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What is This?

Novel Methods to Collect Meaningful Data From Adolescents for the Development of Health Interventions

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Health interventions are increasingly focused on young adolescents, and as a result, discussions with this population have become a popular method in qualitative research. Traditional methods used to engage adults in discussions do not translate well to this population, who may have difficulty conceptualizing abstract thoughts and opinions and communicating them to others. As part of a larger project to develop and evaluate a video game for risk reduction and HIV prevention in young adolescents, we were seeking information and ideas from the priority audience that would help us create authentic story lines and character development in the video game. To accomplish this authenticity, we conducted in-depth interviews and focus groups with young adolescents aged 10 to 15 years and employed three novel methods: Storytelling Using Graphic Illustration, My Life, and Photo Feedback Project. These methods helped provide a thorough understanding of the adolescents' experiences and perspectives regarding their environment and future aspirations, which we translated into active components of the video game intervention. This article describes the processes we used and the valuable data we generated using these three engaging methods. These three activities are effective tools for eliciting meaningful data from young adolescents for the development of health interventions.

Keywords: *qualitative research; video game; intervention; adolescents*

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➤ INTRODUCTION

Young adolescence is a critical period for conducting health promotion and risk prevention interventions to establish and sustain healthy behaviors. Discussions with young adolescents provide researchers access to their unique worldviews and perspectives, which are essential to developing culturally appropriate and relevant interventions for this priority demographic. Focus groups and interviews with young adolescents have been used in health research for a range of purposes, such as intervention development (Hieftje, Rosenthal, Camenga, Edelman, & Fiellin, 2012), program evaluation (Wyatt, Krauskopf, & Davidson, 2008), survey development (D. L. Morgan, 1995; Rosenthal et al., 1999), identifying views on health and wellness (M. Morgan, Gibbs, Maxwell, & Britten, 2002; Peterson-Sweeney, 2005), exploring sensitive topics such as sex (Hieftje et al., 2012; MacDonald et al., 2011; Peremans, Hermann, Avonts, Van Royen, & Denekens, 2000; Robinson, 1999) and alcohol use (Wagenaar et al., 1999), and assessing perceptions related to a range of

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health behaviors (Brown, Lourie, Flanagan, & High, 1998; Neuman-Sztainer, Story, Perry, & Casey, 1999; O'Dea, 2003).

Research methods that address the specific challenges of conducting qualitative research in this population, however, are still relatively underdeveloped (M. Morgan et al., 2002) and can be difficult to employ. Many established methods such as one-on-one interviews are adult centered (Dresnick, 2006; Mauthner, 1997; Pole, Mizen, & Bolton, 1999), and researchers must tailor or use alternative methods to more adequately explore young adolescents' experiences (Matthews, 2007). Developmentally, youth between the ages of 10 and 18 years are still acquiring the skills and capacities to consider and articulate complex concepts (Drew, Duncan, & Sawyer, 2010). Traditional, open-ended interview questions may be "too open" for young adolescents to comfortably formulate responses (Dixon & Stein, 2000). More so, conducting research with this population can be especially challenging when discussing sensitive topics such as sex and risk-taking behaviors openly, particularly in a group setting.

The elaboration likelihood model of attitude change, a well-supported theory of persuasive information processing, posits that the degree to which an individual elaborates cognitively about a message (i.e., scrutinizes or thinks about it) determines the degree of attitude change (Petty, Haugtvedt, & Smith, 1995). When information is processed deeply, attitudes tend to be influenced by the merits of the information being presented. In contrast, when messages are processed superficially, attitude formation results from peripheral processing of the surface structures of a communication, such as a catchy slogan or the number (but not the quality) of arguments presented. According to the elaboration likelihood model, deeper (central) processing is more likely to result in lasting attitude change and ultimately changes in behavior that are longer lasting and resistant to counterfactual messages or counterattacks (Petty & Cacioppo, 1986; Petty et al., 1995). Presenting information in a context that promotes deep processing via elaboration results in increases in intentions and behaviors that persist over time (Jones, Sinclair, & Courneya, 2003). Researchers have demonstrated that one way to increase deep processing of information is to tailor it to the unique characteristics of the target audience (Dijkstra, 2005; Lipkus, Lyna, & Rimer, 1999; Webb, Hendricks, & Brandon, 2007). Researchers have indicated that tailoring is crucial for inclusion in video games for health-related behavior change (Baranowski, Buday, Thompson, & Baranowski, 2008); thus, the goal of this formative research was to determine the ways to optimize tailoring within our video game intervention.

BACKGROUND AND LITERATURE REVIEW

Strategies are available that help promote reflection and communication about issues that might otherwise be difficult for young adolescents to conceptualize and express (Drew et al., 2010). Hands-on activities such as games, art projects, and writing activities have been used to enable youth to maintain concentration and interest as well as to enable group participation (Hennessy & Heary, 2005). Projects using visual methods are available that allow young adolescents to document and reflect on their lives, such as photovoice (Strack, Magill, McDonagh, 2004) and digital storytelling (Wexler, Gubrium, Griffin, & Difulvio, 2012), which have both been used to promote social competency and protective factors that prevent suicide. Engaging young adolescents in creative activities such as these can be effective in bringing out the complexities of their experiences (Nieuwenhuys, 1996) and encourage the expression of thoughts and opinions that may otherwise be difficult to communicate. Although effective strategies exist, few examples in the literature can be found (Hill, Laybourne, & Borland, 1996; Morrow, 2001), especially for the development of health interventions.

Ninety-nine percent of teenage boys and 94% of teenage girls, from all racial/ethnic groups, play video games (Lenhart et al., 2008; "Life Is Just a Game," 2004), and there is emerging evidence that electronic media-based interventions, including video games, are effective at promoting healthy behaviors (Hieftje, Edelman, Camenga, & Fiellin, 2013; Kato, 2010; Primack et al., 2012). Recognizing that early intervention to reduce risk behaviors is a potentially effective way to stop risky behavior patterns before they begin, the play2PREVENT® Lab created a video game intervention, *PlayForward: Elm City Stories*. The primary goal of the video game *PlayForward*, developed as a unique vehicle for delivering an evidence-based intervention, is to teach knowledge and skills for preventing HIV infection. *PlayForward* is an interactive world in which players, using an Avatar (virtual character) they have created, "travel" through middle school and high school while facing common adolescent challenges such as negotiating peer pressure to drink alcohol or engage in risky sexual behaviors. Players have the ability to see how their choices affect their future and subsequently are able to go back in time and change their past choices to see how different actions might lead to different outcomes. Through repetition and negotiating challenges, players learn the skills in the game that can translate

into real life, helping them avoid risky situations in their environment that might lead to HIV infection.

According to a systematic review, STI/HIV interventions that were the most successful at decreasing high-risk sexual behaviors were those specifically tailored to a particular subgroup of adolescents (Sales, Milhausen, & DiClemente, 2006). To ensure that our intervention was tailored to our priority population of urban minority adolescents aged 10 to 15 years, we sought to include risk scenarios and artwork in our video game that would resonate with them. To create these accurate scenarios and authentic artwork, we needed to gain insights into the environments in which our priority audience lived and the risks they encountered. Early in this process, it was apparent that discussing abstract concepts such as risk perceptions with our priority audience did not produce rich, in-depth data. Therefore, we employed several new and creative strategies to engage the adolescents, which provided our research and video game development team with the essential information needed to create a highly relevant and relatable intervention.

The activities presented in this article contribute to the literature by providing models for other researchers wanting to elicit meaningful data from young adolescents for the development of authentic and relevant health interventions. We describe three novel activities, *Storytelling Using Graphic Illustration, My Life*, and *Photo Feedback Project*, which we used to capture a glimpse into the lives of young adolescents through art-related activities and photography. These activities evoked vibrant discussions about the adolescents' experiences and perspectives regarding their environment and future aspirations. In addition, we highlight how the results from these activities were translated directly to components of the video game. These engaging activities are helpful research tools for eliciting young adolescents' views and perceptions in a unique and meaningful manner, translating to more authentic and potentially more effective interventions.

► METHOD, STRATEGIES, AND INTERVENTION APPLICATIONS

Participants

To explore the perspectives and experiences of young minority adolescents regarding their environment, including factors associated with engaging in risk behaviors, we conducted 16 in-depth interviews and six focus groups with total of 36 adolescents (16 boys and 20 girls) aged 10 to 15 years (mean age 11.6 years) from a local, neighborhood after-school and

summer camp program (Hieftje et al., 2012). Seventeen (47%) participants were Hispanic/Latino, 14 (39%) African American, 3 (8%) multiracial, and 2 (6%) were White. Inclusion criteria for participating in the discussions were that participants were English speaking and between 10 and 15 years old for the interviews and 11 and 14 years old for the focus groups. To capture a broader sense of adolescents' perceptions and attitudes, we included adolescents who were 1 year older or 1 year younger than our priority population in the focus groups, which followed our interviews. With assistance from the afterschool program leadership, we recruited adolescents through convenience sampling by distributing posters and placing posters throughout the programs. Participants and their parents or legal guardians provided written informed consent and were reimbursed with gift cards.

Activities

To elicit stories about adolescents' environments and risk behaviors, we hired a graphic artist to create an illustration (Figure 1) to serve as the centerpiece of focus group discussions in the activity we called *Storytelling Using Graphic Illustration.* The illustration depicts a group of teens gathered together at someone's home, with characters engaged in a variety of benign activities such as talking to each other, having a phone conversation, and looking at something outside of the frame of the picture. The characters appear to be of indistinct ages and ethnicities. The ambiguous nature of the illustration was created intentionally to allow the adolescents to identify with the picture and characters in order to construct relatable stories. To elicit discussion we simply asked the group, "What's going on here?" and allowed them to create their own dialogue. At times we would prompt them for more insight by asking questions like "What is he/she thinking?" and "What might this picture look like in 2 hours?"

Another activity in which we engaged young adolescents to understand better their future aspirations and life goals was the *My Life* activity. This activity provided a medium for the young adolescents to create a linear visual storyline of their future. As part of our in-person interview sessions with youth, we gave them a sheet of paper with a single straight line on it. On one end of the line, we put their age, and on the other end we put their age plus 10 years. Across the top, the title read, "My Life." We then asked them to write down any dreams or goals that they wanted to accomplish over the next 10 years. On completion of this task, we then asked them to tell us about their lifeline. The purpose of this exercise was to learn more about young adoles-

FIGURE 1 **Storytelling Using Graphic Illustration**

cents' perceptions of their futures, including what they aspired to do or become over the next decade.

Finally, we used the *Photo Feedback Project* to help to ensure that our video game intervention visually resonated with our priority population. The goal of this activity was to provide our video game development team with images of adolescents' environments, taken by adolescents, which could be translated directly into the artwork of the game. At the end of two focus group sessions, we gave each participant a disposable camera with the instructions to take pictures of their homes, neighborhoods, peers, and important adult figures in their lives. In addition, we asked them to photograph favorite styles of clothing, hairstyles, shoes, and accessories. To capture their future aspirations and goals, we also asked them for photographs of their dream car and home or of anything else that they felt was important to them.

Data Analysis

Interview and focus group sessions that were conducted in conjunction with each of the three activities described above were audiotaped, professionally transcribed, and checked for accuracy by a researcher team member. Two separate teams conducted the data analysis of the transcripts. A multidisciplinary team of three researchers with expertise in HIV, pediatrics, qualita-

tive methods, and health behavior conducted analysis of the in-depth interviews. We used the principles of grounded theory, including the constant comparative method (Patton, 2002). Codes were developed in a stepwise fashion (Crabtree & Miller, 1999). A comprehensive code structure was created by the team and was used to capture all data concepts and emergent themes within the transcripts. Data were entered into ATLAS. ti (Version 5.0; Scientific Software Development, Berlin, Germany) for the purpose of data organization and retrieval. A similar approach was used for analysis of the focus group transcripts. A multidisciplinary team of five researchers, which included the three researchers from the first team as well as two additional researchers with expertise in HIV and adolescent medicine, each independently reviewed the focus group transcripts and then met as a group to discuss codes and negotiate consensus. The team then used the codes from the individual interview and focus group data to consider how the themes would directly inform the video game development.

▶ RESULTS

Storytelling Using Graphic Illustration

From the *Storytelling* activity, we were able to gather important insights into the lives of young adolescents.

FIGURE 2 Fight Scenario Screenshot From *PlayForward: Elm City Stories*

The adolescents provided us with rich, descriptive stories that included topics such as risk taking, peer pressure, and relationships that resonated with their own lives. In their stories, the young adolescents described risk behaviors such as sneaking out, fighting, stealing, gambling, sex, and drug use. We used this information to shape the stories, characters, and risk scenarios in our video game intervention to create a relatable, relevant experience for our priority demographic. For example, adolescents described how peer pressure could influence the choices and actions of the characters in the illustration. In one focus group, an adolescent boy described how the character in the illustration with the hoodie was conflicted with the desire to fit in with his peers:

> These three guys . . . they look as if they are tormenting someone or they're not doing something right. And that guy in the hoodie . . . that guy he shouldn't be there. In a way he's . . . he just realized I'm not supposed to be here. I should be . . . maybe I shouldn't be doing what they're doing. In other words, he's being a follower not a leader.

Figure 2 provides an example of how this story was incorporated into our video game. Within this particular part of the game, the player practices refusing a peer who wants him to join in a fight.

Most young adolescents identified pregnancy as a prominent long-term consequence of engaging in risky sexual behaviors. Throughout the majority of our storytelling activity sessions with the adolescents, pregnancy was brought into their stories. For example, one adolescent girl described why the young girl in the background of the illustration was looking at her watch:

> It looks like the girl did something that she wasn't supposed to and like, I guess she got pregnant or something . . . and that's why she is checking her time. She's like . . . "I got to home before I get in more trouble," because she is already pregnant, stuff like that . . . I think she's not supposed to be at the party and she's snuck out of the house and she has to be home before her parents come home or something.

In our video game, we recreated this story line as one of the challenges that the player confronts. In the game, a player must choose whether or not to sneak out of the house and go to a party with friends. Later in the game, the player is confronted with the decision of whether or not to have unprotected sex with the consequence of becoming pregnant.

My Life

From this activity, we learned about the common life goals of young adolescents in this demographic. Commonly endorsed life goals were going to college, buying a house, having lots of money, being successful, and having a family of their own. Other ambitions included obtaining a license to drive, buying a car, and getting a summer job. One 15-year-old adolescent girl described her future life plan, using the activity as a guide to her story line:

> Right now, I'm 15, so I'm at school. When I turn 16, which is in 2 months, I want to get a summer job and get my license, hopefully my permanent. When I turn 18, I want to get my own apartment, graduate from high school. When I turn 20, I want to become a hair stylist or a doctor. When I turn 24, I want to start my own business in designing clothes. And 25, start saving my money to help those in need.

In addition to obtaining a better understanding of adolescents' future goals and aspirations, we also learned about their senses of commitment and obligation to their families. Many participants had personal future goals such as taking care of family members who struggled financially, including buying a parent a home or helping pay their bills. For instance, one 10-year old adolescent described his future goal of being able to take care of his mother:

> When I'm 14, I'm going to get a summer job . . . like helping kids with stuff, like getting their food ready and everything. So I can get paid. Help my mom with the house. Like, do more, like cook her some food and stuff.

We used feedback from the *My Life* activity to inform a part of our intervention that allowed adolescents to personalize their video game character, or *Aspirational Avatar*. Figure 3 depicts the Aspirational Avatar, a visual, virtual representation of a player's future hopes and dreams. In a number of categories (career, education, house, family, etc.), players select the goals and aspirations that best represent them to create their Aspirational Avatar. The options within each category were derived from the goals and aspirations that the adolescents from our interviews described in the "My Life" activity. For instance, maintaining close family relationships was included as a future aspiration that the players could choose when creating their avatar.

Photo Feedback Project

Our video game development team used the photographs as a guide for the artwork, which helped create scenes that were reminiscent of the youth's homes and neighborhoods. Photographs of clothing, hairstyles, and shoes helped inform the development of characters within the game (Figure 4). Additionally, photographs of adult figures were used to create characters that provided a mentorship role for the player in the game. To ensure the artwork was reflective of their photographs, we took the video game artwork to the youth and asked them for feedback in follow up focus group sessions. This activity helped to ensure that the artwork resonated with the youth to order to create a meaningful video game play experience.

➤ DISCUSSION

Eliciting discussions about topics such as risk taking and future orientation with young adolescents can be challenging. The purpose of this article was to provide examples of three strategies we used to engage young adolescents in discussions surrounding their environment and future aspirations and to demonstrate the quality and utility of the data garnered from these activities. The activities provided youth the opportunity to describe, or show us, elements in their lives that were important to them in an engaging, creative way. Our approach to eliciting information about adolescents' perspectives was an essential step in the development of our intervention for HIV prevention. The finished video game is reflective of risky situations described by the adolescents during the *Storytelling Through Graphic Illustration activity* and mimicked their photographs of clothing, hairstyles, and elements from their environment, such as their home, that were taken during the *Photo Feedback Project*. Future aspirations and life goals collected from young adolescents from the *My Life* activity were used to develop the Aspirational Avatar, the player's character in the game. Subsequent focus groups with young adolescents playtesting components of the video game confirmed that the story lines, artwork, and characters resonated with them. The final product
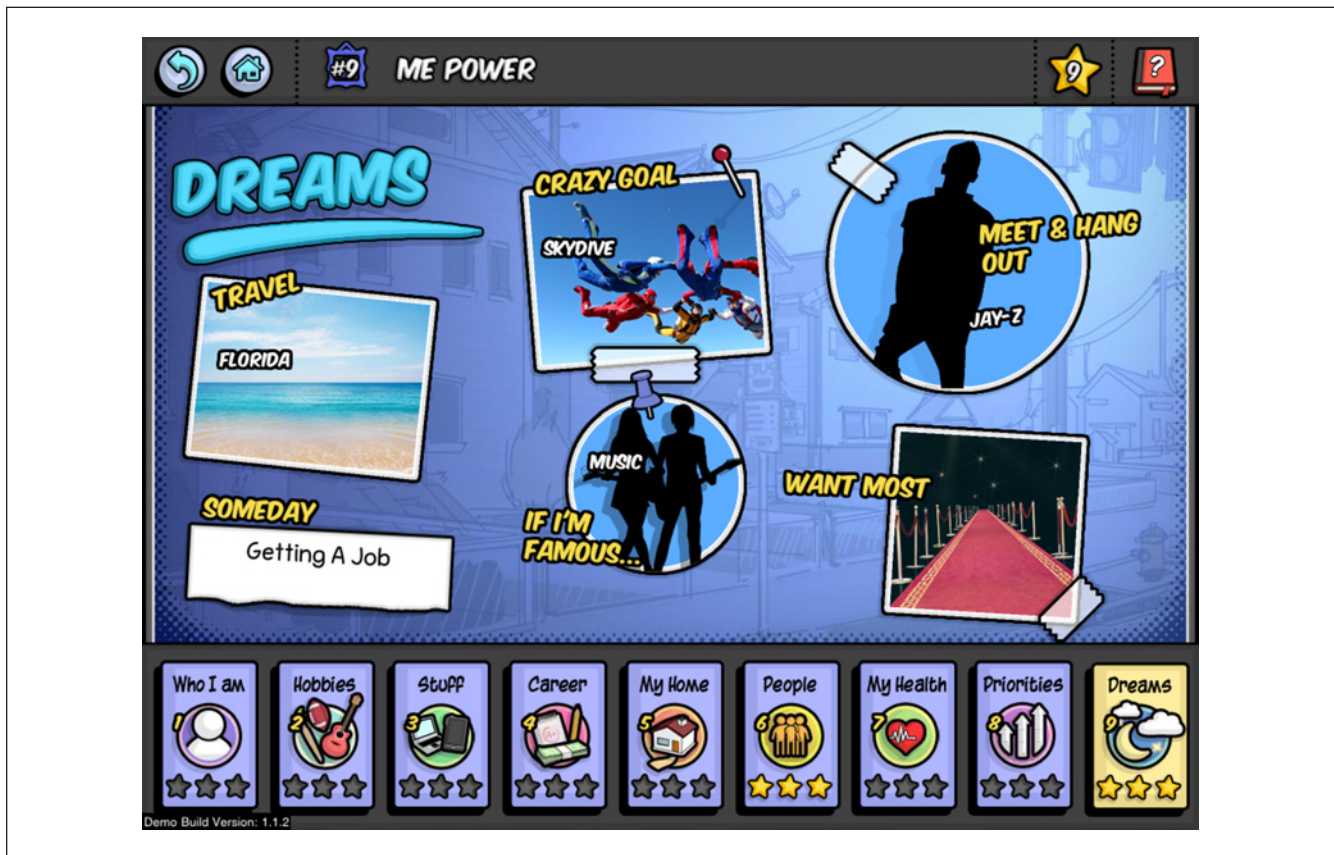
FIGURE 3   Aspirational Avatar Screenshot From *PlayForward: Elm City Stories*

is highly tailored and relevant to our priority population of at-risk young adolescents.

The methods we used to engage youth in discussions involved understanding their environment, including risk behaviors and future orientation, might be well suited for collecting meaningful data around other topics that affect this age-group such as alcohol and drug use or bullying. Although some examples of innovative methods to collect meaningful qualitative data in health promotion such as photovoice and digital storytelling currently do exist, additional methods are needed to empower young adolescents and provide them with the voice to influence the development of tailored health prevention interventions.

When choosing methods to engage young adolescents in discussions, researchers should consider age- and culturally appropriate activities that invite participation and flexibility. In addition, researchers should be familiar with participants' stage of cognitive development, communication skills, and peer influence in-group dynamics. Facilitators of group discussions should employ strategies to help subvert traditional adult–child hierarchies, foster communication, and facilitate sharing of opinions and perceptions. They must also remain flexible to suit a range of development-related capacities for personal reflection and articulation of complex thoughts (Drew et al., 2010). Although researchers might intend for an activity to open discussion about a particular topic, young adolescents may use the activity in a different way to discuss topics they feel are relevant and important to them. Research with young adolescents incorporates and builds on their own definitions of what is interesting and important and uses methods of communication that they find meaningful (Thomas & O'Kaine, 2000). The data that subsequently emerge through these types of discussions can provide poignant insights into young adolescents' beliefs, attitudes, and behaviors that can affect their lives.

►CONCLUSIONS

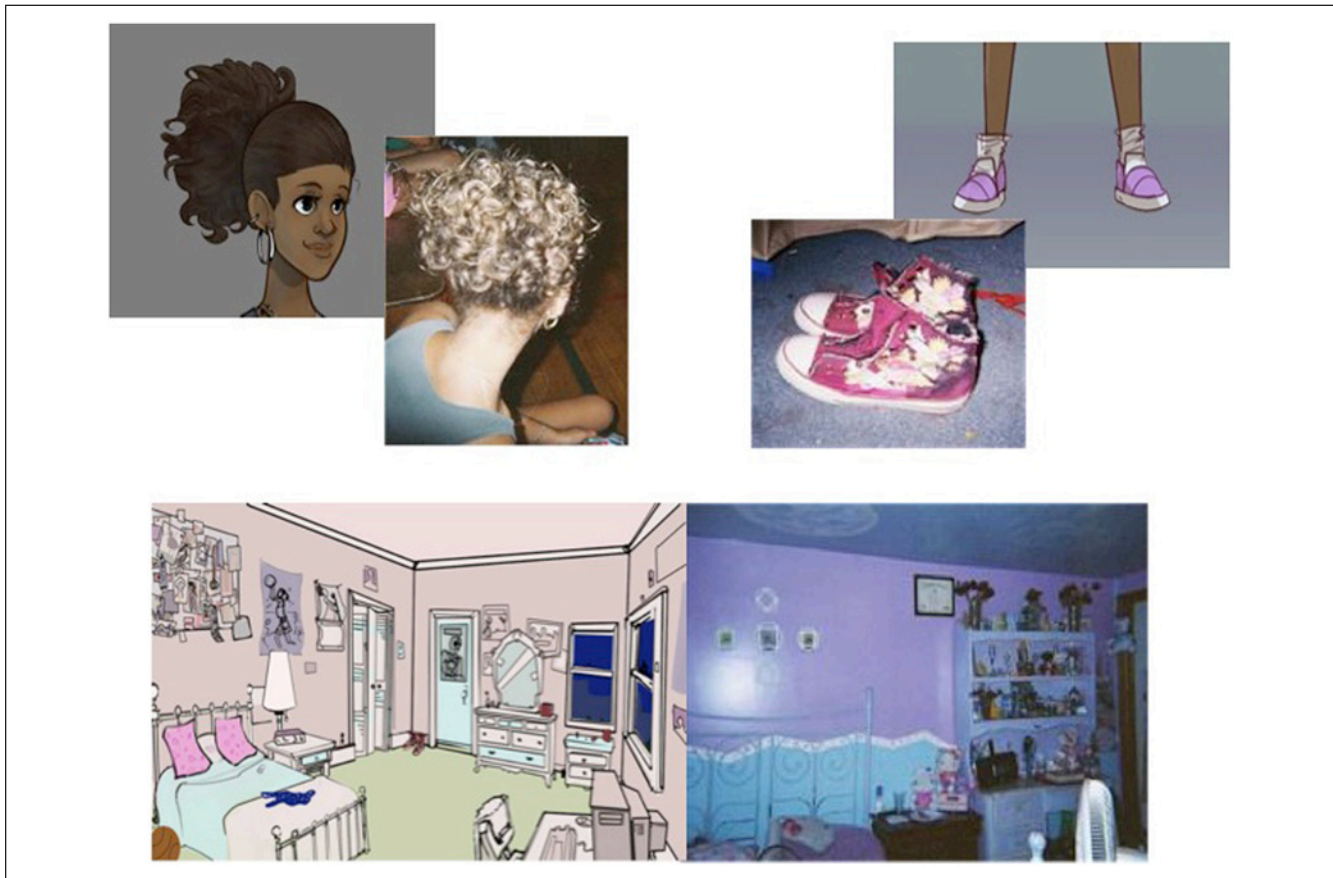The three methods described in this article proved to be effective ways to engage young adolescents in

FIGURE 4 Photographs From Youth Translated Into *PlayForward: Elm City Stories*

discussions about their personal experiences and environment and were essential to the development of our HIV prevention intervention targeting minority youth. *Storytelling Through Graphic Illustration* and *My Life* activity provided frameworks for discussions with young adolescents and later, data interpretation that helped inform the stories, characters, and Aspirational Avatar within the game. The *Photo Feedback Project* provided us with a glimpse into the young adolescents' lives through photographs. We recommend using a variety of creative research strategies to engage youth, such as the ones presented, as a means to capture important issues in the lives of young adolescents, to create relevant, meaningful interventions such as the HIV prevention video game described here.

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