

**Tweens HackHealth: Working with School Librarians to Engage
Disadvantaged Youth in Health Entrepreneurship**

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50-Word Abstract:

We present our methodological approach to and lessons learned from an NLM-funded project in which we are working with school librarians to develop and implement after-school programs to engage disadvantaged youth in becoming health entrepreneurs. We aim to increase their interest in science/health, their health literacy, and their health-related self-efficacy.

Extended Abstract (996 words):

Introduction

We are entering a new era in which people are increasingly interested in, and expected to take responsibility for, their own health (Broom et al., in press; Flatley et al., 2010; Johnson & Case, 2012). This interest and responsibility necessitates being able to find personally relevant health information within one's day-to-day life. Today's youth have an unprecedented opportunity to learn about and adopt healthy habits that will help them to maximize their chances for living long, healthy lives. However, this opportunity can only be realized if youth have both the requisite information and digital literacy skills and a strong sense of self-efficacy when it comes to their health.

Goals

With generous support from the National Library of Medicine, we are leveraging the strengths of school library programs (hubs for development of information, digital and new media literacies) to create and run after-school programs (known as *HackHealth*) in three Title I middle schools. We encourage disadvantaged youth to become health entrepreneurs by engaging them in (a) conducting scientific inquiry into health maintenance and/or disease prevention and management; (b) acting as health information intermediaries by sharing the information they learn with family members; and (c) taking action based on what they learn through the program.

Our overarching goals for the after-school program are to increase the interest of youth in the health sciences, their health information literacy, their health-related self-efficacy, and their understanding of the crucial link between their daily health-related behaviors and their ability to maintain their health and prevent disease.

Methods

Working with school librarians in the three middle schools, we are iteratively co-designing and co-developing a set of modules for three 8-week after-school programs that we will use to facilitate participants' acquisition of information (in particular, health) literacy skills. The development of these modules was guided by Eisenberg and Berkowitz's Big 6 information problem-solving model (Eisenberg, 2008; Eisenberg & Berkowitz, 1990). This co-design method, which is also known as cooperative inquiry (Druin, 1999; Guha et al., 2005), is grounded in

human computer interaction research and theories of participatory design, contextual inquiry, cooperative design and activity theory (Druin, 2010). The cooperative inquiry method emphasizes three principles throughout the design of a technology or a program: (1) multidisciplinary partnership with users, (2) field-based research and, (3) iterative “low-tech” and “high-tech” prototyping (Druin, 1999).

We recruited 10 to 12 youths in each participating school for our four-phase program. During the first phase, we conducted a baseline survey to gather information from participating youth regarding their level of interest in the sciences and health (Fraser, 1981), their experience using various sources of health information, their perceptions regarding their health-related knowledge and health literacy (NNLM, June 2013), and their feelings of self-efficacy towards their health. We also employed a card-sorting technique (St. Jean, 2012a; St. Jean, 2012b) to elicit participants’ relative assessments of the trustworthiness and usefulness of health-related information provided by various types of people, media, organizations, and websites. During this first phase, participating youth were also encouraged to explore online resources in order to identify a personally relevant health issue they would like to focus on during the program.

During the second phase, the modules were deployed and participating youth completed in-class and at-home activities, such as keeping logs of their searches for health information, and journaling about what they’re learning and how they’re using it within their day-to-day lives. Throughout these initial phases, we used software to track youths’ interactions with their browsers during the after-school sessions.

The third phase of the program consisted of follow-up interviews with the participating youth at the end of the program. The fourth phase involved conducting two focus groups -- one with participating youth and one with their parents -- to obtain feedback about the program. Additionally, the baseline survey and the card-sorting exercises were repeated to gauge any changes that may have taken place in the youths’ interest in science and health, their perceptions regarding their health-related knowledge, and their feelings of self-efficacy towards their health.

Focus of the Presentation

In this presentation, we will share how we co-designed the modules for the after-school program with the librarians, including the various types of activities we developed to teach the participating youth how to look for and evaluate health-related information online. We will also share our approach to methodology, specifically our data collection methods. All instruments and data collection methods were either adapted from previous studies or designed by the research team. Pre-existing data collection methods (with the exception of a portion of the baseline survey) were not originally designed for youth (and more specifically for disadvantaged youth), but were developed with adult participants in mind. We share these instruments and will present lessons learned from using these instruments with this particular population, including what

worked, what did not work, and what changes we decided to make for the second implementation, which is currently underway at the second participating middle school.

The after-school program was designed with the intention of achieving long-term positive impacts on the health of participating youth and their families – thus designating the youth as health entrepreneurs in their households. Instead of using the more traditional models of top-down teaching about specific aspects of health, youth are encouraged to choose an aspect of health that is relevant to their own lives to explore more deeply. The co-development of the modules and associated activities with school librarians, the designing of suitable instruments to track disadvantaged youths' health, digital and information behavior and literacy development, and the iterative revision of our data collection methods and module content, all coalesce to deliver an innovative method of encouraging disadvantaged youth to be health entrepreneurs, developing their health, digital, and information literacy skills and helping them to utilize these skills to manage their health and to serve as information intermediaries for their family members. This project model – including the data collection and activity design – can inform future work with these populations and provide insight to both researchers and educators in these fields.

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