

From Social Media to the Outdoors: Exploring Messages That Connect With Underserved Urban Youth

Susan Houge Mackenzie

Keri Schwab

Lindsey Higgins

P. Brian Greenwood

Marni Goldenberg

Jerusha Greenwood

William W. Hendricks

California Polytechnic State University

Abstract

Despite the mental and physical benefits of visiting natural areas, and increases in outdoor activity participation among U.S. youth overall in the past decade, outdoor access is skewed toward nonurban, nonminority populations. This environmental justice issue is particularly pronounced for minority youth in urban areas, such as the Los Angeles Basin. While decreased contact with nature has been associated with increased technology use, the popularity of new technologies and social media outlets presents novel opportunities to connect underserved urban youth with natural areas. Seven focus groups with 42 urban youth in the L.A. Basin explored underserved youth perspectives on connecting with nature, social media, and how social media can deliver nature-related messages of interest to this population. Content analysis revealed commonly preferred social media platforms and Web-based activities, and six themes related to participants' perceptions of nature: *unique experiences, escape, social connections, challenge, adventure, and accessibility*.

KEYWORDS: social media; technology; nature; youth development; environmental justice

Acknowledgment: The authors would like to acknowledge the U.S. Forest Service for its support of this research. This institution is an equal opportunity provider.

Natural areas provide essential benefits for physical and mental well-being (Charles, Louv, Bodner, Guns, & Stahl, 2008; Pretty, Peacock, Sellens, & Griffin, 2005; Ryan et al., 2010), and early experiences with nature can help cultivate environmental awareness among children and adults (Cheng & Monroe, 2012; Hinds & Sparks, 2008; Wells & Lekies, 2006). Numerous empirical studies have shown positive correlations between natural resource access and physical activity levels (Kaczynski & Henderson, 2007). Proximity to green space also improves mental health and reduces stress (e.g., Thompson et al., 2012). Consequently, promoting engagement with natural resources is an important component of maintaining and improving public health.

Despite overall increases in U.S. national park visitation (National Park Service, 2016) and time spent in nature among youth aged 6–17 years over the past decade (Outdoor Foundation, 2015), outdoor access is skewed toward nonurban, nonminority populations (Loukaitou-Sideris, 2006; Powell, Slater, & Chaloupka, 2004; Rigolon & Flohr, 2014; Wen, Zhang, Harris, Holt, & Croft, 2013; Wolch, Byrne, & Newell, 2014). In 2014, only 10% of African American and Hispanic youth participated in outdoor activities, compared to 70% of their Caucasian counterparts (Outdoor Foundation, 2015). Limited access to natural areas is particularly pronounced in the City of Los Angeles (L.A.), with many neighborhoods considered to be “park poor” (Sherer, 2006; Sister, 2007). Park poor has been defined as “three acres or less of parks per thousand residents” (Garcia, Rawson, Yellott, & Zaldana, 2009). Latino and African American neighborhoods in L.A. have an average of 0.6 and 1.7 acres of green space per 1,000 residents, respectively (National Recreation and Park Association [NRPA], n.d.). By comparison, predominantly Caucasian neighborhoods have an average of 31.8 acres per 1,000 residents (NRPA, n.d.).

Decreased contact with natural resources has been associated with increased technology use (Leseman, van Kruistum, & de Haan, 2014; Pergams & Zaradic, 2008). Technology use and online engagement is now pervasive in the United States. The Pew Research Center (2013) reported that 95% of teens 12–17 years of age are online, 81% of these teens use some form of social media, 77% of online teens use Facebook, and 94% of teen social media users have a Facebook profile. Among 8- to 12-year-old Internet users, the most popular websites include Facebook and video-based sites, such as YouTube (Blackwell, Lauricella, Conway, & Wartella, 2014). Technology use can predict youth “ill-being” and can negatively affect physical and psychological health, attention, and social behaviors (e.g., Rosen et al., 2014; Trainor, Delfabbro, Anderson, & Winefield, 2010). Over the past four decades, lifestyle changes characterized by increased technology use have been associated with decreases in youth outdoor play, in terms of frequency and time (Bassett, John, Conger, Fitzhugh, & Coe, 2015).

Although technology is often maligned for reducing contact with nature, the popularity of new technologies and social media outlets presents novel opportunities to engage with urban youth. Developing messages of interest to urban youth can help land managers increase engagement with underserved populations and encourage visitation to local natural resources. However, the development of effective multimedia strategies first requires research to explore (a) how today’s urban youth connect with natural resources, (b) key messages of interest to underserved urban youth, and (c) how social media and emerging technologies can effectively deliver these messages.

Literature Review

Benefits of Nature and Green Spaces

A large body of research indicates a positive relationship between green space and both physical and mental well-being. This research, including systematic reviews and meta-analyses of current literature, suggests that outdoor environments offer physical, mental, and cognitive benefits for youth and adults (e.g., Barton & Pretty, 2010; Bratman, Hamilton, & Daily, 2012; Jackson, Daniel, McCorkle, Sears, & Bush, 2013; Ryan et al., 2010). For example, youth who

spend more time outdoors engage in significantly higher levels of physical activity than youth who spend less time outdoors (Schaefer et al., 2014). In a meta-analysis of 28 studies on physical activity and youth, Gray et al. (2015) found that youth aged 3–12 years engaged in more physical activity when they were outdoors than indoors. Given that physical activity can improve fitness levels and motor skill development, ensuring that youth have regular access to natural areas for physical activity is critically important.

Time spent in natural settings can also affect mental and emotional health. In a review of literature dating back to 1970, Chawla (2015) summarized evidence supporting connections between time in nature and improved concentration, resourcefulness, cooperative and creative social play, emotional restoration, and place attachment, as well as reduced depression. Spending time in natural areas can also reduce stress; increase feelings of restoration, vitality, and creativity; and restore attention (Berto, Pasini, & Barbiero, 2015; Faber Taylor & Kuo, 2011; Tyrväinen et al., 2014). For instance, youth who played outside during recess reported increased concentration and stress relief (Chawla, Keena, Pevec, & Stanley, 2014). Nature-based adventure experiences have also been shown to increase engagement, intrinsic motivation, enjoyment, competence, relatedness, and autonomy in relation to science curriculum (Houge Mackenzie & Son, 2013, 2014). These documented benefits of outdoor experiences highlight the importance of inclusively engaging and strengthening youths' connections to natural areas.

Environmental Justice Issues and Constraints Associated With Access to Nature

Despite the benefits of nature, access to natural areas has been recognized as an environmental justice issue (Rodriguez, Brenman, Lado, & Garcia, 2014). For example, low income and minority groups often do not have the same access to green areas or parks that White or higher income groups have (Wolch et al., 2014). The Outdoor Foundation (2015) found that only 7–10% of minority youth are recreating outdoors. Minority youth are also less likely to be physically active in general, are at higher risk for diabetes and other obesity-related diseases, and are often more mentally or emotionally taxed from living in crowded or stressful urban environments (Eaton et al., 2006; Kuo, 2001). In the L.A. Basin, access to green space has been specifically highlighted as an issue among Latino populations (Byrne, 2012).

Constraints to outdoor recreation and natural areas among various racial and ethnic groups have been well documented in the literature (Jackson, 2005; Shinew, Floyd, & Parry, 2004; Stodolska, Shinew, Floyd, & Walker, 2014; Wilhelm Stanis, Schneider, Chavez, & Shinew, 2009). Constraints may be structural, social, cultural, or simply due to lack of awareness of available resources or potential benefits. A common structural constraint for urban minority populations is the lack of access or transportation to green spaces. For instance, in a review of U.S. neighborhoods, Powell et al. (2004) found that those with higher percentages of African American residents had fewer built or natural settings for physical activity. Even in areas with access to green spaces, safety concerns can negatively affect park use (Ries et al., 2009). Traits such as poorly lit or monitored areas or perceptions of the neighborhood being unsafe can limit park use (Edwards, Theriault, Shores, & Melton, 2014). Additional issues such as lack of minority representation in park planning or distrust among residents can further detract from minority access to natural areas (Edwards et al., 2014).

In a study of minority public land users in Oregon, researchers found several distinct barriers to participation among African Americans, Asians, and Latinos (Burns, Covelli, & Graefe, 2008). For example, Latino adults commonly reported a fear of new places or different activities, a lack of information, and inadequate signage (Burns et al., 2008). Similarly, in a nationwide study of U.S. adolescents, researchers found that low physical activity levels in Hispanic and African American girls could be attributed to the schools they attend, a common proxy for neighborhood context (Richmond, Hayward, Gahagan, Field, & Heisler, 2006). Even when

parks are available, contributions to youth physical activity may be offset by social characteristics, such as including parental perceptions of personal risk (measured through neighborhood crime; e.g., Babey, Hastert, Yu, & Brown, 2008; Floyd et al., 2011; Ries et al., 2009).

Diverse Youth Perspectives on Natural Areas

A growing volume of research has explored youth and nature issues, as evidenced by the large repository of investigations related to youth benefits, motivations, disparities, and barriers to nature curated by the Children and Nature Network (see www.childrenandnature.org/learn/research-resources/ for review). These data illustrate that youth perspectives on natural areas are complex and distinct depending on a wide range of demographic factors including, but not limited to, race, ethnicity, gender, and geographical location. Concurrent with increasing research on youth and nature issues and benefits, youth participation in outdoor activities increased overall in the past decade (Outdoor Foundation, 2015). According to the Outdoor Foundation (2015), the most popular youth activities are running (25.6%), bicycling (road, mountain, and BMX, 21.2%), camping (car, backyard, and RV, 18.5%), fishing (18%), and hiking (12.8%).

Despite these positive trends, participation statistics do not apply uniformly to all youth. For instance, Hispanic and Caucasian youth have the highest participation levels in activities such as wildlife viewing, camping, and fishing, while team sports are more popular among African American, Hispanic, and Asian Pacific Islander youth (Larson, Green, & Cordell, 2011). Larson et al. (2011) also found differences in activity preferences between males and females and between African American youth and other racial and ethnic groups in terms of preferences for outdoor electronic device use. The documented diversity of youth perspectives on nature, outdoor activities, and access suggests that reflecting the unique perspectives of target populations through customized messaging may be the most effective means of engaging urban youth.

Communication Strategies for Connecting Diverse Youth With Nature

Although researchers have suggested a variety of ways to reach target populations, the most effective communication strategies and mediums depend on the target demographics. For example, Asian American and Latino focus group participants reported that additional written information about park access and benefits in languages aside from English could increase park use (Burns et al., 2008). Latinos also identified youth as effective messengers for park and recreation communications (Burns et al., 2008). Research with Latinos indicates they may have different participation and communication preferences than other groups (Chavez, 2002, 2005). Based on these findings, Chavez (2005) recommended implementing individualized and two-way communication strategies to enhance Latinos' awareness of outdoor recreation opportunities. Chavez (2005) also suggested evaluating the effectiveness of Internet communication among diverse groups in facilitating outdoor recreation. These investigations indicate that social media may be a valuable tool for facilitating personalized communications with minority groups.

Communicating with underserved urban youth using social media presents unique challenges, such as identifying optimal content, scope, and mediums. Modern youth have access to more technology than do previous generations, consuming over 7.5 hr/day of media and spending over 10 hr/day multitasking (Vahlberg, 2010). A national survey reported that teenagers spend, on average, more than 8 hr/day using various forms of media, not including time spent doing schoolwork or talking and texting on a cell phone (Rideout, Foehr, & Roberts, 2010). Youth are continually exposed to media in the form of billboards; flyers; television commercials; e-mails; Internet advertisements; logos; social media such as Facebook, Instagram, and Snapchat; and text messaging. As myriad organizations compete for youth attention, communication strategies and mediums must be specifically targeted to gain attention and spark action.

Social media presents a viable means of reaching underserved urban youth and affecting behavior, partially because of the way digital media resonates with the developmental processes

of youth (Mayer & Harrison, 2012; Montgomery & Chester, 2009; Vyas, Landry, Schnider, Rojas, & Wood, 2012). More than 80% of American teens own a cell phone and access social media services as daily sources of information (Pew Research Center, 2013). In a study of public health communications to Latino youth via text or social media, researchers found that 90% of Latino youth had access to a mobile phone, 97% had at least one social media account, and 75% checked that account daily (Vyas et al., 2012). Vyas et al. (2012) recommended conducting further research on the best ways to reach youth via social media and modern technology.

Marketing theory is a framework that can support the development of youth communication initiatives, regardless of the medium being used to convey the message. Fundamental to any messaging strategy is consistent messaging and knowing the audience (Fitzgibbon et al., 2007; Norris, 2015; Nowak & Phelps, 1994; Randolph & Viswanath, 2004). McCasland (2005) emphasized the importance of targeting youth “mindsets” and developing a deep understanding of their motivations prior to launching mobile-device campaigns. Understanding an audience’s existing beliefs, knowledge bases, barriers to change, and communication patterns is essential prior to developing messages that resonate with that audience (Fitzgibbon et al., 2007). Focus group methodologies are an effective, and commonly used, method of gathering rich qualitative data regarding a target audience (Burroughs et al., 2006). These data help ensure that the audience is reflected in the final messaging strategy (Fitzgibbon et al., 2007). Focus group data should result in the creation of key themes, which can then be used to guide messaging strategies and content (Bradley, Curry, & Devers, 2007; Ritchie, Lewis, Nicholls, & Ormston, 2013; Williams & Koepke, 2006).

In summary, previous literature has documented (a) physical and mental benefits of contact with nature; (b) minority youth have much lower outdoor participation rates than Caucasian youth; (c) urban and minority youth have diverse motivations for, and constraints to, accessing natural areas; and (d) youth overall have high levels of engagement with technology and social media. Based on these findings, this study had two objectives: (1) to explore underserved urban youth experiences of social technology and natural areas and (2) to identify key messages of interest to underserved urban youth that could be developed into effective social media messages. This investigation ultimately sought to provide land managers with practical insights that could facilitate larger scale social media initiatives designed to engage underserved urban youth with natural areas.

Method

Participants

This study focused on underserved youth populations within the L.A. Basin because of the large environmental access disparities present in the L.A. region (e.g., Rodriguez et al., 2014). “Underserved” populations were defined as “communities that are specifically characterized by low-income populations and some racial/ethnic minority populations” based on the NRPA’s usage of this term (NRPA, n.d., p. 3). Predominantly, minority youth from underserved areas of the L.A. Basin were recruited to participate through purposeful sampling (Patton, 2002). Initial contact was made with a youth group leader in the L.A. Basin, who then extended the invitation to additional groups. The final sample consisted of 42 youth ranging in age from 11 to 20 years (\bar{X} = 15 years; 42% female, 58% male). The self-reported racial/ethnic makeup of the sample was primarily Latino (55%) and African American (24%), with 5% Chinese, 2% Native American, and 14% self-identified as “other” or mixed ethnicities. According to recent U.S. Census Bureau (2010) data, this sample approximated the larger L.A. population, which was 48.5% Hispanic or Latino, 9.6% African American, 11% Asian, and 0.7% Native American. In comparison to U.S. census data, African American participants were somewhat overrepresented in this study, while Asian participants were underrepresented.

Procedures

Data were collected in focus groups using a semistructured interview guide. This exploratory method allowed researchers to obtain in-depth qualitative information regarding participant perceptions of natural areas and social media use. Prior to conducting the focus groups, a semistructured interview guide was piloted and revised. Two investigators initially developed a list of potential questions and probes related to youth perceptions of outdoor recreation, motivations to recreate outdoors, desired outcomes, barriers and facilitators, and social media interests. Researchers with expertise in youth development, outdoor recreation, and social media marketing then refined the interview guide before it was piloted with a youth group that was demographically similar to the population of interest. Feedback from the pilot session was used to remove unclear or overlapping questions. The final interview guide consisted of 15 questions and probes. Questions relating to outdoor participation included the following: What do you enjoy most about being outdoors? What keeps you from participating in outdoor activities? Given the opportunity, what would you ideally like to do in the outdoors? What, if anything, keeps you from going outdoors? Social media questions included the following: What applications do you use most often? Who do you communicate with online? What kind of applications, games, or websites are best for sharing information about outdoor experiences?

Seven focus groups, lasting between 45 and 75 min, were conducted with L.A. youth from underserved urban areas during February and March 2014. Focus groups consisting of three to nine participants were conducted at convenient times and locations for youth, usually in the afternoons at public schools. Informed consent was obtained via parental consent and youth assent forms. At the start of each focus group, researchers reiterated the study purpose, encouraged youth to ask questions about focus group procedures and research goals, and obtained participants' informed assent. Participants were informed that conversations would be audio recorded and that all names and identifying information would be removed from data during analysis.

Data Analysis

Each focus group recording was transcribed verbatim and then used as the basis for content analysis. Content analysis is the process of distilling large amounts of data into themes and core consistencies to make sense of the ideas presented (Patton, 2002). Themes generated during analysis can emerge from either respondents' own words or those supplied by the researchers; themes may also be created beforehand based on relevant frameworks (Kvale & Brinkman, 2009). In this exploratory study, data analysis focused on creating inductive themes based on emergent concepts. Two research assistants, with no previous involvement in the study's design or data collection, were hired and trained in content analysis to reduce bias and enhance inductive analyses.

Content analyses began with three researchers and two assistants individually analyzing one focus group transcript, followed by a collective discussion of the themes identified by each person. Through this process, the team established interrater reliability, determined the appropriate level of analysis (by question), and created a systematic organizing framework for content analysis. Data were analyzed by listing each question in a spreadsheet followed by each response or main idea. Some questions lent themselves to short responses (i.e., "What is your favorite app?"), and others required more in-depth descriptions (i.e., "What motivates you to spend time outdoors?"). Alongside each response or idea, quotations that described or expanded on the response were noted. After half the data were analyzed, the team again reviewed the process and themes to check for consistency. Once all transcripts were coded, analyses were summarized in a document that briefly described each higher order theme along with representative responses.

Results

Preliminary Findings

Data analysis identified how youth used technology, their perceptions of natural areas, and messages of interest to youth regarding the outdoors. Youth responded enthusiastically to initial questions regarding social media, website, and application preferences. Not surprisingly, Facebook, Instagram, Twitter, YouTube, Pandora, Amazon, Netflix, Google, Skype, ESPN, and Vine were all reported as examples of favorite websites or smartphone applications. Participants also reported that entertainment sites, such as iFunny or the Flappybird game, increased their time spent online. They primarily used mobile devices to access these sites, but some reported still using traditional desktop or laptop computers. Despite some restricted access to websites when using school Internet connections, youth reported having reliable access to the Internet at home, Starbucks, Jamba Juice, the airport, or “anywhere with Wi-Fi.” The most commonly cited reasons for using applications or social media were to keep in contact with family and friends, to find events, to meet people, and to play games.

Following a discussion of social media use, participants responded to questions regarding their perceptions of the outdoors, such as what they enjoyed most about being outdoors and what words or images “popped into their heads” when they thought about the outdoors. Common responses included “fresh air,” “sports,” “plants,” “animals,” “escape,” “freedom,” and different landmarks. Youth also associated specific activities with the outdoors (e.g., hiking, biking, scuba diving, or swimming). Barriers to spending time outside included homework, parents, and lack of transportation; for example, youth reported that it was difficult to find a ride and that public transport was inefficient and expensive. Time spent using technology (e.g., playing games or watching videos online) was reported as a barrier to going outside, and participants also reported getting distracted by technology while playing outside. For example, one participant reported, “When . . . someone messages me on my phone or Facebook, and it vibrates in my pocket, and I’m just playing, I just drop the ball and just be on my phone and never come back.” Some youth also described the outdoors in negative terms, such as seeing it as “dirty,” which reduced their desire to go outside. Safety was another barrier to outdoor access, with participants often expressing concern about being outside alone, when it was dark, or when gang violence occurred.

The final portion of each focus group was dedicated to understanding how social media could influence youth engagement with outdoor areas. Youth were asked how they would use technology to get their peers more interested in spending time outdoors, such as interesting or useful information, websites, applications, or online games that might generate interest in accessing natural areas. Participants suggested effectively organizing information about outdoor activities and enticing locations, facilitating social opportunities in natural areas, and/or incentivizing time spent outdoors. Although externally incentivizing time spent outdoors may seem counterintuitive, this finding suggests that urban youth may *initially* seek external rewards or recognition for accessing natural areas (e.g., winning a competition). Applications allowing users to identify plants or animals were also suggested, along with gamification of the outdoor experience, in the form of scavenger-type games and tests of knowledge. Finally, the use of celebrities to promote natural areas and outdoor activities was enthusiastically endorsed in each focus group.

Generation of Themes

During analysis, data were classified into six themes related to participants’ motives and interests regarding the outdoors: *unique experiences*, *escape*, *social connections*, *challenge*, *adventure*, and *accessibility*. The *unique experience* theme, which emerged in six of the seven focus groups, was the most common. *Unique experience* was characterized by participation in a new

or novel outdoor experience. Sample comments illustrating this theme include the following: "I just like when we're out in the wilderness and we just see all these wonderful things, plants, flowers, the views, it's just amazing and especially since you like have an experience your first time will always be the best time" and "I like finding a lot of bugs, bugs that I don't even know they existed." This theme supports outdoor recreation literature findings that nature enhances individuals' sense of wonder and natural curiosity (e.g., Carson, 1998).

Escape was the second most common emergent theme. Although the value of time spent outdoors has been recognized as a way for youth to reconnect with nature (Baker, 2005), these participants also saw nature as a way to disconnect from their lives and from technology. Urban youth in the current study expressed an interest in using the outdoors to unplug: "I always have this urge to want to get away like to get away from the city and to get away from the lights and just to get away from it all." These youth viewed nature as an outlet to release stress and tension they experience at school and home: "I like not having any responsibilities; so, no homework, no more drama. It's just me, who I'm with, and the outdoors." As much as they were interested and eager to talk about their Internet and device preferences, participants also expressed a desire to escape these influences: "You just get tired of being on your phone a lot."

Challenge and *adventure* were distinct but related themes that emerged in all focus groups. *Challenge*, which is associated with intrinsic motivation among adolescents, encapsulates the sense of achievement that accompanies attempting a difficult or demanding activity (Csikszentmihalyi, 2000). Youth recounted outdoor experiences when they either surprised themselves by doing something they thought was beyond their capabilities or engaged in some form of competition, such as challenging friends to do something, "because, like, everybody gets all competitive to beat each other at doing whatever it is they're being challenged [to do]." Participants reported enhanced self-confidence as a result of these outdoor accomplishments. *Adventure*, on the other hand, related to the excitement associated with unusual experiences and exploration (Solly, 2014): "Kids just like go and have an adventure, they discover new things because there's so many wildlife out there and they could have animal games and they could say oh I want to discover this or see it in real life."

Embedded within participants' adventure comments was also the desire to share these experiences using images or narratives: "Or just like when we went to the snow and brought back pictures and were showing people. And they were like, oh I want to do that next time." These statements pertain to the *social connections* theme that emerged in all but one focus group. Comments such as the following reflected this theme: "Bringing my family to nature just really makes us grow as a family because we get to bond with each other more than [we would] in our homes" and "When you are in nature, you get to bond with them more, you know, have like a little picnic and, you know, share thoughts and experiences." Although natural areas were seen as places where youth could experience challenge and adventure while escaping and disconnecting, the outdoors also provided opportunities to connect with family and friends. As discussed, even when family or friends were not present during outdoor experiences, communicating about outdoor adventures and accomplishments was reported as very important to these urban youth. Sharing outdoor experiences on social media appeared to provide another means of enhancing social connections for these urban youth.

The final theme that emerged from the data was *accessibility*. Youth frequently reported that "not having a ride," their parents working long days and/or multiple jobs, and a lack of financial resources to do anything "extra" prevented them from accessing outdoor spaces. Although youth spent less time discussing this theme, participants clearly perceived that lack of resources (e.g., money or access to transportation) was a major barrier to engaging with natural areas. As enjoyment of natural resources is predicated on access, this theme appeared particularly salient to developing effective outdoor-related communications with urban youth.

Discussion

In the digital age, tracking youth interests may seem to be an ephemeral endeavor. The nuances associated with messages relating to *escape*, for example, may vary in an era dominated by technology. However, many of the themes reported by urban youth in this study appear somewhat timeless. Although technology has contributed to youth disengagement with natural areas (Leseman et al., 2014; Pergams & Zaradic, 2008) and decreases in outdoor play (Bassett et al., 2015), participants in this study expressed a desire to put down their “screens” and escape via the outdoors. Using social media to highlight the themes that resonated with youth in this study may be an effective way of increasing underserved urban youth engagement with natural areas. Thus, land managers may be able foster urban youth engagement with natural resources by using technology and social media to communicate with youth through their preferred mediums using their preferred messages.

Youth in this study also expressed a desire to connect with family and friends through natural resources and outdoor activities. Despite arguments that technology can be detrimental to social connections, technology use during and after visits to natural areas may facilitate meaningful social connections and help youth share meaningful memories (Braun, Stopfer, Muller, Beutel, & Egloff, 2016; Brown & Bobkowski, 2011; Kross et al., 2013). Moreover, the mediums for land managers to connect with underserved urban youth are already in place through myriad established social media platforms at low or no cost. Mainstream social media sites provide a powerful, cost-effective means of communicating outdoor messages that resonate with underserved urban youth.

Although social media provides promising avenues for engaging underserved youth with natural areas, the data illustrate that messages must be coupled with adequate resources to access these places. The importance of developing enticing outdoor messages may be moot if urban youth cannot access natural areas due to issues such as poor access information, transportation, and/or lack of green spaces. Arguably, information about access could be the most important theme generated by this study. Garcia et al. (2009), Loukaitou-Sideris (2006), and Rodriguez et al. (2014) have documented the “park poor” characteristics associated with underserved populations in the L.A. Basin. The youth in this study affirmed that lack of information and resources (e.g., money, transport options) were barriers to natural areas. Lack of access can inhibit participation regardless of messaging effectiveness. However, pairing the themes identified in this study with access information may help alleviate this problem. Connecting individuals with the additional resources afforded through social connections may also help improve access for underserved urban youth. Therefore, any social media messaging or communication strategy targeting underserved youth needs to be firmly attuned to addressing access issues.

Additional practical considerations for land managers include the need to employ diverse staff from underserved urban areas to assist in creation and maintenance of social media messages and platforms. This will foster more relevant, dynamic, and effective social media communications. As social media is constantly evolving, content associated with social media initiatives and messages must also dynamically progress. Hiring diverse employees, including racial or ethnic minorities from underserved communities, will help land managers ensure they are attuned to the needs, wants, and communication styles of underserved urban youth, which may bolster the effectiveness of social media strategies. In addition to land managers hiring a diverse workforce, research suggests that using the same communication styles favored by target groups, professionally translating materials, and facilitating personalized and two-way communication may reduce barriers to outdoor recreation for underserved groups (Chavez, 2005). Social media may be an ideal medium for facilitating personalized two-way communication and instant feedback between land managers and the underserved urban populations they serve because of its interactive, fluid, and widely accessible nature.

Limitations

As this is an exploratory study, these findings have limitations. Although many of the results support previous findings, the themes generated through this study are not necessarily generalizable to other youth populations, because populations with different demographic characteristics may have unique perspectives, preferences, and cultural norms (Barnett, 2006; Byrne, 2012; Wardle & Steptoe, 2003). Access may also vary both qualitatively, with regard to the type of constraints, and quantitatively, with regard to the number of available natural spaces, in other metropolitan areas. For instance, the L.A. Basin has historically been considered an area with poor public transit (e.g., Kanter, 2015), which may contribute to these particular findings. In addition, the qualitative nature of these data does not allow for generalizability to a larger population.

Social desirability (e.g., Holtgraves, 2004) may have also influenced participant responses in two ways. One, participant responses may be affected by the presence of facilitators with whom they have a preexisting relationship (i.e., youth group leaders who cofacilitated focus groups in the current study). Two, participant responses may be affected by the presence of facilitators who are of a different race or ethnicity. In this study, the presence of Caucasian researchers alongside minority facilitators during focus groups may have influenced the data provided by participants. In a thorough review of literature relating to youth, the media, and the outdoors, Pozzoboni, Sikand, Reist, and Roberts (2014) emphasized the importance of identification and persuasion when communicating messages to youth. Minority youth may have responded differently to the researchers than if the team members were of the same race as the youth. Although the authors attempted to minimize this issue by cofacilitating sessions with minority youth leaders with whom the youth had established relationships, the approach may have also introduced biased responses based on youth perceptions of what leaders expected them to say.

Future Research Directions

In this investigation, the research team explored the perspectives of underserved urban youth in the L.A. Basin on natural areas and social media. In the future, the research team will evaluate whether communications based on these themes effectively resonate with underserved youth and if these communications foster behavioral change. The development and testing of social media messages based on these results is the next step in this line of inquiry, as well as monitoring the effectiveness of each theme across social media platforms. The research team anticipates that these investigations will provide more detailed insights into how youth engage different messages using social media, and whether pairing themes, such as *social connections* and *access*, reduces access barriers. Specifically, testing the effectiveness of messages that address access issues will be an important area of further study.

Future research should also evaluate whether the results of this exploratory study are representative of larger urban youth populations and if these themes inform effective communications in similar urban areas. This study provides unique underserved urban youth perspectives on technology, social media, and natural areas. Understanding these nuanced perspectives is the first step in creating effective social media messages that resonate with urban youth and strengthen their connection to natural resources.

References

- Babey, S. H., Hastert, T. A., Yu, H., & Brown, E. R. (2008). Physical activity among adolescents: When do parks matter? *American Journal of Preventive Medicine*, 34, 345–348. <https://doi.org/10.1016/j.amepre.2008.01.020>
- Baker, M. (2005). Landfullness in adventure-based programming: Promoting reconnection to the land. *Journal of Adventure Education and Outdoor Learning*, 27, 267–276.

- Barnett, L. (2006). Accounting for leisure preferences from within: The relative contributions of gender, race or ethnicity, personality, affective style, and motivational orientation. *Journal of Leisure Research*, 38, 445–474.
- Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental Science and Technology*, 44, 3947–3955. <https://doi.org/10.1021/es903183r>
- Bassett, D. R., John, D., Conger, S. A., Fitzhugh, E. C., & Coe, D. P. (2015). Trends in physical activity and sedentary behaviors of United States youth. *Journal of Physical Activity and Health*, 12, 1102–1111. <https://doi.org/10.1123/jpah.2014-0050>
- Berto, R., Pasini, M., & Barbiero, G. (2015). How does psychological restoration work in children? An exploratory study. *Journal of Child & Adolescent Behavior*, 3(3). <https://doi.org/10.4172/2375-4494.1000200>
- Blackwell, C. K., Lauricella, A. R., Conway, A., & Wartella, E. (2014). Children and the Internet: Developmental implications of Web site preferences among 8- to 12-year-old children. *Journal of Broadcasting & Electronic Media*, 58(1), 1–20. <https://doi.org/10.1080/08838151.2013.875022>
- Bradley, E., Curry, L., & Devers, K. (2007). Qualitative data analysis for health services research: Developing taxonomy, themes, and theory. *Health Services Research*, 42, 1758–1772. <https://doi.org/10.1111/j.1475-6773.2006.00684.x>
- Bratman, G. N., Hamilton, J. P., & Daily, G. C. (2012). The impacts of nature experience on human cognitive function and mental health. *Annals of the New York Academy of Sciences*, 1249(1), 118–136. <https://doi.org/10.1111/j.1749-6632.2011.06400.x>
- Braun, B., Stopfer, J., Muller, K., Beutel, M., & Egloff, B. (2016). Personality and video gaming: Comparing regular gamers, non-gamers, and gaming addicts and differentiating between game genres. *Computers in Human Behavior*, 55, 406–412. <https://doi.org/10.1016/j.chb.2015.09.041>
- Brown, J., & Bobkowski, P. (2011). Older and newer media: Patterns of use and effects on adolescents' health and well-being. *Journal of Research on Adolescence*, 21(1), 95–113. <https://doi.org/10.1111/j.1532-7795.2010.00717.x>
- Burns, R. C., Covelli, E., & Graefe, A. (2008). Outdoor recreation and nontraditional users: Results of focus group interviews with racial and ethnic minorities. In D. J. Chavez, P. L. Winter, & J. D. Absher (Eds.), *Recreation visitor research: Studies of diversity* (Gen. Tech. Report PSW-GTR-210, pp. 123–137). Washington, DC: U.S. Department of Agriculture, Forest Service.
- Burroughs, E. L., Peck, L. E., Sharpe, P. A., Granner, M. L., Bryant, C. A., & Fields, R. (2006). Using focus groups in the consumer research phase of a social marketing program to promote moderate-intensity physical activity and walking trail use in Sumter County, South Carolina. *Preventing Chronic Disease*, 3(1), 1–13.
- Byrne, J. (2012). When green is White: The cultural politics of race, nature, and social exclusion in a Los Angeles urban national park. *Geoforum*, 43, 595–611. <https://doi.org/10.1016/j.geoforum.2011.10.002>
- Carson, R. L. (1998). *The sense of wonder*. New York, NY: HarperCollins.
- Charles, C., Louv, R., Bodner, L., Guns, B., & Stahl, D. (2008). *Children and nature 2008: A report on the movement to reconnect children to the natural world*. Retrieved from Children and Nature Network website: <http://www.childrenandnature.org/uploads/CNMovement.pdf>
- Chavez, D. J. (2002). Adaptive management in outdoor recreation: Serving Hispanics in southern California. *Western Journal of Applied Forestry*, 17, 129–133.

- Chavez, D. J. (2005). Natural areas and urban populations: Communication and environmental education challenges and actions in outdoor recreation. *Journal of Forestry*, *103*, 407–410.
- Chawla, L. (2015). Benefits of nature contact for children. *Journal of Planning Literature*, *30*, 433–452. <https://doi.org/10.1177/0885412215595441>
- Chawla, L., Keena, K., Pevec, I., & Stanley, E. (2014). Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health and Place*, *28*, 1–13. <https://doi.org/10.1016/j.healthplace.2014.03.001>
- Cheng, J. C., & Monroe, M. C. (2012). Connection to nature: Children's affective attitude toward nature. *Environment & Behavior*, *44*(1), 31–49. <https://doi.org/10.1177/0013916510385082>
- Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety*. San Francisco, CA: Jossey-Bass.
- Eaton, D. K., Kann, L., Kinchen, S., Ross, J., Hawkins, J., Harris, W. A., . . . Wechsler, H. (2006). Youth risk behavior surveillance. *Morbidity and Mortality Weekly Report*, *55*(SS-5), 1–108.
- Edwards, M. B., Theriault, D. S., Shores, K. A., & Melton, K. M. (2014). Promoting youth physical activity in rural southern communities: Practitioner perceptions of environmental opportunities and barriers. *The Journal of Rural Health*, *30*, 379–387. <https://doi.org/10.1111/jrh.12072>
- Faber Taylor, A., & Kuo, F. E. (2011). Could exposure to everyday green spaces help treat ADHD? Evidence from children's play settings. *Applied Psychology: Health and Well-Being*, *3*, 281–303. <https://doi.org/10.1111/j.1758-0854.2011.01052.x>
- Fitzgibbon, M., Gans, K., Evans, W., Viswanath, K., Johnson-Taylor, W., Krebs-Smith, S. M., . . . Yaroch, A. L. (2007). Communicating healthy eating: Lessons learned and future directions. *Journal of Nutrition Education and Behavior*, *39*(2), S63–S71. <https://doi.org/10.1016/j.jneb.2006.08.017>
- Floyd, M. F., Bocarro, J. N., Smith, W. R., Baran, P. K., Moore, R. C., Cosco, N. G., . . . Fang, K. (2011). Park-based physical activity among children and adolescents. *American Journal of Preventive Medicine*, *41*, 258–265. <https://doi.org/10.1016/j.amepre.2011.04.013>
- Garcia, R., Rawson, Z., Yellott, M., & Zaldana, C. (2009). *Economic stimulus, green space, and equal justice*. Retrieved from The City Project website: <http://www.cityprojectca.org/blog/wp-content/uploads/2009/04/stimulus-green-space-justice-200904294.pdf>
- Gray, C., Gibbons, R., Larouche, R., Sandseter, E. B. H., Bienenstock, A., Brussoni, M., . . . Tremblay, M. S. (2015). What is the relationship between outdoor time and physical activity, sedentary behaviour, and physical fitness in children? A systematic review. *International Journal of Environmental Research and Public Health*, *12*, 6455–6474. <https://doi.org/10.3390/ijerph120606455>
- Hinds, J., & Sparks, P. (2008). Engaging with the natural environment: The role of affective connection and identity. *Journal of Environmental Psychology*, *28*, 109–120. <https://doi.org/10.1016/j.jenvp.2007.11.001>
- Holtgraves, T. (2004). Social desirability and self-reports: Testing models of socially desirable responding. *Society for Personality and Social Psychology*, *30*, 161–172. <https://doi.org/10.1177/0146167203259930>
- Houge Mackenzie, S., & Son, J. S. (2013, October). *Fostering self-determination and flow in physical activity and science via outdoor adventure*. Paper presented at the Leisure Research Symposium, National Recreation and Park Association (NRPA) conference, Houston, TX.
- Houge Mackenzie, S., & Son, J. S. (2014, October). *Promoting STEM education and physical activity through outdoor adventure programs*. Paper presented at the Leisure Research Symposium, National Recreation and Park Association (NRPA) conference, Charlotte, NC.

- Jackson, E. L. (Ed.). (2005). *Constraints to leisure*. State College, PA: Venture.
- Jackson, L. E., Daniel, J., McCorkle, B., Sears, A., & Bush, K. F. (2013). Linking ecosystem services and human health: The Eco-Health Relationship Browser. *International Journal of Public Health, 58*, 747–755. <https://doi.org/10.1007/s00038-013-0482-1>
- Kaczynski, A. T., & Henderson, K. A. (2007). Environmental correlates of physical activity: A review of evidence about parks and recreation. *Leisure Sciences, 29*, 315–354. <https://doi.org/10.1080/01490400701394865>
- Kanter, R. M. (2015). *Move: Putting America's infrastructure back in the lead*. New York, NY: Norton.
- Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D., Lin, N., . . . Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS ONE, 8*(8). <https://doi.org/10.1371/journal.pone.0069841>
- Kuo, F. E. (2001). Coping with poverty: Impacts of environment and attention in the inner city. *Environment and Behavior, 33*(5), 5–34. <https://doi.org/10.1177/00139160121972846>
- Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research interviewing*. Thousand Oaks, CA: Sage.
- Larson, L. R., Green, G. T., & Cordell, H. K. (2011). Childrens' time outdoors: Results and implications of the National Kids Survey. *Journal of Park and Recreation Administration, 29*(2), 1–20.
- Leseman, P., van Kruistum, C., & de Haan, M. (2014). Youth media lifestyles. *Human Communication Research, 40*, 508–529. <https://doi.org/10.1111/hcre.12033>
- Loukaitou-Sideris, A. (2006). *Southern California environmental report card 2006: Urban parks*. Retrieved from UCLA Institute of the Environment and Sustainability website: <http://www.ioe.ucla.edu/media/files/Urban-Parks-2006.pdf>
- Mayer, A., & Harrison, J. (2012). Safe eats: An evaluation of the use of social media for food safety education. *Journal of Food Protection, 75*, 1453–1463. <https://doi.org/10.4315/0362-028X.11-551>
- McCasland, M. (2005). Mobile marketing to millennials. *Young Consumers, 6*(3), 8–13. <https://doi.org/10.1108/17473610510701133>
- Montgomery, K., & Chester, J. (2009). Interactive food and beverage marketing: Targeting adolescents in the digital age. *Journal of Adolescent Health, 45*(3), S18–S29. <https://doi.org/10.1016/j.jadohealth.2009.04.006>
- National Park Service. (2016). National Park Service visitor use statistics. Retrieved from <https://irma.nps.gov/Stats/Reports/National>
- National Recreation and Park Association. (n.d.). *Parks and recreation in underserved areas: A public health perspective*. Retrieved May 20, 2016, from http://www.nrpa.org/uploadedFiles/nrpa.org/Publications_and_Research/Research/Papers/Parks-Rec-Underserved-Areas.pdf
- Norris, S. (2015). Messaging: Why consistency is everything. *NonProfit Pro, 13*(6), 24.
- Nowak, G., & Phelps, J. (1994). Conceptualizing the integrated marketing communications phenomenon: An examination of its impact on advertising practices and its implications for advertising research. *Journal of Current Issues and Research in Advertising, 16*(1), 49–66. <https://doi.org/10.1080/10641734.1994.10505012>
- Outdoor Foundation. (2015). *Outdoor recreation participation report*. Retrieved from <http://www.outdoorfoundation.org/research.participation.html>
- Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.
- Pergams, O. R. W., & Zaradic, P. A. (2008). Evidence for a fundamental and pervasive shift away from nature-based recreation. *Proceedings of the National Academy of Sciences, 105*, 2295–2300. <https://doi.org/10.1073/pnas.0709893105>

- Pew Research Center. (2013). *Teens and technology 2013*. Retrieved from http://www.pewinternet.org/files/old-media//Files/Reports/2013/PIP_TeensandTechnology2013.pdf
- Powell, L. M., Slater, S., & Chaloupka, F. J. (2004). The relationship between community physical activity settings and race, ethnicity, and socioeconomic status. *Evidence-Based Preventive Medicine, 1*, 135–144.
- Pozzoboni, K. M., Sikand, T., Reist, S., & Roberts, N. S. (2014). *Youth, the outdoors, and media: Awakening and strengthening the connection of urban youth to the land—Project overview and review of literature*. Retrieved from San Francisco State University website: http://userwww.sfsu.edu/nroberts/documents/research/USFS-SFSU_UrbanYouthOutdoors_MediaStudy_LitReview_Final-070114.pdf
- Pretty, J., Peacock, J., Sellens, M., & Griffin, M. (2005). The mental and physical health outcomes of green exercise. *International Journal of Environmental Health Research, 15*, 319–337. <https://doi.org/10.1080/09603120500155963>
- Randolph, W., & Viswanath, K. (2004). Lessons learned from public health mass media campaigns: Marketing health in a crowded media world. *Annual Review of Public Health, 25*(1), 419–437. <https://doi.org/10.1146/annurev.publhealth.25.101802.123046>
- Richmond, T. K., Hayward, R. A., Gahagan, S., Field, A. E., & Heisler, M. (2006). Can school income and racial/ethnic composition explain the racial/ethnic disparity in adolescent physical activity participation? *Pediatrics, 117*, 2158–2166. <https://doi.org/10.1542/peds.2005-1920>
- Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M2: Media in the lives of 8–18 year-olds*. Retrieved from Henry J. Kaiser Family Foundation website: <http://www.kff.org/entmedia/upload/8010.pdf>
- Ries, A. V., Voorhees, C. C., Roche, K. M., Gittelsohn, J., Yan, A. F., & Astone, N. M. (2009). A quantitative examination of park characteristics related to park use and physical activity among urban youth. *Journal of Adolescent Health, 45*(3), S64–S70. <https://doi.org/10.1016/j.jadohealth.2009.04.020>
- Rigolon, A., & Flohr, T. L. (2014). Access to parks for youth as an environmental justice issue: Access inequalities and possible solutions. *Buildings, 4*(2), 69–94. <https://doi.org/10.3390/buildings4020069>
- Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (Eds.). (2013). *Qualitative research practice: A guide for social science students and researchers* (2nd ed.). Los Angeles, CA: Sage.
- Rodriguez, M., Brenman, M., Lado, M. E., & Garcia, R. (2014). *Using civil rights tools to address health disparities*. Retrieved from The City Project website: http://www.cityprojectca.org/publications/documents/Using_Civil_Rights_Tools_to_Address_Health_Disparities_2015.pdf
- Rosen, L. D., Lim, A. F., Felt, J., Carrier, L. M., Cheever, N. A., Lara-Ruiz, J. M., . . . Rokkum, J. (2014). Media and technology use predicts ill-being among children, preteens, and teenagers independent of the negative health impacts of exercise and eating habits. *Computers in Human Behavior, 35*, 364–375. <https://doi.org/10.1016/j.chb.2014.01.036>
- Ryan, R. M., Weinstein, N., Bernstein, J., Brown, K. W., Mastella, L., & Gagne, M. (2010). Vitalizing effects of being outdoors and in nature. *Journal of Environmental Psychology, 30*, 159–168. <https://doi.org/10.1016/j.jenvp.2009.10.009>
- Schaefer, L., Plotnikoff, R. C., Majumdar, S. R., Mollard, R., Woo, M., Sadman, R., . . . McGavock, J. (2014). Outdoor time is associated with physical activity, sedentary time, and cardiorespiratory fitness in youth. *The Journal of Pediatrics, 165*, 516–521. <https://doi.org/10.1016/j.jpeds.2014.05.029>
- Sherer, P. (2006). *The benefits of parks: Why America needs more city parks and open space*. San Francisco, CA: The Trust for Public Land.

- Shinew, K. J., Floyd, M. F., & Parry, D. (2004). Understanding the relationship between race and leisure activities and constraints: Exploring an alternative framework. *Leisure Sciences*, 26, 181–199. <https://doi.org/10.1080/01490400490432109>
- Sister, M. C. E. (2007). *Do Blacks and Browns have less green? Examining the distribution of park and open space resources in the greater Los Angeles metropolitan region* (Doctoral dissertation). Retrieved from ProQuest database. (3283539)
- Stodolksa, M., Shinew, K. J., Floyd, M. F., & Walker, G. J. (2014). *Race, ethnicity, and leisure: Perspectives on research, theory, and practice*. Champaign, IL: Human Kinetics.
- Solly, K. S. (2014). *Risk, challenge, and adventure in the early years: A practical guide to exploring and extending learning outdoors*. New York, NY: Routledge.
- Thompson, C. W., Roe, J., Aspinall, P., Mitchell, R., Clow, A., & Miller, D. (2012). More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning*, 105, 221–229. <https://doi.org/10.1016/j.landurbplan.2011.12.015>
- Trainor, S., Delfabbro, P., Anderson, S., & Winefield, A. (2010). Leisure activities and adolescent psychological well-being. *Journal of Adolescence*, 33(1), 173–186. <https://doi.org/10.1016/j.adolescence.2009.03.013>
- Tyrväinen, L., Ojala, A., Korpela, K., Lanki, T., Tsunetsugu, Y., & Kagawa, T. (2014). The influence of urban green environments on stress relief measures: A field experiment. *Journal of Environmental Psychology*, 38, 1–9. <https://doi.org/10.1016/j.jenvp.2013.12.005>
- U.S. Census Bureau. (2010). 2010 Census demographic profiles. Retrieved from <http://www.census.gov/2010census/data>
- Vahlberg, V. (2010). *Fitting into their lives: A survey of three studies about youth media usage*. Arlington, VA: Newspaper Association of America Foundation.
- Vyas, A. N., Landry, M., Schnider, M., Rojas, A. M., & Wood, S. F. (2012). Public health interventions: Reaching Latino adolescents via short message service and social media. *Journal of Medical Internet Research*, 14(4). <https://doi.org/10.2196/jmir.2178>
- Wardle, J., & Steptoe, A. (2003). Socioeconomic differences in attitudes and beliefs about healthy lifestyles. *Journal of Epidemiology and Community Health*, 57, 440–443. <https://doi.org/10.1136/jech.57.6.440>
- Wells, N. M., & Lekies, K. S. (2006). Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children, Youth, and Environments*, 16(1), 1–24.
- Wen, M., Zhang, X., Harris, C. D., Holt, J. B., & Croft, J. B. (2013). Spatial disparities in the distribution of parks and green spaces in the USA. *Annals of Behavioral Medicine*, 45(1), 18–27. <https://doi.org/10.1007/s12160-012-9426-x>
- Wilhelm Stanis, S., Schneider, I. E., Chavez, D. J., & Shinew, K. J. (2009). Visitor constraints to physical activity in park and recreation areas: Differences by race and ethnicity. *Journal of Park and Recreation Administration*, 27(3), 78–95.
- Williams, S., & Koepke, C. (2006). Using multiple methods to identify theme lines for media marketing campaigns to promote Medicare information sources. *Journal of Consumer Marketing*, 23, 351–356. <https://doi.org/10.1108/07363760610701896>
- Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape and Urban Planning*, 125, 234–244. <https://doi.org/10.1016/j.landurbplan.2014.01.017>