Scholarly Reflection and Concentration/Capstone Course
Y3 Progress Report

Student Name: Wan Hsiang (Winnie) Chen

Concentration: Medical Humanities

Part I: Capstone Project Description

Please complete all sections of the progress report fully. Where possible, definitions of 'meets expectations' have been provided in italics to illustrate how your report will be assessed by the rubric.

If your expected product does not require scientific research, please complete the sections of the progress report as they relate to your project. For example, if you are producing a documentary, place your film in the context of those that already exist and describe what it adds to the field.

Project Title and Mentor

All students must have at least one mentor. If your mentor is outside of QU and is unable to receive a QU faculty appointment; or if your mentor is not able to complete your capstone project assessments; you must identify a QU faculty co-mentor for your project. You may have no more than two co-mentors.

Mentor 1 Name: Dr. Ivelisse Rivera-Godreau

Mentor 1 Primary Affiliation: ProHealth Physicians and Community Health Center; Frank H. Netter School of Medicine at Quinnipiac University

Email address: Ivelisse.rivera-godreau@quinnipiac.edu

If applicable:

Mentor 2 Name: Professor Gregory Garvey

Mentor 2 Primary Affiliation: Quinnipiac University at Mount Carmel Campus

Email address: Gregory.garvey@quinnipiac.edu

Working Project Title: An Educational Game to Promote Trauma Symptom Awareness and Improve Self-Efficacy in Management of Reactions after Traumatic Event Exposure in Adolescents

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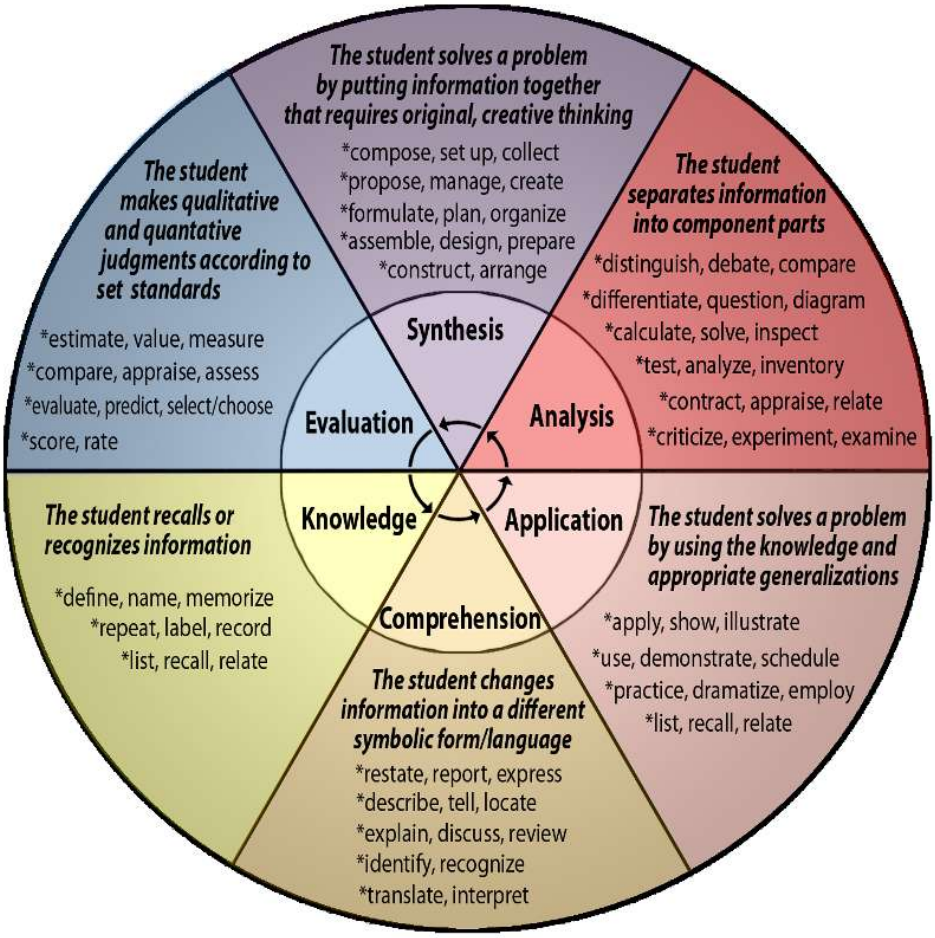
Self-designed Learning Objectives

Please list 3-4 learning objectives you would like to achieve as a result of this experience. **Use Bloom's Taxonomy (see below) when writing your learning objectives.**

1. Improve ability to present information in a creative way
2. Improve ability to put different components together in a coherent way
3. Improve ability to determine what is critical information and what is not

Bloom's Taxonomy:



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Purpose

*(**Goals:** Project goals were clear and/or an important question in the field is identified with adequate explanation as to why it is important.)*

Please describe the purpose and objectives of your project. These may relate to the project outcomes themselves or how your participation in this project aids in your professional development.

The purpose of this project is to help adolescents recognize and build self-efficacy in managing their responses after a traumatic event exposure. Since traumatic events can leave lasting effects and present as physical and/or psychological symptoms, it is important to know and tend to the signs and symptoms to prevent worsening of those symptoms. In addition, as a future physician, learning about these signs and symptoms will allow me to provide better patient-centered care to all my patients and understand where they are coming from. Although I have not decided a specialty to go into, I do believe that all specialties can benefit from understanding reactions to trauma and thus provide the appropriate next steps for patients.

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Introduction

*(**Preparation:** There are appropriate numbers of varied or valid sources and the introduction and the discussion of the scholarly activity and how it fits into the current knowledge base reflects a basic understanding of the field.)*

Please place your project in the context of current knowledge and scholarship in the field. Cite references as appropriate.

An individual can be exposed to psychological trauma in various ways. Trauma is defined by the American Psychiatric Association to be "a perceived experience that threatens injury, death, or physical integrity and causes feelings of fear, terror, and helplessness" (1). Adolescents are vulnerable to trauma exposure, especially traumatic events such as "automobile accidents, rape and sexual assault, physical assault by non-family members, hospitalization for a serious injury or a relative's hospitalization, and unexpected death of a loved one" (2).

From community samples, it is estimated that about 62% of adolescents in the U.S. have experienced at least one traumatic event and about 19% of adolescents have experienced more than three traumatic events before the age of 17 (3). While most adolescents are able to recover and return to normal functioning weeks or months after traumatic event exposure, 8-10 percent of those who were exposed to traumatic events end up developing post-traumatic stress disorder (PTSD) and other psychological symptoms (4). In addition, those who were exposed to multiple traumatic events tend to develop more severe mental and physical difficulties compare to those who were exposed to a single traumatic event and are more likely to develop complex trauma, which "describes both children's exposure to multiple traumatic events—often of an invasive, interpersonal nature—and the wide-ranging, long-term effects of this exposure" (5).

Adolescents who are exposed to trauma, and especially complex trauma, are likely to be adversely affected in the following aspects: attachment, biology, affect regulation, dissociation, behavioral control, cognition and self-concept. They are more likely to experience negative impacts on language communication, memory and attention, and therefore, lead to decreased school attendance, decreased academic engagement, and poor decision making. Other possible comorbidities are substance abuse, increased suicidality and anxiety disorders (5, 6). Because of all these negative potential effects of trauma exposure, it is important to prevent the progression of negative impacts of trauma exposure and build self-efficacy against trauma exposure in adolescents.

Different kinds of therapies and treatment approaches exist for adolescents dealing with complex trauma. In a 2011 International Society for Traumatic Stress Studies (ISTSS) survey, 85% of the experts surveyed reported they will use phase-based approach as first line of treatment for complex PTSD (7). This phase-based approach involves three phases: stabilization and safety (phase I), trauma processing (phase II), and reconnection (phase III). Phase I aims to help adolescents in "(a) reducing their self-destructive behaviors, (b) understanding and managing symptoms, (c) engaging in self-care, (d) developing a working alliance with the therapist, and (e) regulating painful affect and destructive impulses" (5). In addition, some of these stabilization components, such as understanding and managing symptoms and engaging in self-care, overlap with components in other kinds of therapies, such as trauma-focused cognitive behavioral therapy (TF-CBT) (5, 6). Thus, components in phase I are good topics to focus on in developing a medium that aim to prevent progression of negative impacts of trauma exposure and improve self-management in adolescents.

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There has been an increased interest in utilizing serious games and gamification in health and education. Computer games are played by millions of adolescents and over 40% of the U.S. population play computer games for 3 or more hours per week in 2015, so games are good media to utilize for reaching adolescents. While serious games are games designed "to educate, motivate, and/or persuade users, in educational, health and other settings," gamification refers to adding game elements to a non-game behavior (8). Studies have shown potential benefits of serious games and gamification for psychological and behavioral changes (8). Thus, this project aims to utilize serious game and gamification techniques and phase I treatment components in developing an educational game that increases knowledge about responses after traumatic events and increases self-efficacy in self-management after trauma exposure.

While creating a game from scratch is certainly a great intellectual challenge, doing so may cause the game to lack an organized framework for educating players on signs and symptoms of PTSD. In order to provide a structure and a greater potential for future uses of the game, we decide to adapt a child PTSD questionnaire into a game. The child PTSD questionnaire we selected is Child PTSD Symptom Scale (CPSS), a self-report measure of child PTSD based on DSM-IV criteria. CPSS can be given to children ages 8-18 and is developed by Dr. Foa and her team in 2001. While there are other instruments of measuring child PTSD, many of them need to be administered by a therapist and are not as simple as CPSS. In addition, studies have shown that CPSS has good internal consistency, concurrent and discriminant validity and is a useful screening tool for child PTSD (9, 10, 11). While its DSM-5 version has been developed by Dr. Foa as well, there is less research done on its use and validity. Although there are differences between DSM-IV and DSM-5 criteria for PTSD, almost all the criteria listed in DSM-IV are in DSM-5. Thus, adapting CPSS (DSM-IV version) into a game is still capable of presenting the majority of PTSD symptoms to its players.

References

*(**Preparation:** There are appropriate numbers of varied or valid sources and the introduction and the discussion of the scholarly activity and how it fits into the current knowledge base reflects a basic understanding of the field.)*

Add your references here.

1. Heather Dye (2018) The impact and long-term effects of childhood trauma, Journal of Human Behavior in the Social Environment, 28:3, 381-392, DOI: 10.1080/10911359.2018.1435328
2. Davydow DS, Richardson LP, Zatzick DF, Katon WJ. Psychiatric morbidity in pediatric critical illness survivors: a comprehensive review of the literature. Arch Pediatr Adolesc Med 2010; 164:377.
3. McLaughlin KA, Koenen KC, Hill ED, et al. Trauma exposure and posttraumatic stress disorder in a national sample of adolescents. J Am Acad Child Adolesc Psychiatry 2013; 52:815.
4. American Psychological Association. Update for mental health professionals. Retrieved from http://www.apa.org/pi/families/resources/children-trauma-update.aspx.
5. Green, E. J., & Myrick, A. C. (2014). Treating complex trauma in adolescents: A phase-based, integrative approach for play therapists. *International Journal of Play Therapy, 23*(3), 131-145. http://dx.doi.org/10.1037/a0036679
6. Cohen, J. A. and Mannarino, A. P. (2008), Trauma-Focused Cognitive Behavioural Therapy for Children and Parents. Child and Adolescent Mental Health, 13: 158-162. doi:10.1111/j.1475-3588.2008.00502.x
7. Cloitre, M. , Courtois, C. A., Charuvastra, A. , Carapezza, R. , Stolbach, B. C. and Green, B. L. (2011), Treatment of complex PTSD: Results of the ISTSS expert clinician survey on best practices. J. Traum. Stress, 24: 615-627. doi:10.1002/jts.20697
8. Fleming, T. M., Bavin, L., Stasiak, K., Hermansson-Webb, E., Merry, S. N., Cheek, C., … Hetrick, S. (2016). Serious Games and Gamification for Mental Health: Current Status and Promising Directions. *Frontiers in Psychiatry*, *7*, 215. http://doi.org/10.3389/fpsyt.2016.00215
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11. Nixon, R. D. V., Meiser-Stedman, R., Dalgleish, T., Yule, W., Clark, D. M., Perrin, S., & Smith, P. (2013, July 1). The Child PTSD Symptom Scale: An Update and Replication of Its Psychometric Properties. Psychological Assessment. Advance online publication. doi: 10.1037/a0033324

Methodology

*(**Methodology:** The project methodology is clear and/or appropriate and adequately addresses the project goals.)*

Please describe the methodology that will help you achieve your stated results, explaining why it is the preferred method. If there has been changes to the methodology please explain.

Overview

Originally, the type of game I intend to create was a visual novel/case study, focusing on a main character who has gone through a traumatic event. However, since it will be hard to present and educate players on symptoms of PTSD in a simple and direct way, I chose to create my game by adapting the questionnaire CPSS. In addition, this game design will allow me to better limit potential triggers of PTSD and allow players to play the game in a safer condition.

Design

I plan to incorporate the components of phase I in the game, especially the part on understanding and managing PTSD symptoms, so the main focus of the game will be to depict PTSD symptoms in a simple but not harmful way. The game will be a mobile game, which allows the players to feel more hands-on as they play the game. Since CPSS contains 17 questions, the game will involve 17 stages, with each stage revolving around a question on the CPSS. At the beginning of each stage, the players will be asked to input a word (i.e. clown) they associate with the situation mentioned in the question (i.e. upsetting thoughts/images). The word will then be on the object players have to interact with to accomplish the task in the game in order to make the game feel more personalized. For example, in the stage where the question is "do you have upsetting thoughts or images about an event that came into your head when you didn't want them to," the task will be to chase away the monsters that have the word the players input on them off the screen. By accomplishing the task in each stage, the players can not only visualize the symptoms, but they can also feel that these symptoms are something that can be dealt with. At the end of each stage, we will ask the actual question in the questionnaire and tally up the scores from each question. At the end of the game, we will have the CPSS score and can then make recommendations based on those scores. If the players do exceed the cutoff score of CPSS for PTSD, we will recommend them to seek help from a therapist. In addition, there will be another score that tally up the points from completing each stage to provide an incentive for playing the game.

In order to minimize the potential of triggering the players' PTSD, precautions will be built into the game. Here is the current list of precautions:

1) The game will only ask for the first word that comes to the player's mind. It will be very clear that the word can be any word and does not have to be an event. In addition, there will be a skip option, so the players can still enjoy the game without needing to share anything if they do not want to.
2) At the start of the game, players would be given the choice to select a background color that would make them feel calm. They will also get to pick if they want the background music/sound effects on or not.
3) The drawings in the game be more abstract/cartoony and symbolic and less realistic, so the players will not readily associate what they see with a particular traumatic event they have experienced. Instead, they can focus on what is depicted and complete the assigned task for each stage.

4) There will be an exit button available at a conspicuous location on the screen in each stage, so the players know they always have the option to stop playing the game.

Steps to Develop the Game

The first step is to research further into the components of phase I in order to figure out what falls under them. To accomplish this step, I will be reading a couple of books regarding trauma's effect on people and phase-based therapy. The books I plan to read are *Trauma and Recovery* by Dr. Judith Herman and *The Trauma Spectrum: Hidden Wounds and Human Resiliency* by Dr. Robert Scaer. I will then develop the game while keeping the concepts in the books in mind.

The second step is to outline the contents of the game, which mainly consists of what condition do I want them to focus on, how do I want to depict each symptom and what tasks do I want the players to accomplish. Some literature research will need to be done to find coping skills used for dealing with symptoms of PTSD, so I can try to incorporate these skills in the tasks I want the players to accomplish.

The last step is to meet with a computer programming and game design student to converse about the feasibility of the game design. In addition, we will be conversing about the specifics of the designs of each object.

Results

***(Results:** The product reflects achievement or understanding and is consistent with the goals of the project; Deficiencies have been thoroughly explained, describing alternative approaches and encountered problems.)*

Please describe your results, or anticipated results, and/or attach the most current version of your scholarly project.

The product I expect to produce at the conclusion of my capstone project is an educational game. This game should educate adolescents on possible associated symptoms and effects of trauma, push them to think about their own daily life and aid them in gaining self-efficacy in managing reactions to traumatic events.

Currently, I am still in the process of developing contents for the game, as some of the symptoms are harder than I expected to depict in graphics. Here is the current outline of the game:

1. Type in the first word that comes to your mind when you hear the words ***upsetting thoughts/images.***
    a. Mini Game
        i. Chase away the monster with the word on its body
        ii. OR use a happy cloud to cover up the thought bubbles with the word
        iii. OR use a shield to protect a cartoon brain and chase the thought bubbles with the word that want to go toward the brain away
2. Type in the first word that comes to your mind when you hear the word ***nightmares***
    a. Mini Game
        i. First ask for a word that makes the player feels happy and then ask them to switch out the nightmare bubbles (with stars and moon on them) with the happy bubbles with the word that makes the player feels happy on it
            1. The nightmare bubbles will be coming towards the sleeping avatar on screen
3. Type in the first word that comes to your mind when you hear the words ***recurring events/reexperiencing***
    a. Mini Game
4. Type in the first word that comes to your mind when you hear the words ***feeling upset***
    a. Mini Game
5. Type in the first word that comes to your mind when you hear the words ***feelings in your body when you think about or hear about an event (breaking out into a sweat, heart beating fast) OR*** Type in the first word that comes to your mind when you hear the words ***breaking out into a sweat and heart beating fast***
    a. Mini Game
        i. There will be a cartoon heart that is sweating and moving really fast. The players need to collect ice cubes on the screen and place them near it/on it to slow the heart down.
            1. This is to simulate a vagal maneuver.
6. Type in the first word that comes to your mind when you hear the words ***trying not to think about, talk about, or have feelings about an event***
    a. Mini Game
7. Type in the first word that comes to your mind when you hear the words ***trying to avoid activities, people, or places that remind you of an event***
    a. Mini Game

8. Type in the first word that comes to your mind when you hear the words ***not being able to remember an important part of an event***
    a. Mini Game
9. Type in the first word that comes to your mind when you hear the words ***having much less interest or doing things you used to do***
    a. Mini Game
10. Type in the first word that comes to your mind when you hear the words ***not feeling close to people around you***
    a. Mini Game
11. Type in the first word that comes to your mind when you hear the words ***not being able to have strong feelings (unable to cry or feel happy)***
    a. Mini Game
12. Type in the first word that comes to your mind when you hear the words ***feeling as if your future plans or hopes will not come true***
    a. Mini Game
13. Type in the first word that comes to your mind when you hear the words ***having trouble falling or staying asleep***
    a. Mini Game
        i. A humanoid avatar trying to sleep on a log, but cannot fall asleep, so the player needs to roll the avatar onto a bed, turn off music, and move all the distractions (i.e. phone, computer) off the bed before the avatar can fall asleep
            1. Can let them try to figure out what needs to be done instead of giving them instructions
                a. Give them hints after 5 seconds if they are unable to figure out what needs to be done
14. Type in the first word that comes to your mind when you hear the words ***feeling irritable or having fits of anger***
    a. Mini Game
15. Type in the first word that comes to your mind when you hear the words ***having trouble concentrating***
    a. Mini Game
        i. The avatar on screen will be trying to make a to-do list, but keeps on stopping, so the player needs to remove distractors (such as music, phone, etc.)
            1. Can let them try to figure out what needs to be removed instead of giving them instructions on which ones to remove
                a. Give them hints after 5 seconds if they are unable to figure out which ones need to be removed
16. Type in the first word that comes to your mind when you hear the words ***being overly careful***
    a. Mini Game
17. Type in the first word that comes to your mind when you hear the words ***being jumpy or easily startled***
    a. Mini Game

Discussion

***(Reflective Critique:** Student reflection represents a basic understanding of the project's strengths and weaknesses, of further areas of study, and of future applications of the work.)*

Please place your results and/or scholarly product in the context of current knowledge, reflecting on the strengths and weaknesses of your work and future directions for scholarly activity.

If you do not have results yet, please reflect on how the project is going, challenges and opportunities for success.

Adapting a questionnaire into a game certainly has its strengths and weaknesses. One of the strengths is that the game format allows the task of completing the questionnaire to be more fun and interactive, providing an incentive for adolescents to follow through with the task. In addition, the game is freely accessible and easy to carry because it will be on the players' phone. The players will be able to choose when and where they want to play the game, allowing them to find a safe space, so that they can feel safe and in control, which are both important aspects of phase I treatment, when they play the game.

While being able to play the game without the presence of a therapist certainly has its benefits, it also has many risks. Playing the game without a therapist means that players can play the game whenever they want to and can play it without feeling rushed or observed, which may make them feel more comfortable. However, without a therapist present, if the players become triggered by something they see in the game and start to re-experience their trauma, then the players will be placed in a vulnerable position with no immediate help available, which is not the intention of the game. The players will also need very clear instructions in each stage of the game as there would be no one to guide them when they are confused. It may be more beneficial for the game to be played in a primary care setting, where there can be someone to watch over players as they play the game. However, this may put more responsibility on primary care physicians who are not particularly well trained to take care of child and adolescent PTSD. Perhaps the best setting is to have the game played in a therapist's office, as the therapist would be better equipped to deal with trauma re-experiencing and other situations that may come up as the players are playing the game. However, currently, the main goal of the project is to create an educational game that allows players to learn about PTSD symptoms and gain self-efficacy from it. The setting where the players play the game can be modified and discussed more extensively at a later date. Other components of the game, namely the part not contributing to educating the players, can be modified as needed in the future as well.

II. Progress Report Part 2 - Process and Resources

The purpose of this section is to help you and your mentor evaluate the viability of the project and reflect on things that went well and unexpected events. By updating your budget and timeline we can ensure you are on schedule and that any problems are recognized and addressed early.

Timeline

Please provide a detailed project timeline as to how you expect the project to progress, such as when you will begin collecting results, data analysis etc. You can update this each semester to reflect changes to the project.

A detailed project timeline is required in order to ensure the project's success. The timeline should take into consideration the various changing schedules from year to year and should be developed with your mentor to ensure that it is reasonable and that expectations are in alignment. A good timeline helps all parties involved to understand their roles and when particular resources are needed. It is okay if there are redundancies with other areas of the proposal as it is essentially meant to be a "bird's eye" view of the project (coming up with the project idea, refining it, execution of each part of the project, expected milestones and finally, the expected product).

- Meeting frequency with mentors – Email updates at least once each semester, more updates if more progress is done

Year 3

- Meet with Katie – in late August or early September
- 25-50% of game completed – end of 3rd year
- Test play – occur throughout this year

Year 4

- Game completion – middle of 4th year
- Continue test play – before capstone scholar day
- Refinement of Game – throughout 4th year
- Work on refining the final report – 2 weeks of capstone time in 4th year

Budget Proposal/Updates

Use the budget worksheet to estimate your anticipated project expenses. You have a budget in the amount of $2500.00 for supplies to execute your project. If your budget exceeds this amount, you must describe where the additional funds will be obtained.

Capstone Project Budget Planning Worksheet					
		ITEM	**COST**	**DATE**	**REASON FOR EXPENDITURE**
	MATERIALS/ EXPENSES	*The Trauma Spectrum*	$35.00		Reading for game ideas and content
		Subtotal	**$35.00**		
	EQUIPMENT				
		Subtotal	**$0**		
	TRAVEL	Travel to conference (can also be used toward payment to student instead)	$165.00		Get ideas to refine game/present game
		Subtotal	**$165.00**		
	OTHER	Payment to student	$2300.00		Want to hire student at Mount Carmel campus to help with graphics and coding of the game

		Subtotal	**$2300.00**		
	PROJECT TOTAL		**$2500.00**		
	PROJECT BUDGET		**$2,500.00**		
	REMAINING FUNDS		**$0**		

Required Resources

Please describe the resources you will need for your project including the location of the work, materials/resources available to perform the methods, and any anticipated needs. You can update this each semester to reflect changes to the project.

In the future, the game will be made using computers and with game development software. I will also need the help of a computer programming and game design student to help me complete the development of the game.

Institutional Review Board and/or Animal Research

Before IRB

If this project involves the use of human subjects and/or personal health information or patient samples, please briefly describe your plan (expedited, full review, or waiver) and time-line for IRB approval. It is likely the human subjects research may be conducted at a location other than Quinnipiac. Each location will have its own IRB requirements. Any human subjects protocol will need to be approved at the location where the work is done and can then also be submitted to the QU IRB. Importantly, for your protection, your mentor must be the Principal Investigator on the IRB application.

Please describe the proposed process:

Currently, my planned project will not involve the use of human subjects and/or personal health information or patient samples. In the future, we may recruit adolescents for play testing, but this is still under discussion.

Please also describe your mentor's experience with human subjects and/or animal research and whether you would like any assistance with your IRB submission:

This is not applicable to my project currently, but if I do end up needing an IRB submission, I would like assistance with my IRB submission.

After IRB Approval is Obtained

Once you have received approval, please upload an electronic copy of your approved protocol with documentation of institutional approval.

This is not applicable to my project currently.

Animal Protocol

Please note, for animal studies it is expected your mentor will have an approved IACUC protocol. If this is not the case, please describe in detail your mentor's experience with animals and plans for generating an approved animal use protocol.

This is not applicable to my project currently, and I do not anticipate it to be applicable to my project in the future.

Information on QU IRB/animal research policies may be found here.