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A Novel tool for Health Literacy: Using Comic Books to Combat Childhood Obesity

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Abstract

Childhood obesity remains a serious problem that requires health literacy projects to engage both parents and children in making healthy choices. This paper describes an award-funded project designed by LSU Health Shreveport (LSUHS) faculty from the Health Sciences Library and the Department of Pediatrics who created a comic book to help children and their parents learn practical ways children can make healthier lifestyle choices. LSUHS also collaborated with LSU-Shreveport to recruit a student artist, who illustrated the comic and designed promotional items used to promote the print and online versions of the book throughout the community.

Keywords

health literacy; childhood obesity; comic books

INTRODUCTION

According to research cited by the Centers for Disease Control and Prevention (CDC), obesity among young people remains a nationwide health concern as 12.7 million children and adolescents are obese (1, 2). Obesity at such a young age results in a plethora of health complications, including high blood pressure and cholesterol (3), insulin resistance and type

If diabetes, breathing problems, and impaired social functioning (4-7). Educating young children to change their lifestyle behaviors is imperative to curb this epidemic before this vulnerable population develops these serious health conditions. However, a particular challenge to reaching children lies with educating their parents. Low health literacy is a concern amongst adults which could arguably compromise a parent's ability to translate good health practices to their children (8). Furthermore, as discussed later in this article, parents' susceptibility to socially enforced myths about their children's health compounds the challenge healthcare providers face when educating pediatric patients and their caregivers.

With these challenges in mind, the LSU Health Shreveport (LSUHS) librarians sought to create a health literacy tool that would engage children at their learning level, while also employing a train the trainer approach for parents. A popular medium that is attracting attention as a valuable learning tool is the comic book. According to Rapp, comic books provide an ideal medium for reading education, as they can communicate literacy and critical thinking skills in more creative ways than other media (9). The comic and graphic novel format enables readers to understand context and meaning through the combination of graphics with word balloons. Thus, readers recruit other processing behaviors that enable comprehension (9). Therefore, the LSUHS librarians began seeking partnerships with the LSU Health Shreveport Department of Pediatrics and the LSU Shreveport (LSU-S) Department of Arts and Media to create a comic book to teach healthy lifestyle practices to children.

AUDIENCE SELECTION, PARTNERSHIPS, AND FUNDING

Three of the authors (Tarver, Woodson, and Olmstadt) met with department head Dr. John Vanchiere, who serves as both an assistant professor to the pediatrics department and as Chief of the Section of Pediatric Infectious Diseases. Based on this discussion and previous outreach programs, they decided that the material would be written for children between the ages of four and eight years old. The book would illustrate the following concepts to children: nutrition, exercise, sleep habits, and community engagement. They also determined that the book should be available in both print and online formats to reach as many people as possible. The Assistant Systems Librarian (Tudor) was recruited to create the online version once the book was produced. The next step was to ask the LSU-S Department of Arts and Media faculty to help the librarians locate a skilled student artist as a professional artist's commission would most likely be outside the scope of any award funding received for the project. The LSU-S faculty agreed, and the librarians next applied for and received the Health Literacy Award from the National Network of Libraries of Medicine South Central Region. The award cycle began on May 1, 2014 and would end on April 30, 2015.

CREATION

Tarver and Woodson served as co-writers for the comic. After researching methods for writing a comic book script, an outline of the necessary details for a narrative script was created. With a rough outline in place, they then brainstormed characters and the plot to follow typical comic book canon. The main protagonist was a little boy named Malik, who

is African-American to reflect much of the Caddo Parish demographic (10). The remaining characters included the boy's mother to establish a relatable parent-figure; a superhero, named Captain Fit, whose alter ego is none other than Malik's schoolteacher, Mr. Lopez; and a villain, named Sweet Tooth, who steals healthy foods and replaces them with his evil candy. Beyond these core characters, background characters were created throughout the writing process to befit the narrative. The writing process consisted of Tarver writing the script with Woodson editing the draft and suggesting alternate text and details. She also used the Flesch-Kincaid readability and Flesch literacy tests to ensure that the reading level of the text remained appropriate for the target age group of four to eight year-olds.

The outline of the story first establishes the problem: the main character has unhealthy habits that affect his quality of life. The story then moves on to depict how Malik wants to be just like his favorite super-hero, Captain Fit. Soon, Malik's mother starts relaying messages to him from Captain Fit himself. Within these messages are the tools Malik needs to become just like a superhero: eat clean, get plenty of exercise, and get an adequate amount of rest. Once Malik starts putting these tasks into practice, he sees changes in his lifestyle as well as his physique. Soon, he discovers that Captain Fit is his teacher, and he is invited to join the Fit Force, a group of his fellow students who assist with Captain Fit's mission by being actively involved in the community through local programs, like a community garden, and by helping Captain Fit keep Sweet Tooth at bay.

During the writing process, the librarians inserted a scene in which Malik's mother takes him for his annual pediatric check-up. The pediatrician character asserts that Malik is at the correct weight for his height and age, thus providing the message that a healthy body weight is based on medically established metrics rather than cultural ones. Dr. Vanchiere requested that the authors add this scene because, in his practice, he regularly sees patients whose parents worry that their child is not healthy enough because they are not heavier. Dr. Vanchiere must then explain to these parents that a child's weight is based on height and age and that their children are, in fact, in a healthy range (11). Thus, all partners working on the project witnessed a real-world example that emphasized the need for a health literacy tool to engage both children and their parents. The librarians also made sure to reflect the target demographic while making Malik's traits universal enough as to be identifiable to all children. Because Malik wants to be like his favorite superhero, he is similar to most children who want to grow up to be like someone they admire. His mentor teaches Malik to master the tools to become like his mentor. With this method of storytelling, the librarians avoided using didactic language and fat shaming or guilt tactics. Including a detail about the Fit Force and their work in the community garden helped to emphasize such resources already in place in Caddo Parish. This scene also reinforces to children that there are many ways to get outside and engage in physical activity and that fitness is a community goal and not just a personal one.

WORKING WITH AN ILLUSTRATOR

The librarians faced difficulty in finding a student worker available for the project. The LSU-S faculty initially recommended recent graduates, as they would have the skill appropriate for a professional-grade comic book. However, as mentioned earlier, the amount

of the award funding would not sufficiently cover the cost of a professional artist's commission. Furthermore, it was important to emphasize the partnership between LSU Health Shreveport and LSU-S by recruiting a member of the student body. This would also provide professional development for the student before graduation. Eventually, the LSU-S faculty recommended Nick Fechter, a senior graphic arts student. In August, the librarians interviewed Fechter and reviewed his portfolio, which proved worthy of the task of illustrating the comic.

Once Fechter was hired, Tarver and Woodson discussed the premise and characters with him, so that he could create some conceptual designs that were used to gain feedback. Due to the time limits of the award cycle, the librarians decided to use an informal approach for feedback, rather than structured focus groups or surveys. Project participants showed the initial designs of the main characters to children within their own families, so that artist and writers alike could get a sense of the audience's reception. Informal though it was, the feedback was valuable, as the librarians discovered that Sweet Tooth's original design was a little frightening to one young girl. Fechter altered the design to something much more comical and the approved designs were used for the final rendition. The designs for peripheral characters were reviewed and approved as the artist completed illustrating the comic.

As the librarians wrote the story, they sent major sections of the completed text to Fechter, who sketched rough drafts for approval. Further editing to the story was done at this stage to help reduce the number of pages to that of a typical comic book appropriate for young readers. After the sketches were approved, Fechter illustrated them onto storyboards, digitized the boards, and then added color using a graphics computer. He also designed promotional items, including a poster and bookmark to help publicize the comic book once it was completed.

PRODUCTION AND PROMOTION

As the comic book neared completion, the librarians printed the bookmarks that Fechter designed to hand out to the local public libraries and the LSUHS pediatrics department's Reach Out and Read (ROR) program, which is a literacy program for pediatric patients in the hospital and affiliated clinics. Five hundred bookmarks were printed, which were distributed through the Caddo and Bossier Parish library systems and the ROR program, as well as to other locations and events. Coincidentally, the first annual Louisiana Comic Con was held on February 21, 2015 in the Shreveport area. This venue was ideal for promoting the library's own comic. Even though the comic book was not completed, Tarver, Woodson, and Fechter were able to set up a table with the promotional poster and bookmarks, as well as samples of Fechter's artwork on the project. The public's reception at the convention was very positive, and both the librarians and the artist were invited to give interviews with local media representatives. Due to personal contacts and those made at the Comic Con, the librarians were also able to distribute bookmarks to Lake Bistineau State Park and Excalibur Comics, Shreveport's local comic book store.

The library also posted news items throughout the LSU Health Shreveport community, including the institutional newsletter and the library's departmental newsletter. Several of the media representatives followed up with their interview requests, and the librarians and artist gave interviews for several local news venues, including *The Shreveport Times* (12); the KTBS television news channel (13); Red River Radio, the local National Public Radio channel (14); and Excalibur Comics (15). The comic was finally completed on April 17, 2015 and sent to the approved printing vendor. Five hundred copies of the book were printed and distributed to the community through the public library systems, LSUHS Department of Pediatrics ROR program, Lake Bistineau State Park, and Excalibur Comics' Free Comic Book Day. Tudor converted the individual PDF files of the comic pages into an e-book using Adobe Flash Professional software and NetBeans IDE for Java, which is open source coding software. The online comic is available in the *For Kids* section of healthelinks, a consumer health website created and maintained by LSUHS librarians (16).

IMPACT

Due to so much publicity, the project's impact included regional and national recognition through the South Central Region of the Medical Library Association, the American Library Association (17), and the American Heart Association's Prevent Obesity project (18). The librarians issued an informal survey so that LSUHS Pediatricians could offer their opinions as to the impact of the comic book. The survey results verified that the characters came close to reflecting the target demographic and that some would probably use this as a learning tool for their patients. As for community impact, all bookmarks were distributed and everyone who worked on the project received personal feedback from individuals and community leaders. Some examples include an LSUHS employee who read the comic with her granddaughter, a Boy Scout who regularly attends activities at Lake Bistineau and took the comic book to school to show his classmates, and a school librarian who wanted to share the comic with her students and her own child who struggles with eating a healthy diet. The unforeseen amount of press informed so many members of the community that the librarians received a note of thanks from the Caddo Parish Sheriff, as well as several comments from attendees at the Free Comic Book Day event at Excalibur Comics.

LESSONS LEARNED

The length of time to complete the entire project was much longer than expected. The librarians could have better prepared for production delays had they created the characters and outlined the story before the award cycle began. Although the librarians researched the comic book creation process and met with someone who had undertaken a similar educational endeavor, the project still demanded a steep learning curve for all involved.

The problem encountered in finding an artist was due to the small selection of experienced graphic arts students at LSU-S. Furthermore, Fechter could not devote all of his time to working on the comic book project because he also had to complete his class assignments. Had the librarians been able to hire a professional artist, they would have not only had a larger pool of applicants from which to choose but also could have avoided delays during the illustration process. However, the librarians still assert that hiring a student from LSU-S was

the best choice, as this reinforced the partnership between LSU Health Shreveport and LSU-S and enabled the student to add a very influential project to his portfolio. Perhaps, if the librarians had already developed the story, then the interview process could have begun as soon as the award cycle began in May. If the artist had been hired before the summer break, he could have spent the summer illustrating the comic, thus preventing the need to balance course work with the comic book project. The librarians believe in supporting a local student artist and make the same recommendation to others interested in conducting similar projects.

Unfortunately, no formal evaluation of the completed comic was conducted prior to publication due to lack of time. However, other forms of evaluation were completed throughout the process. The initial drafts of the main characters were reviewed by children known to the investigators, which led to a redesign of the villain. The story line was continually reviewed and approved by those involved with the project, and the reading level was analyzed throughout the writing process by using the Flesch-Kincaid Grading Level and Flesch Reading Ease literacy tests, which are very reliable and well known. After the comic was published, a survey was sent to physicians within the LSUHS Department of Pediatrics. Due to time constraints, prior approval from the Institutional Review Board was not sought; therefore, the details of the survey cannot be published. However, their comments were positive. The librarians did receive one negative comment from a colleague at a professional conference. The librarian was concerned that by only showing the mother of the protagonist, the story might perpetuate the stereotype of single-mother households within the African-American community. The authors were merely trying to limit the number of characters, since the comic book was intended to have a simple story line for young readers. Perhaps, detailed feedback prior to publication could have yielded insight into how not to stereotype an African-American household while keeping the character number to a minimum. Ensuring that formal evaluation is conducted both prior to and after publication would have provided adequate time to make any needed corrections to the comic and analyze the educational effectiveness of the story.

CONCLUSION

This was a very worthwhile project for everyone involved. It served as an example of how a seemingly disparate group of organizations and persons could come together for a common goal that would benefit their community. Concepts introduced early in childhood are often embraced and carried with that child well into their adulthood. Based on the responses received for this project, using a medium like comic books speaks to children and adults alike, and thus provides a venue for encouraging children and their parents to lead healthy, productive lives.

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