology. Based from the output of the contextual inquiries and surveys, use cases will be developed to assess the coordination, strategy, and informal structures of the current learning and practice environment. Development of the multi-touch textbook prototype will begin once the feedback from the contextual inquiry interviews and surveys have been assessed and compiled. The graphical views of the screen layout and design will be developed to create an interface and prototype of the multi-touch textbook using storyboards. Learning and cognition principles such sensation, attention, memory practice, semantic organization, multi-modal and context will be incorporated into the multi-touch textbook interface in hopes to promote effective learning and retrieval of information.

The innovation decision process based from the innovation diffusion framework will be used to determine to either adopt or reject a decision to not adopt the Family Connections Intervention multi-touch textbook prototype. This process asks the user if there is a benefit of considering this innovation as being better over the current idea it replaced (Rogers, 2003). The multi-touch textbook user research testing will include 12 participants at the University of Maryland School of Social Work in Baltimore, Maryland. A test participant screener will be developed and used to select a purposeful sample of participants.

The testing will occur in a time-ordered sequence of knowledge, persuasion, decision, implementation and confirmation based from the diffusion of innovation framework (Rogers, 2003). The tests will include five tasks using the traditional and multi-touch textbook of the Family Connections Intervention Manual (DePanfilis, Lane, Girvin, & Strieder, 2006). The room will contain two web cams depicting the participant's facial expressions and touch movements of the paper manual and multi-touch textbook tasks. The retroactive think aloud method (Summers, 2010) will ask questions after the application's meaningfulness. This method will replay the screen view of the prototype test giving the participant the opportunity to explain the choices made during the test.

The output of the tests will be in video format and will be destroyed one year after the study has been completed. By building changes from the traditional to the multi-touch textbook for the audio/visual function, content function, glossary function, and navigation function for the table of contents; a determination will be made to verify if the multi-touch technology met the actual outcome. The results will also determine if the multi-touch textbook prototype was used in the actual way originally proposed. Conclusions of the qualitative research will show if the multi-touch textbook was useful for participants and did the development of the multi-touch textbook make it easier for practitioners to learn and retrieve the information.

DePanfilis, D., Lane, M., Girvin, H., & Strieder, F., (2006). Family Connections Intervention Manual:Helping Families Meet the Basic Needs of Their Children, Baltimore: University of Maryland School of Social Work, Baltimore. Retrieved March 25, 2012, from http://www.family.umaryland.edu

Rogers, Everett M. (2003). Diffusion of Innovations, 5th Edition. Simon & Schuster, Inc..Kindle Edition.

4. Does the research involve potential discomfiture or harassment to human subjects beyond levels encountered in daily life? Describe the potential discomfiture to the human subjects as the research is carried out.

There are not any foreseeable risks to the human subjects for this research study.

5. If your answer to A.5. was yes, please describe the nature of the deception.

6. Describe the potential benefits of the research.

The research on the effectiveness of mobile learning is inconclusive. Most studies have emphasized the technology of mobile learning and have not explored the effectiveness of mobile applications based on theoretical principles about learning and memory from cognitive psychology and human centered design. Yet, research has shown that mobile learning can be beneficial in the contextual learning environment (Koole, 2009). By understanding the limitations of mobile devices, and developing approaches based in human centered design, these issues will be addressed. Mobile information technologies could be developed to promote effective learning and retrieving of information in practice settings.

This research will build upon the current educational instructional technology methods, learning and cognition principles, as well as mobile technology literature. This study might contribute to our current knowledge of the effectiveness of mobile design principles, and could assist in the determination of whether existing principles should be followed, or whether new principles need to be developed to further empower and engage the mobile user.

Koole, M. (2009). A Model for Framing Mobile Learning. In M. Ally (Ed.), Mobile Learning: Transforming the delivery of education and training. Athabasca, AB:Athabasca University Press.

7. Describe here the informed consent procedures and attach the informed consent statement:

Any participant who would like to speak to the primary investigator, Julie Gilliam, about this research and/or the participant's experience of the research will be able to do so and will be given her contact information. Identifying information such as names and email addresses will be collected from the participants for the purposes of contacting users for the setup of field interviews or user research prototype testing. All identifying information will be removed from the dataset and will be destroyed one year after the study is completed. The videotaping of the field interviews and user prototype testing will also be destroyed one year after the study.

8. Please answer the following:

Yes	No	
	No	a. Does the research involve protected subjects including prisoners, pregnant women, minors?
	No	b. Does the research involve UB Students as subjects/participants?
	No	c. Does the research involve UB Faculty or Staff as subjects/participants?
	No	d. Does the research involve deception?

9. Might the *disclosure* of the subjects' responses reasonably be expected to cause the subjects to feel embarrassed or that their privacy has been violated? Might disclosure place the subjects at risk of criminal or civil liability or potentially damage the subjects' financial standing, employability, or reputation?

If so, describe the procedures in place for protecting, privacy and prevent breach of confidentiality as well as the rights of the human subjects generally.

There are not any predictable indicators that would cause feelings of embarrassment or privacy violations from participating in this research.

10. What are the potential risks if an individual is identified with *participating* in the study? Explain how you are mitigating that risk.

There are not any predictable indicators or mitigating risks if identified with participating in this study.

11. Describe how and where the data (original documents and electronic databases) will be stored and protected.

All electronic data will be stored with confidentiality on a secure server and in an encrypted folder.

12. Describe who will have access to the data.

The only individuals having access to the data will be the P.I. of the study.

Note: Any future additions or changes in procedures involving human subjects after the proposal has been approved must be brought to the attention of the Committee.

I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects are properly protected.

Julie Gilliam 4/22/2012

Signed, Researcher 1 (Date) Signed Researcher 2 (Date)

Signed, Faculty Advisor (Date)
(If Applicable)

We are familiar with and approve of the procedures involving human subjects associated with this project.