POWERUP

Final Proposal

Topic Area: Health

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Rosita 15: Emily Chesbrough, Rebekah Nivala, Ihudiya Finda Ogburu, Cindy Yang

Group Members: Emily Chesbrough, Rebekah Nivala, Ihudiya Finda Ogburu, Cindy Yang

Summary

Preadolescent girls need better options for reproductive health and self-esteem education. Preadolescents are at risk for possible pregnancy and spread of sexually transmitted infection (STI), yet very little information reaches preadolescents about risk and responsibility associated with sex. Additionally, preadolescents struggle with self-esteem, which makes them vulnerable to peer and media influence. Current trends in sexual activity among preadolescents impact the economy, hurt family cohesion, affect female education, and burden healthcare systems.

In response to this crisis, our project seeks to build on Social and Emotional Learning (SEL) to help preadolescent girls between the ages of 12 to 14 who live in the greater Boston area make more informed decisions regarding their reproductive and sexual health. Specifically, we propose to design a mobile application for preadolescent girls to engage in interactive media about self-esteem, puberty, sex, and reproductive health.

Designed to increased access to reproductive health and self-esteem education for more students, PowerUp is an educational choose-your-own-adventure game available as a mobile app on iOS and Android platforms. The users create a character and start playing the game, beginning with easier, less vulnerable subjects and moving toward the hard-hitting subject matters of sex, menstruation, sexually transmitted infections, pregnancy, and contraceptives.

To make this app a reality, partnerships with Boys and Girls Clubs of Boston and Planned Parenthood will allow PowerUp to continue formative evaluation and start dissemination of the app. Planned Parenthood, the Clinton Foundation, and the Gates Foundation are all groups that have a track record of supporting organizations similar to PowerUp. Thus, we believe our proposed partners are likely to support a reproductive health app such as PowerUp.

PowerUp will assess its impact by surveying students in Boys and Girls Club who use PowerUp against Boys and Girls Club students who did not have the app, and a group of students who are outside Boys and Girls Club and did not use the app. Data from this survey will reveal how PowerUp informs users on reproductive health, critical thinking, and self-esteem, ultimately confirming our efforts or leading to future alterations and development.

Table of Contents

Introduction	4
Project Rationale	4
Literature Review and Background	5
Goals and Objectives	7
Development characteristics and media habits of target population	7
Project Design	8
Product Content and Game Mechanics	8
Curriculum	8
Points	
Evolving Character	
Superpowers	
Mini Games	9
Formative evaluation and resultant revisions	10
Outreach and Partnerships	11
Dissemination plan	12
Impact evaluation plan	12
Conclusion	13
Appendix A	15
References	20

Introduction

Increased exposure among preadolescents aged 12-14 to sexualized media has normalized engagement in sexual activity at younger ages (Common Sense Media, 2013). While sexual activity has gotten younger, information regarding sex - contraceptives, pregnancy risk, and sexually transmitted infections - is not very accessible to preadolescents (everydayfeminism.com, 2015). Presently, information regarding preadolescent sex, female health, and reproductive health typically comes in the form of sex education classes and "the talk" (usually a short, awkward, and fumbling conversation led by a well-intentioned guardian to give an overview of sex and reproduction), which often do not successfully address the issues or interests of preadolescents between the ages of 12 and 14. Lack of adequate support from traditional avenues directs middle school girls to seek out information on their own through web searches, to engage in conversations with similarly unknowledgeable peers, or to experiment in sexual activity. Indiscriminate selection of online material and misinformation combined with sexual activity often has dangerous results. To address this issue, PowerUp uses Social and Emotional Learning (SEL) to empower middle school girls to take ownership of their health and sexual activity. We propose to create a mobile application that will incorporate quality and relevant information surrounding self-esteem and reproductive health, and will offer interactive activities to help concretize corresponding concepts.

Project Rationale

Our target group consists of preadolescent girls between the ages of 12 to 14 in the greater Boston area. This population lives in urban settings, attends public schools, and frequently accesses media through music, TV shows, online articles, games, and video blogs.

While sexual content has been on the rise in popular media, sex education has not been modified to reflect this social change. A study from Common Sense Media (2013) notes sexualized content on TV doubled between 1998 and 2005; sexual content now exists in 68% of TV shows. According to the study, preadolescents are also turning to online pornography. In fact, boys aged 12 to 17 years old represents the largest demographic for porn watching. Despite the increase of sexual content in the media, only 15% of these shows cover "risk and responsibility" associated with sexual activity (Common Sense Media, 2013). From a formal

education perspective, only 65% of schools provide any sex education; of those, less than 60% provide instruction on condom use (Finer & Zolna, 2011). Due to this exposure to sex but lack of sex education, students are having their sexual debut younger and younger. Among preadolescents, 5% of 12-year-olds, 10% of 13-year-olds, 20% of 14-year-olds are now sexually active (Hills, 2010). Peer pressure and misinformation increases sexual activity. Over 50% of preadolescents believe that their peers are sexually active, which significantly influences their decisions on this topic (Hills, 2010). Moreover, 70% of our target population struggles with low self-esteem, a risk factor that also drives preadolescents to sexual activity (DoSomething.org, 2015). In light of this gap, PowerUp will provide our target group with relevant and honest information regarding sex and puberty, while also improving self-esteem through SEL. We will accomplish both through a choose-your-own-adventure game that puts preadolescent girls in the driver's seat, making their own decisions to learn about reproductive health and self-esteem.

Literature Review and Background

Female sex education and health concerns in preadolescent girls, from 12 to 14 years of age, focuses on two main areas: mental health and physical health. In terms of mental health, many teen girls struggle with self-esteem issues and feelings of disempowerment (DoSomething.org, 2014). In regard to physical health, Kaiser American Foundation (2015) states that teenage girls struggle with pregnancy and sexually transmitted infection. In fact, among developed nations, the U.S. tops teenage pregnancy and STI transmission rates (Kaiser Family Foundation, 2015).

Low self-esteem in preadolescent girls is a rising concern in America. Low self-esteem is defined as disordered thinking where individuals feel "inadequate, unlovable, and/or incompetent" (DoSomething.org, 2014). Self-esteem is linked with decision-making, where low self-esteem increases the likelihood that peer pressure will lead to poor decisions (DoSomething.org, 2014). Additionally, students who base their self-esteem on external factors also have difficulty making healthy choices: "college students who based their self-worth on external sources--including appearance, approval from others and even their academic performance--reported more stress, anger, academic problems, relationship conflicts, and had higher levels of drug and alcohol use and symptoms of eating disorders" (Crocker, 2015).

Overall, to make good decisions and feel better about themselves, girls need internal validation and the ability to confront difficult situations with confidence. SEL models for teaching conflict resolution, negotiation, and other social skills help women build confidence with which to confront tough situations, ultimately elevating self-esteem and internal validation. According to the Collaborative for Academic, Social, and Emotional Learning, "SEL is the process through which children and adults acquire and effectively apply the knowledge, attitudes and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions" ("Collaborative for Academic, Social, and Emotional Learning," n.d.). SEL programs have an established record of success that will adapt with the content of our product. For example, one such program, *Get Real*, a curriculum created by Planned Parenthood League of Massachusetts, has led to 16% fewer boys and 15% fewer girls having sex in comparison to their peers who did not receive the program ("Why Get Real?", n.d.). According to the *Get Real* website, "*Get Real* is one of only a few middle school programs that reduce risky sexual behavior for both boys and girls" ("Why Get Real?", n.d.).

In addition to self-esteem, this app will also address sex education and reproductive health, areas in which public health and preadolescent health are in decline. While preadolescent pregnancy rates have been decreasing in the United States, STI transmission is still an issue (DoSomething.org, 2015). Roughly 75% of all reported gonorrhea is found in people age 15 to 29, with the highest infection rates found in preadolescent girls between ages 15 to 19 (DoSomething.org, 2015). HIV infections are on the rise among preadolescents; cases of HIV+ youth increased by 21 percent in the 13-29 age bracket (Advocates for Youth 2015). A large issue for preadolescents is lack of information, lack of access or knowledge of contraceptives and STI prevention, and the prevalence of abstinence-only education. For example, thirty-nine percent of all sexually active U.S. high school students did not use a condom the last time they had sex (Advocates for Youth 2015). Most importantly, increased access to information about contraceptives and sexual education decreases both pregnancy rates and STI transmission. Critics of sex education claim abstinence-only education reduces preadolescent pregnancy and STI transmission, but that assertion has no empirical support. On the contrary, "abstinence-only programs have been found to be ineffective in a randomized controlled trial" (Trenholm, et al., 2008).

Goals and Objectives

Objectives:

- 1. Equip preadolescent girls in the "pre-contemplation" stage who are not aware that they may be at risk and have no intention to change their sexual behaviors (Weinreich, 1999), to become aware of issues concerning puberty and reproductive health
- 2. Support preadolescent girls in their development of self empowerment

Goals:

- 1. Create a mobile application with a game platform that supports simulated situations about sex and puberty, and which advocate development of self-esteem and critical thinking
- 2. Offer games and activities to help visualize related concepts through self-directed interactions in a low-stress environment

Development characteristics and media habits of target population

The target population for our product is young preadolescent girls between the ages of 12 to 14 who live in urban settings and attend public school. Due to Children's Online Privacy Protection Rule (COPPA) regulations, most of the data mentioned in this section are for preadolescents 13 and above ("PART 312—Children's Online Privacy Protection Rule," 2013). According to Common Sense Media, "Two out of three (67%) teens [13 years old to 17 years old] have their own mobile device capable of connecting to the internet, such as smartphone, iPod Touch, iPad, or similar device" (Common Sense Media, 2012). A mobile application was chosen as the method to reach our target market as it is a popular method of accessing internet among teens between the age of 13 to 17 years old. Moreover, mobile applications allow for download on personal phones and can be quickly accessed at any time, in comparison to computers that are often less private. The Rosita team plans to meet our target users on devices that they currently use in their everyday lives.

Project Design

Our team will develop a mobile application for Android and iOS that will provide a simulation game, allowing users to choose their own adventures. We intentionally chose to create a simulation game to allow users to choose their own adventures in order to provide preadolescents the ability to learn lessons about life in a virtual environment. Responding to evidence that our target users want to define identity, particularly through fashion (Byrd, 2014), the application will center on an avatar, whose appearance the user can personalize.

Product Content and Game Mechanics

When opening to the PowerUp beginning screen, users are presented with the option to start a new game, continue a current game, or learn about the PowerUp organization. Upon selecting the "new game" link, the user will be directed to an introduction screen, which explains gameplay. The user will then be sent to the creator room and will be given the option to customize the look and style of the main character (Appendix A, Figure 5). Users cannot return to this character creator room upon completing the avatar screen. Once a user has created an avatar, the user will be presented with the map of the avatar's community (Appendix A, Figure 6). The user will be guided to the avatar's house. At the beginning of each storyline, an introduction screen states the goals and learning objectives with each respective scenario.

Preadolescents who use the PowerUp game will go through a series of scenarios based on Planned Parenthood curriculum that has shown evidence of positive change to preadolescent youth. In an example scenario (see Appendix A, Figure 3), our prototype avatar Roise (evolved to 14 years old) goes through a series of conversations on whether she will or will not have sex with her boyfriend Marcello (15 year old character in the game). Overall, PowerUp will discuss issues surrounding pregnancy, puberty, contraceptives, self-esteem, and options around sex (Appendix A, Figure 7).

Curriculum

The content in the game will be based on SEL Core Competencies (Self-awareness, Self-management, Social awareness, Relationship skills, Decision making). The SEL Core Competency model was selected as the model of choice based on statistics that confirm its effectiveness in teaching empowerment and reproductive health.

The Rosita team plans to incorporate popular media into our game through the storyline, music, avatar clothes, and accessories. Popular media references within our app will address the need to of our target audience desire to be cool and socially accepted (Wallace Foundation, 2013). In conclusion, our product will improve SEL skills, which in turn will help our target audience combat issues with self confidence (Vail, 2014).

Points

The user will receive points for each informed decision made during the game. The game will encourage healthy habits and decisions by allotting points throughout the storyline and mini games. Points are assigned based on users' ability to think critically, demonstrate self-esteem, and understanding of reproductive health. These points can be used to purchase new clothes or accessories, and advance to further levels. Lastly, promoting positive reinforcements, points can not be removed due to what might be considered "poor decision making." However, alternative consequences for uninformed/poor decisions include lack of resources with which to upgrade user avatar, denied access to further levels, and opportunity cost.

Evolving Character

The avatar that our users can create starts at the age of 13. The avatar has the ability to evolve in order to emulate corresponding storylines regarding puberty, aging, and self-esteem. The users' avatar evolves until she reaches the age of 17 at which point the users reach the completion of the game.

Superpowers

As the character evolves and gains points in the game, she will also gather superpowers associated with particular personality traits. These super powers will manifest in playful forms of positive attributes--resiliency would be presented as super-strength, while telepathy would be compassion. The super powers will be added to the main character's slate of options as she faces new situations.

Mini Games

Mini games will be integrated throughout the simulation game in order to indirectly address key information surrounding reproductive health. For example, we will create a mini maze game to address unprotected sex, a bubble/condom game to address sexually transmitted infections. Mini games are spread throughout the game in order to discuss topics in an indirect

but enjoyable manner. They provide a break between the dialogue scenes between the user's avatar and characters throughout the storyline. Mini games will be used to present topics like sex and demonstrate consequences of informed vs. uninformed decisions.

Formative evaluation and resultant revisions

For our first formative evaluation, we tested the appeal of the main game of our application by examining its game mechanics, platform, and design with five female students at Watertown Middle School, Watertown, MA.

We presented the students with two games and 18 characters to compare and contrast features they liked. For game mechanics, students were drawn toward the freedom of choice aspect in the choose-your-own-adventure game--a setting that is relatable to real life environment. They also appreciated the mini game activities, minimal barriers to game play (i.e. no limits on play time), infusing concepts into the game, incorporating popular music into the game, and a point system for rewards. The students also suggested the option for characters to obtain super powers as a game differentiator. Regarding platform, most participants in our formative evaluation group only have access to cellphones, making a mobile-based game the preferred avenue for dissemination. Most of the testers also confirmed that they have direct access to mobile app stores with the autonomy to download free games on their own.

Lastly, in terms of design, preference leans toward creating an unique and edgy style. The game would have to be marketed as a lifestyle fashion app as these testers do not identify themselves as "gamers."

In response to the feedback, we decided to move forward with the choose-your-own-adventure game, updated the setting to include frequented places of socialization (e.g. coffee places), adding curriculum supported concepts into the storylines, customization options for the character, and focusing on delivering our product through the mobile platform. Most importantly, we have fully integrated the "superpower" suggestion; the main character develops superpowers that reflect positive attributes (i.e. resiliency, assertiveness) as she advances in the game.

For future evaluations, we would like an opportunity to test our content. We would like to know what kind of content relating to sex and puberty our target group is most curious about --

and among these, what they have most difficulty accessing by themselves. In addition, it would be helpful to understand what kind of situations involving sex and relationships the target group finds most challenging (and what their typical response would be). To ensure we are enabling critical thinking, we would test how the content should best be presented (via dialogue, direct facts, etc). This opportunity would be further explored once we build a partnership with a local girl empowerment program at a community organization (e.g. Strong Girls Program at the Boys and Girls Club of South Boston) or secure an advisor who has an inner perspective on the thought process of our target group.

Outreach and Partnerships

During the initial stages of outreach, we look to partner with local community organizations. Specifically, we have identified the Strong Girls Program at the Boys and Girls Club of Boston, Boston Women's Fund, and the Boston Chapter of the National Organization for Women, all of which are committed to combating sexism and advocating for women's rights.

Given the sensitive nature of sex education and women's health, parental approval is essential for the product's success. Thus, as part of our outreach, we plan to meet with and recruit groups that advise parents on media choices (New Mommy Media, the Parent Media Group, Parent's Television Council, etc) to request feedback and recommendations for further developments. With the support of these or similar groups, parents may feel confident to suggest the product to their child. However, though parent support is needed, students do not always consider parental approval to be "cool." Consequently, we will also be targeting users independently through community programs and third places, such as those mentioned above and online app stores.

As our product develops and gains ground, we hope to extend our reach by partnering with national organizations such as the Komen Foundation, Planned Parenthood, and the Gates Foundation, which support sex education in schools. Considering that the work of these organizations aligns with our goals and objectives, we believe they would be likely partners in funding and disseminating this application.

Dissemination plan

Through our local community partnerships, we will ask coordinators of girl empowerment programs to become advocates for our product. First, we will provide these coordinators with curriculum adapted from Planned Parenthood teaching materials. Then, to drive adoption of our product, we will provide tablets preloaded with our game that can accompany the curriculum. The program coordinator can then teach sex and puberty concepts while participants engage in the game and try out corresponding scenarios throughout the game.

Additionally, we will start an Instagram account that provides snippets of the game. The Instagram will regularly upload different dialogues or decision making points for the main character and invite its followers to vote on what decisions should be made. This allows opportunity for more of our target audience to participate pre-download, and might also lead to an increase in app users.

Impact evaluation plan

We will track the impact of our app by looking at user metrics and user outcomes in the games. We will also look at downloads to measure the app distribution. Within the games, we can track time spent playing, areas and mini-games preferred, etc. From collected data, we can ascertain which games users most frequently visit and match corresponding exposure to associated lessons/concepts. Moreover, we can look at choices made within the games to measure effectiveness of reaching our educational objectives. Wiser choices over time in game-simulated interactions evidences learning and attaining desired objectives. Based on downloads, user metrics, and user interactions in the games, we can measure our impact. If students are downloading the games, using frequently, and improving decision-making over time, then we will have provided an effective product that meets our objectives.

To determine efficacy of our product, we will conduct summative evaluation research. We will recruit participants from three different areas: girls that participate in a Boys and Girls Club Empowerment Program and use our product in conjunction with the curriculum, girls that participate in a Boys and Girls Club Empowerment Program but do have access to our product, and a control group with no involvement with either a Boys and Girls Club Empowerment Program or access to our product. We will ask participants for self-reports before and after the

study to measure base knowledge, knowledge acquisition of participant pool, and overall reaction toward the product. Additionally, we will conduct a survey six months after completion of the study in order to measure longitudinal effects of our product. Alongside direct interaction with the three research groups, we will also conduct interviews with teachers and parents to supplement findings from focus groups and surveys.

To measure whether or not our product is reaching our target audience, we will collect user data for internal purposes to improve our product while respecting user privacy and COPPA (Children's Online Privacy Protection Rule) regulation. When creating a user account, each user will be asked to create a username and input their age and sex (though listing age and sex will be optional and therefore voluntary).

Conclusion

Targeting middle school girls who are unaware of potential risk related to sexual activity and are unlikely to change behavioral habits, our project seeks to help our target audience develop skills in empowerment and increase understanding of their personal health and sexual activity. Use of our product will help users visualize concepts through engagement in simulated decision-making processes with corresponding consequences. By engaging students through game play, PowerUp makes reproductive health and self-esteem education engaging, visual, and accessible to more preadolescents. Through PowerUp, more preadolescents will understand the important decisions they face, and they will have the necessary information to anticipate consequences and make wiser choices. Over time, better health education can reduce the rate of pregnancies and STI transmission among preadolescents in the United States and improve the mental and physical health of current and subsequent generations.

Appendix A

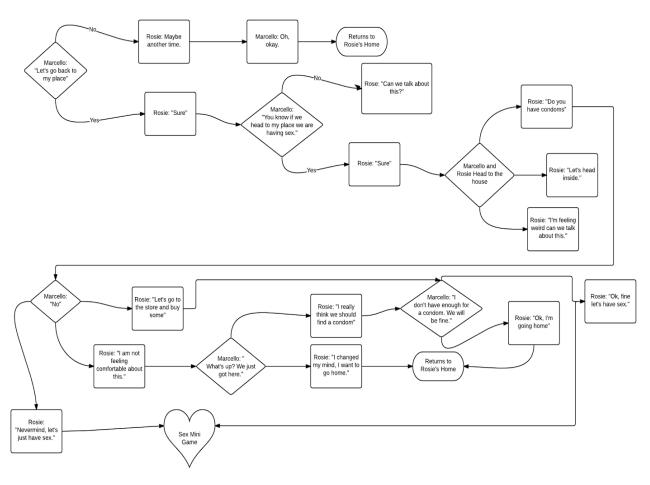


Figure 1: Sample Game Decision Tree (Rosie makes a choice regarding contraceptives)

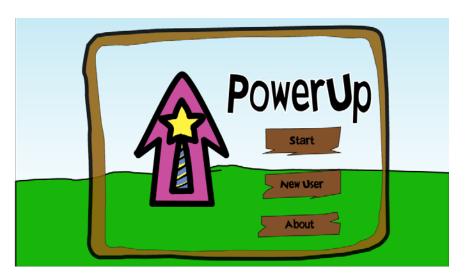


Figure 2: Game Start Screen



Figure 3: Sample Dialogue



Figure 4: Sample Mini Game



Figure 5: Character Personalization Screen

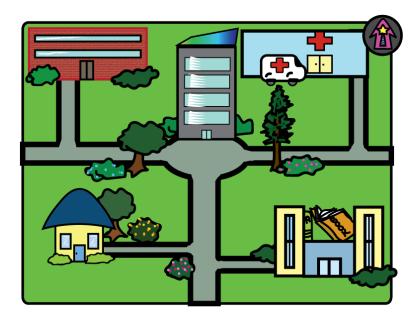


Figure 6: Game Map/Home Screen

Figure 7: Sample list of topics

- Sex
 - Contraception options
 - Abstinence
 - Consent
 - Sex contraception
- ⇒ Pregnancy

- STIs
 - O What are STIs?
 - O How do they spread?
 - o How can you protect yourself?
 - How protected are you? Condoms and their limitations.
 - Getting tested and talking to your doctor
- Pregnancy
 - O Abstinence, sex, and how pregnancy happens
 - Adoption
 - The process
 - what to expect from adoptive families
 - Keeping the Baby
 - Health during pregnancy
 - Foods/activities to avoid during pregnancy
 - Giving birth
 - After birth: what to expect
 - Raising a baby
 - Abortion
 - Before 8 weeks
 - After 8 weeks
 - 20/24 week cut off: see adoption

- Women's Health
 - Menstruation
 - Body changes during puberty
 - Acne, body odor, and growing pains, oh my.
 - Boobs, butts and beyond
- Relationships
 - O What are relationships?
 - How do you get into a relationship?
 - What are relationships good for, and what are they NOT good for?
 - o Relationship Abuse: what it looks like, how to avoid it, how to get out
 - Creating and maintaining happy relationships
 - Peer pressure and dating: not a good combo
- Self-Esteem, Self-Awareness, Self-Management
 - O What is self-esteem?
 - How to feel good (or better) about yourself
 - Coping strategies for tough times
 - How to get to know yourself better (emotions, thoughts, behavior)
 - How to regulate your own behavior
- Making Decisions on Your Own
 - O How do you make decisions?
 - What do you do if your decision didn't go the way you wanted?
 - How to recover from unexpected consequences
 - Learning from mistakes

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