

# **Youth Day in Los Angeles: Evaluating the Role of Technology in Children's Nature Activities**

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## **Abstract**

*Youth Day, held in Griffith Park in Los Angeles, California, was an exploratory study to determine whether technology attracts kids to outdoor activities. Four activities were offered—two were dependent on technology and two were not. The two technology-dependent activities were a camera safari and geocaching for treasure. The activities not dependent on technology were paper etching or rubbings of natural surfaces and a nature scavenger hunt. Thirty-eight young people (ages 6 to 17) participated in the activities. The children voted on how much they liked each activity. The technology-dependent activities received more votes as liked activities as compared to the non-technology-dependent activities. Although additional studies are needed, these results suggest using technology to get young people outdoors.*

**Keywords:** [digital cameras](#), [geocaching](#), [K-12](#), [natural environments](#), [technology](#), [outdoor recreation](#), [children](#), [youth](#)

In an Oregon statewide survey, parents indicated how much time their child spent outdoors relative to their own outdoor childhood experiences. The results indicated children spent as much time as their parents did as children in structured outdoor activities (such as organized sports), but they spent much less time than their parents did as children in outdoor chores and outdoor play (Lindberg 2007). The same study found that outdoor skills have changed over the generations, with younger generations having fewer nature-based outdoor skills (such as pitching a tent or cooking outdoors) in comparison to their parents as children (Lindberg 2007). Louv (2005) also suggests that children today suffer from a nature-deficit disorder. His thesis is that children deprived of the spiritual, emotional, and psychological benefits of exposure to nature are more prone to depression and attention disorders, and miss out on improved cognitive development, creativity, and cooperative play. What can be done to change that trend? This paper reports findings from a research effort examining whether children's outdoor activity could be increased or enhanced by the infusion of technology into outdoor activities.

### **Background Literature**

Barnett and Weber (2008) examined mothers' perceptions of the benefits that accrue to young children from their participation in extracurricular recreational activities. The majority of mothers believed the benefits accrued related to the development of character attributes, both in terms of the self and in how one treats others. The benefits differed for children who participated in team or individual sports (improved social skills) compared to children in performing arts or community programs (improved preparation for future involvement in those activities).

While leisure and recreation entities can provide outlets for physical activities for youth (Kaczynski and Henderson 2007), two recent papers suggest that physical activity declines drastically throughout the period of adolescence (Bradley et al. 2000; Caspersen, Pereira and Curran 2000). There are several reasons for the decline in physical activity for adolescents. These include lack of time, technology, social influences, lack of access, safety issues, and negative perceptions toward physical activity (Allison et al. 2005 Dwyer et al. 2006; Greiser et al. 2006). Additional research suggests that youth often encounter more appealing sedentary activities (Epstein et al. 2004).

In a cross-cultural examination of favorite places, 61 percent of adult respondents (from Senegal, Ireland, and the U.S.) identified some part of the natural environment as their favorite place (Newell 1997). Beyond attachment to places, natural areas provide many benefits. Connection to nature can enhance attentional functioning in adults and children (Faber Taylor, Kuo and Sullivan 2001). There are two types of attention—involuntary and deliberate. Some elements in the environment draw on involuntary functioning, which in turn enhances deliberate attention. Further, connections to nearby natural environments play a significant role in the cognitive functioning of children residing in poor urban environments (Wells 2000). Additional benefits relate to environmental attitudes and actions. An emotional affinity toward nature can serve as a motivational basis to protect nature (Kais, Schumacher and Montada 1999). A study of university students found that

people who see greater potential for restorative experiences in natural environments also do more to protect them by behaving in more ecologically-conscious ways, such as recycling or driving less (Hartig, Kaiser and Bowler 2001).

In a study of elementary school children, Huang and Yore (2005) found that the most popular source of environmental information was television. On average, American children spent almost six and a half hours per day with electronic media, including more than three hours watching television (Roberts, Foehr and Rideout 2005), whereas they spent about 30 minutes per week on unstructured outdoor activities (Doherty 2004).

In summary, the literature suggests that there are benefits to young people from engaging in physical activity, yet not all children engage in these activities. The literature also suggests that children and youth today are not as inclined to participate in nature-based activities. The current study adds to the literature by testing four outdoor activities to determine which are more likely to encourage young people's participation.

### **Setting up Youth Day**

The U.S. Department of Agriculture Forest Service (USFS) hosted a recreation forum series across the United States in 2007. Regional in focus, the forums were meant to obtain information about needs and opportunities for success in meeting those needs from members of the public and outdoor recreation partners. During the Partners Outdoors Conference held in Lake Arrowhead, CA in January 2007, more than 30 persons participated in planning the regional forum to be held in Los Angeles in March 2007. Participants in that process included the USFS, Bureau of Land Management, California Parks and Recreation Society, American Recreation Coalition (ARC), Los Angeles County Department of Recreation and Parks, California State Parks, and Tread Lightly. Potential forum topics discussed included access, connecting Americans to the outdoors (especially youth and urban populations), and volunteers/partnerships with non-profit organizations and others. One topic of interest was technologies and whether young people would be more likely to go outdoors if some technologies were available for their use outdoors. Another discussion centered on how to get children at the Recreation Forum. Concerns included the fact that the Forum would be held on a weekday in the middle of the day, making it difficult to include school-age children. A subset of the planning committee formed and decided to conduct an exploratory study to engage children in outdoor recreation activities (on a weekend day), determine the success of the effort, and then develop a process for others to follow. The result was Youth Day, held in March 2007 in Los Angeles. The ages of the 38 youth participants at Youth Day ranged from age 6 to age 17. There were 20 boys and 18 girls.

### **Process**

There is a connection between the quality of children's outdoor experiences and the way they are engraved in memory as the children mature—an experience in which children are actively involved with their bodies, their senses, and their awareness is likely to be etched in their memories for a long time (Sebba 1991). Thus, for Youth Day we sought activities in which the participants would be personally and

cognitively involved. Informal educational settings can promote environmentally sustainable attitudes and behavior (Ballantyne and Packer 2005). Thus, we selected a natural (forested) site for the event, Griffith Park in Los Angeles.

To begin, we developed a list of activities in which we might ask youth to engage (Table 1). The activities were placed into the following categories: technology-based activities, water-based activities, land-based activities, environmental education activities, and research activities. These are not mutually exclusive categories and the activities are not an exhaustive list.

**Table 1. List of potential activities by activity type**

Activity	Technology-based	Water-based	Land-based	Environmental Education	Research
Artistic session—use colored pencils, crayons, paint, etc.				X	
Beach play (build dams or sand castles)		X			
Bird identification binoculars	X			X	
Bug collecting			X	X	
Build an animal home (bird house)				X	
Camera safari (take picture on nature hike)	X		X		
Collect rocks or fossils			X	X	
Collect wood or pinecones			X		
Ecological exploration (such as dead and down logs)				X	
Etching natural surfaces onto paper			X		
Fishing (real fish, or use magnets, use hoops, use small pool)		X			
Geocache	X				
Geologic hunts (locate the fault line)			X	X	
Hike			X		
Hike set up to focus on a story about early U.S. or local history			X	X	
Hike set up to focus on a story about Native American cultures			X	X	
Hike with a guidebook (focus on birds, trees or plants)			X	X	
Horseback riding			X		

Hunt for the oldest tree (or the tallest)			X	X	
Mountain boarding	X		X		
Mountain roller blading	X		X		
MP3 podcasts	X			X	
Nature scavenger hunt (rocks, fossils, etc.)			X	X	
Ride an all-terrain vehicle or off-highway vehicle	X		X		
Set up a camp site			X		
Stream side play (turn over rocks)		X			
Take soil samples					X
Take water samples					X
Touch box—might include animal skins, bark samples, leaves, etc.				X	
Use cell phones to take pictures while on hike	X				
Use tools to measure temperature, humidity, wind					X
Wii station with fishing game	X				
Wildlife watching		X	X		
XBOX 360 station	X				

Other ways to categorize these activities include: nature appreciation, cognitive in nature, engage the senses, allow for artistic expression, allow for cultural expression, express connections with nature, scientific purposes, ecosystem awareness, physical fitness (activities might be sedentary, walking, or very active), or skill building. There are probably innumerable other ways to categorize the same activities.

### **Narrowing Down the Activities for Youth Day**

The need for active participation (Sebba 1991) directed the actions taken on Youth Day. For the exploratory study, to determine whether technology attracts kids to the outdoors, we offered four activities—two were dependent on technology and two were not: (1) going on a camera safari, in which each child borrowed a digital camera and took pictures of things that interested them as they took a short hike; (2) making etchings or rubbings on paper of natural surfaces of their choice; (3) using a global positioning system unit to geocache, or locate hidden treasure along a trail; and (4) going on a nature scavenger hunt, in which each child had a list of items to locate along a trail. Our purpose was to determine if technology matters in young people's outdoor participation.

## Description of Each Activity

### ***Camera Safari***

Each child used a digital camera to take pictures of things that interested them as they took a short walk along a trail. We printed at least one photo for each participant in this activity to take home.

### ***Etchings***

The youth etched natural surfaces (leaves, rocks, twigs, pinecones, etc.), on paper, and then made rubbings of plastic forms onto foil (leaves, spiders, etc.) at an art center. Each participant took home their etchings/rubbings. This activity was held in two places, outdoors near an art center and at the art center itself. There was a leader at the art center who gave instructions on what to do, but facilitators led the activity.

### ***Geocache***

Each participant used a global positioning system (GPS) unit to locate hidden treasure along a trail. Each participant took home a treasure found during the hike. Two technical facilitators taught the kids about geocaching and led the activity.

### ***Nature Scavenger Hunt***

Each child was provided a list of natural items to locate along a trail. Once they located an item they sketched it in a notebook. Each child took home their notebook.

## Planning Activities

Several groups participated in the planning and running of Youth Day. The groups and their tasks included:

- City of Los Angeles Department of Recreation and Parks: printed agenda, wrote lesson plans (except geocache), ran the registration desk, provided the Boys Camp site at Griffith Park in Los Angeles, provided lunch and snacks, recruited youth participants, arranged for facilitators, developed the registration/parental permission form, and provided the nature and scavenger booklets.
- USFS San Dimas Technology and Development Center: wrote the lesson plan and set up the geocache activity, recruited observers, set up a photo download process, purchased printers, purchased cameras and GPS units, and provided bags with Smokey Bear items for each child to take home.
- USFS Pacific Southwest Research Station: developed the observation process, provided note pads, developed the voting process, provided items for geocache treasure (along with ARC), and meeting development.
- American Recreation Coalition: built partnerships/made connections, and provided items for geocache treasure.

Table 2 presents the agenda for the Youth Day. Of note is that each participant was assigned to a group and each group participated in each of the four activities. Each activity lasted one hour (five minutes for introduction of the activity; 30 minutes for

the activity; 15 minutes for the wrap up, voting, and debriefing of observers; and ten minutes to transition to next activity).

**Table 2. Agenda for Youth Day**

9:00 – 9:30	Check in	
9:30 – 9:45	Welcome and announcements	
9:45 – 10:45	<ul style="list-style-type: none"> <li>• Training and Games Orientation of Facilitators and Observers</li> <li>• Initiative Games with Children</li> <li>• Assign children into one of 8 groups</li> </ul>	
10:45 – 11:45	Round 1:	Camera safari (groups 1 & 5)
		Nature rubbings (groups 3 & 7)
		Scavenger hunt (groups 2 & 6)
		Geocache (groups 4 & 8)
11:45 – 12:15	Lunch	
12:15 – 1:15	Round 2:	Camera safari (groups 2 & 6)
		Scavenger hunt (groups 3 & 7)
		Nature rubbings (groups 4 & 8)
		Geocache (groups 1 & 5)
1:15 – 2:15	Round 3:	Camera safari (groups 3 & 7)
		Scavenger hunt (groups 4 & 8)
		Nature rubbings (groups 1 & 5)
		Geocache (groups 2 & 6)
2:15 – 2:30	Break and Snack time	
2:30 – 3:30	Round 4:	Camera safari (groups 4 & 8)
		Scavenger hunt (groups 1 & 5)
		Nature rubbings (groups 2 & 6)
		Geocache (groups 3 & 7)
3:30 – 4:00	Closing and Wrap-up	

The City of Los Angeles Department of Recreation and Parks, which oversaw the recruitment of children, estimated 25-35 children would attend the event. The target age range was 10 to 13, with a focus on diverse youth from the San Fernando Valley, Hollywood, Harbor, East Los Angeles and West Los Angeles neighborhoods. The planning group also decided on group sizes of four to five kids, and assigning them to groups based on age. Although the target ages were 10 to 13, many youth brought younger and older siblings with them. Rather than turn any children away, we accepted all ages. Ultimately, 38 young people, ages 6 to 17, participated in the event.

**Methods**

Data were collected through four methods: (1) children’s votes by activity, (2) observer notes by activity, (3) photos from the camera safari, and (4) facilitator feedback.

**Votes by Activity**

Korpela, Kytta and Hartig (2002) tested using scales with images of faces that represented levels of agreement (happy face) and disagreement (sad face) to register the opinions of children from ages 8 to 13. Similarly, we used cards (green, yellow, and red) for the participants to rate each activity. The data collection team had a script card they read to participants asking them to select green to indicate if they liked the activity ("it was cool," "it rocked") and red if they did not ("it was dumb," "it was a waste of time"). Selecting yellow indicated they were undecided ("not sure," "it was alright").

**Observer Notes by Activity**

We also had adults observing each group of children, reporting back what they heard. We assigned observers to particular activities rather than have them trail a group of children all day. This was done so the observers would be experts at a specific activity rather than bond with a particular group of children. During the 9:45 am session we provided training and offered time for questions and answers. We asked observers to restrict their activities to observations (rather than assist the kids with activities, for example) and to look for: interest in the activity (e.g., did the activity hold the children's attention for the entire time?), ease of understanding (e.g., was the activity easy to do?), ease in the outdoors (e.g., were the kids comfortable in the out-of-doors?) and social interactions (e.g., did the children talk about the activity amongst themselves?). We provided notebooks for the observers to take notes and had them debrief with research team members after each round of activity.

**Photos for Camera Safari**

We downloaded every photo taken by the youth during the camera safari. The participants were asked to not take pictures of each other but to take photos of the natural area and items of interest. We categorized each photo into the following groups: vegetation/natural views (e.g., trees, bushes), wildlife (e.g., lizards, birds), human-influenced views (e.g., fences, cars, buildings), and humans (e.g., photos of people, shadows of people). A photo might contain more than one category.

**Facilitator Feedback**

The facilitators were employees of the City of Los Angeles Department of Recreation and Parks. Most were camp counselors from the Boys Camp or the Girls Camp at Griffith Park. The facilitators had previous training for working with kids and had background checks in place. During the 9:45 am session we provided training and offered time for questions and answers. The facilitators were shown each of the four activities and were asked not to express any special interest toward any of the activities. The facilitators worked in groups of two and had the same group of children throughout the day.

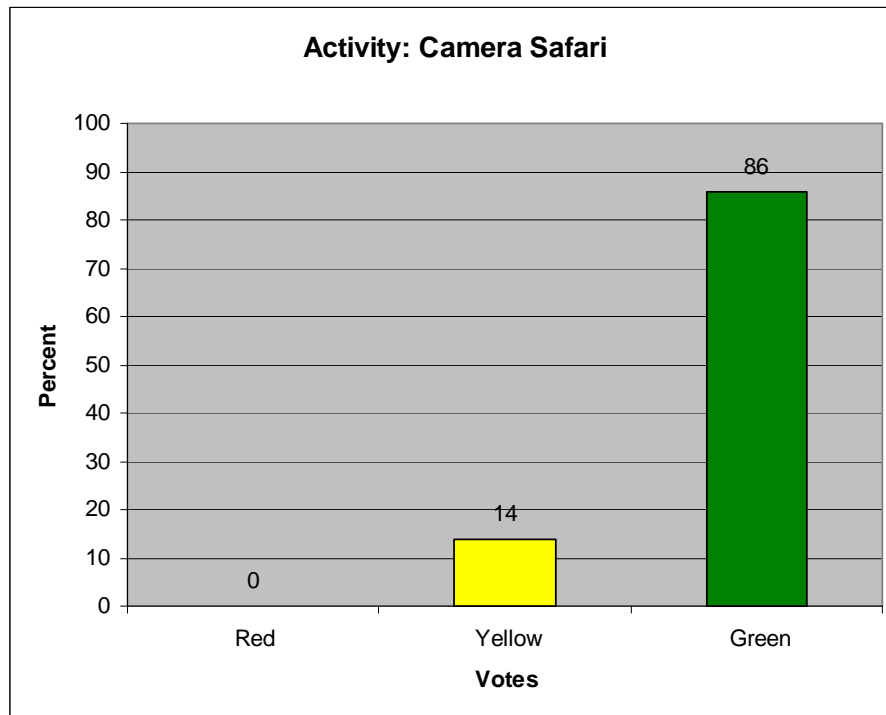
**Results****Camera Safari**



**(1) Votes**

Figure 1 reports votes for the camera safari activity. More than eight in ten of the participants voted "green" for camera safaris. None voted red.

**Figure 1. Voting results for the camera safari activity**

**(2) Observer Notes**

Several observations were made about the children's interest in the camera safari activity. Most noted that the children were interested in the camera safari activity itself (e.g., "Kids very interested.") or noted that the kids' interest was related to seeing animals at Griffith Park. For example, one observed, "they watched hawks in the air currents" while another said that the "kids were fascinated by lizards and were chasing them." Some noted that the participants seemed less interested in the activity "when they were tired."

Regarding the children's ease of understanding the camera safari activity, the observers said the activity was easy to do, noting, for example: "Kids easily operate the camera." "Even when tired there was nothing different about their reaction to technology—still easy to use the camera." "They only needed brief instructions to get it." One observer thought age was a factor: "The older kids seemed more adept with the cameras."

Most comments from observers about ease in the outdoors related to the steep terrain at Griffith Park: "Too steep a hike for younger kids." "They were careful

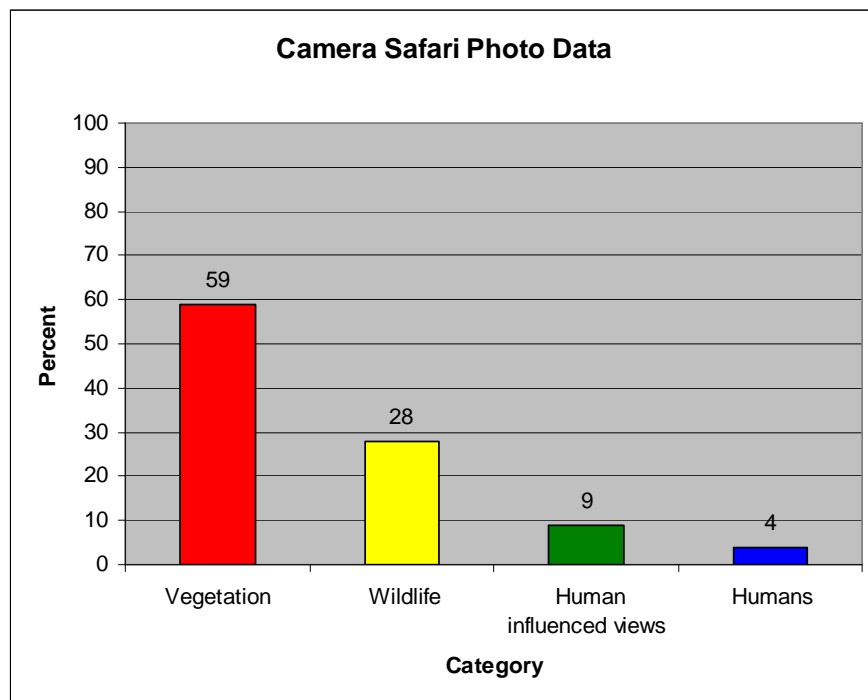
when going up the steep areas of the trail." Other observers thought the participants "seemed to like the views" from the hillsides.

Responses about social interactions that took place during the camera safari activity again noted the terrain: "The kids looked out for one another on steep trail." In addition, some held the perception that age was a factor: "The oldest group went the fastest, farthest and was more social with less nature-oriented discussion." "The older ones seemed to like being with each other."

**(3) Photos**

In all, the young participants took 346 photos during the camera safari activity. The boys took 180 photos (52 percent) and the girls took 166 photos (48 percent). Within the 346 photos were 565 items available for description. In others words, some youth had photos with more than one category of content, such as one with a human and some vegetation. Figure 2 reports findings from the photo evaluations. More than six in ten photos included vegetation. Figure 3 is a photo taken by one of the participants. We categorized this photo as vegetation and human-influenced views.

**Figure 2. Camera safari photo analysis**



**Figure 3. Photo taken by youth participant on a camera safari*****(4) Facilitator Feedback***

Facilitators thought the kids had fun, liked seeing flora and fauna, were interested in taking good pictures, and really enjoyed the camera safari activity. There were few negative comments about the activity. Facilitator responses included those related to the activity itself: "It seemed that the kids were really interested in taking the pictures." "Many [youth] enjoyed the camera activity and for most was the favorite activity." "For one it inspired ambition to be photographer." Other comments were about the youth learning to appreciate nature: "Some kids said it was hard to find 'pretty' things (they didn't see natural beauty)—but after a while, they started seeing how pretty nature is." Another comment related to competition among the youth: "The kids were very interested in cameras, but wanted to have the 'coolest' picture." Additional comments indicated less enthusiasm for nature ("Some kids did not like the bugs.") or issues related to dysfunctional equipment ("A few were disappointed when they had camera problems.").

**Etchings/Rubbings*****(1) Votes***

Figure 4 reports votes for the etchings/rubbings activity. More than six in ten of the children voted "green" for etchings/rubbings. None voted red. Figure 5 shows participants etching along with facilitators and an observer.

Figure 4. Voting results for the etching/rubbing activity

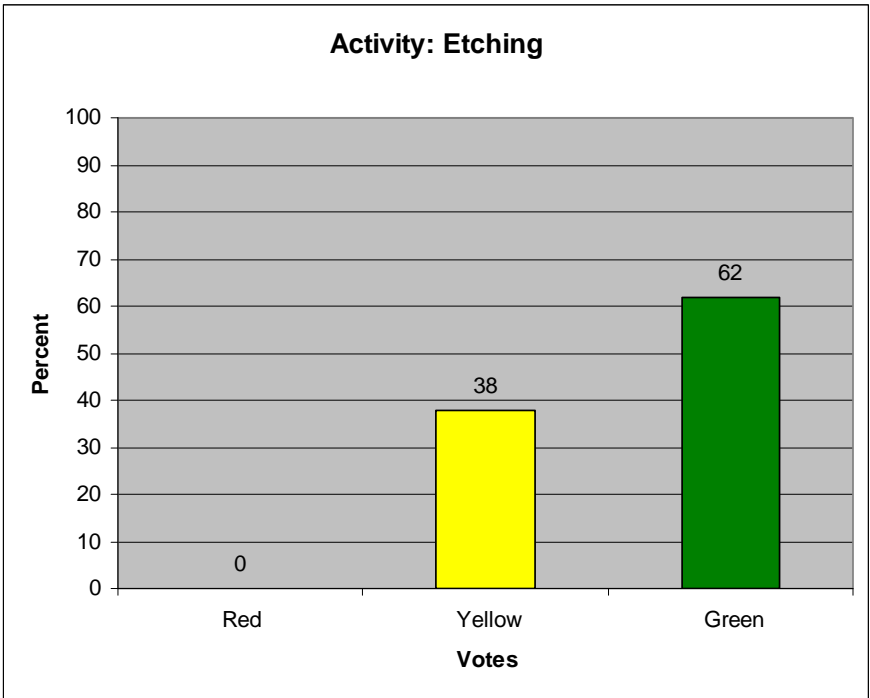


Figure 5. Photo of the etching/rubbings activity



## **(2) Observer Notes**

Observers noted that age was a factor when considering interest in the etching/rubbings activity: "Younger kids seemed more interested." "The last group [older youth] pounded with their fists instead of rubbing—new technique!" "They were reluctant to stop."

Other observations related to interest in the activity itself: "Kids were engaged and went right to work on the activity." "They were engaged for the most part and filled their notebooks with etchings." "One kid said 'Foil is for more than wrapping food—it is for art!'" "They found a feather and asked about it."

Comments from observers on ease of understanding indicated the activity was easy to do: "Seemed to understand." "Tasks were easy to do." Some felt it was in fact "too easy for some kids."

Observer notes on the children's ease in the outdoors related to the youth staying in the proximity of the art center, their repeat visitation to the site, or their desire for more information. For example, one observer noted: "[The kids] stayed in immediate vicinity [of the art center] but all seemed comfortable outdoors." Another reported that "...some [of the youth] had been here before and that may have added to comfort level." Some observers noted the participants' interest in identifying or learning about what they were etching: "One girl identified what she had traced."

Social interactions were thought to increase for this activity, particularly when the children moved to the art center: "Not much interaction between kids when etching but [interaction] increased at art center." "Plenty of interaction between youth, with facilitators, and the art center aide." "The students talked to one another and to the facilitators." "They thanked the art center director and asked to come back tomorrow." Other comments related to gender: "The teen girls talked a lot together, but not about activity." "'It's cool' was said when one girl showed her art to a boy."

## **(3) Facilitator Feedback**

There was some disagreement by facilitators over the etching/rubbings activity. Some facilitators thought the participants, especially the young ones, liked it, but thought the older kids did not. Other facilitators thought the older kids really enjoyed the rubbings on foil but didn't enjoy the etchings part of the activity. Some thought that having an activity at the art center facilitated group interaction/socialization. Some comments included: "Some didn't like etching natural surfaces, but enjoyed foil/stencil rubbing." "Some didn't like the 'getting dirty' part and looking for objects themselves—they wanted to be given materials." "Some felt [they were] too old for the activities." "All the kids loved tracing stencils with foil—many did at least two, some did six." "One said: 'It's like magic.'" "One said: 'This is fun, I like this.'" "[The youth] enjoyed being able to sit and talk, and enjoyed the attention." "Rubbings on foil—the social interaction opened up more." "They liked picking things to trace." "Some were quiet but then really started interacting over the foil rubbings."



## Geocache for Treasure

### (1) Votes

Figure 6 reports votes for the geocaching activity. More than nine in ten of the youth voted "green" for geocaching for treasure. None voted red. Figure 7 shows participants and facilitator locating a cache.

Figure 6. Voting results for the geocaching activity

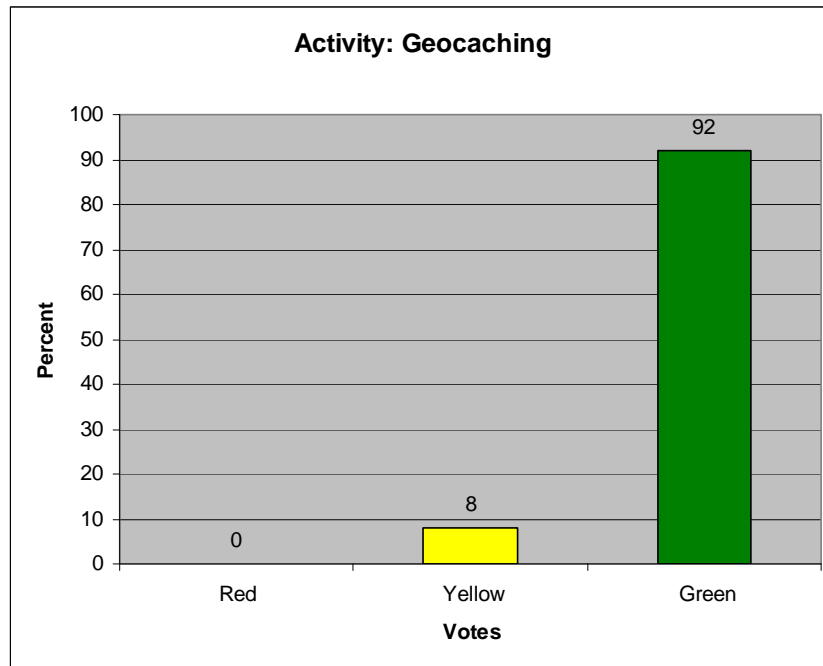


Figure 7. Photo of geocaching activity



**(2) Observer Notes**

Interest in the geocache activity was observed to be due to the fun and excitement related to a treasure hunt, interest in technology, and the desire to keep doing the activity and learning more about it. Some observer notes related to the activity being a treasure hunt: "[There was] excitement due to activity being a treasure hunt." "[The youth] had fun at the cache." "Several kids, with no one prompting, stated geocaching was the 'funnest' one of day." "Excited at the end, finding and signing the logbook—all had to sign the log and did not want to be left out." Other notes related to interest in the technology: "After first finding on first way point their interest and desire picked up with more focus." "Two older kids stated they want a GPS unit." Other observations were that the participants desired to keep doing the activity and wanted to learn more about it: "At the end and after finding the cache—they wanted to do more." "[The youth] wanted to join the sport of geocache." "At the end of the hunt the kids wanted more information on the GPS unit—how to program it and what else to use it for."

Observations about the ease of understanding the geocache activity were related to age and training. Some remarked that the activity was more difficult for the younger children and easier for the older ones: "Younger group needed more basic explanations with repeated frequency." "Younger kids were confused by the instructions." "The older age group already had technology awareness including satellites." Other observations were about the level of training required: "It took a while to understand operations of GPS." "They all needed explanation of how to hold the GPS unit out front and move in one direction until the unit receives a signal from the satellites." "Kids enjoyed the activity but were impatient with all the instruction."

Observer notes about ease in the outdoors can be categorized as general ease or attachment to nature. Some observers said: "Liked being outdoors and seeing things." "They seemed at ease." "They were walking in and being a part of nature." Other comments indicated an attachment to nature during this activity: "Group is focusing on surroundings (rocks, trail, wildlife) so more comprehensive." "They were alert to their surroundings—soaking up all of the outdoors."

Remarks from observers on social interactions varied, with some saying it made the group coalesce and others noting competition. Notes related to coalesced groups included: "Kids engaged each other in problem solving as well as positively engaged adults." "Teaming and interacting with one another." "Problem solving among the entire group enhanced the experience." "They stayed in a tight group." "Group interaction and sharing, however each wanted specific hands-on and their turn." Comments related to competition included: "There was a sense of competition between members, however they worked together." "There was competition to find the cache."

**(3) Facilitator Feedback**

Facilitators thought the kids really enjoyed the geocache activity, liked the GPS unit, and finding the treasures. Some facilitator comments included: "The kids really enjoyed the GPS!!!" "They absolutely loved it!" "I think [the youth] really like

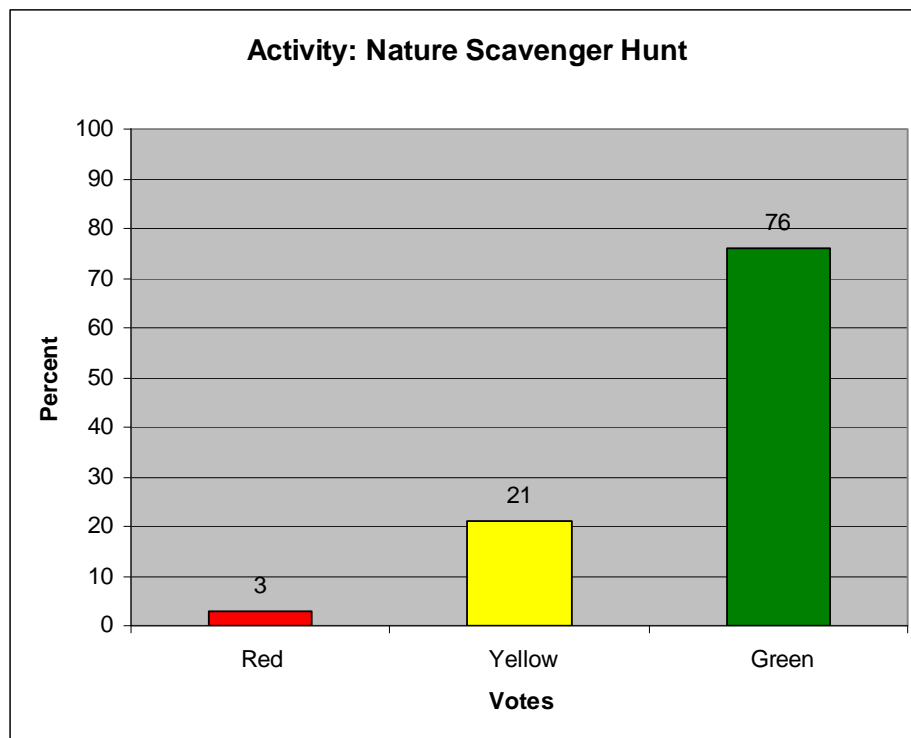
the activities where they learned new things and are able to use the new technologies." "Some [youth] want to buy a GPS." "The technology really made the activity fascinating." "[The youth] liked finding treasures, liked searching for the clues." "The kids would try it on their own if they had access to GPS." Other comments were less positive, however: "Found GPS is not always accurate." "Some didn't like the hiking." "One said 'Where is it? I don't get it.'"

### Nature Scavenger Hunt

#### (1) Votes

Figure 8 reports votes for the nature scavenger hunt activity. More than seven in ten of the children voted "green" for the nature scavenger hunt. One participant voted red. Figure 9 shows participants on the trail looking for items on the scavenger list.

**Figure 8. Voting results for the nature scavenger hunt activity**





**Figure 9. Photo taken during the nature scavenger hunt activity****(2) Observer Notes**

Observations about the interest displayed by the participants for the nature scavenger hunt activity varied. Some thought the children were interested: "The youth really paid lots of attention and focused on their activity." Other comments suggested there was not much interest by some children: "A couple of the kids seemed not too interested in the activity." One observer noted the interest in wildlife: "The youth were most excited about seeing a lizard—boys more than girls." Other observer notes indicated focused attention on the activity: "They were very focused on the task." "Some were taking time to do very detailed drawings in their booklets."

Observers noted the nature scavenger hunt was easily understood, e.g., "It was very easy for the kids to understand the activity and the instructions given to them." Some felt it was too easy: "The activity was too easy, childish to some."

Notes from observers about ease in the outdoors during this activity related to the environment and wildlife: "It was easy for them to adapt to the outdoors." "The kids really liked the garden {site at the top of the trail}." "They liked the environment." "Seeing a lizard was a highlight for one group."

Observers noted that the youth partnered for this activity, which in turn, impacted social interactions: "The children would talk to their partner, but not talk to many others." "The kids were not very talkative with each other." Still, some notes

remarked on group interactions, e.g., "The kids were very sociable—they were talkative and asked questions."

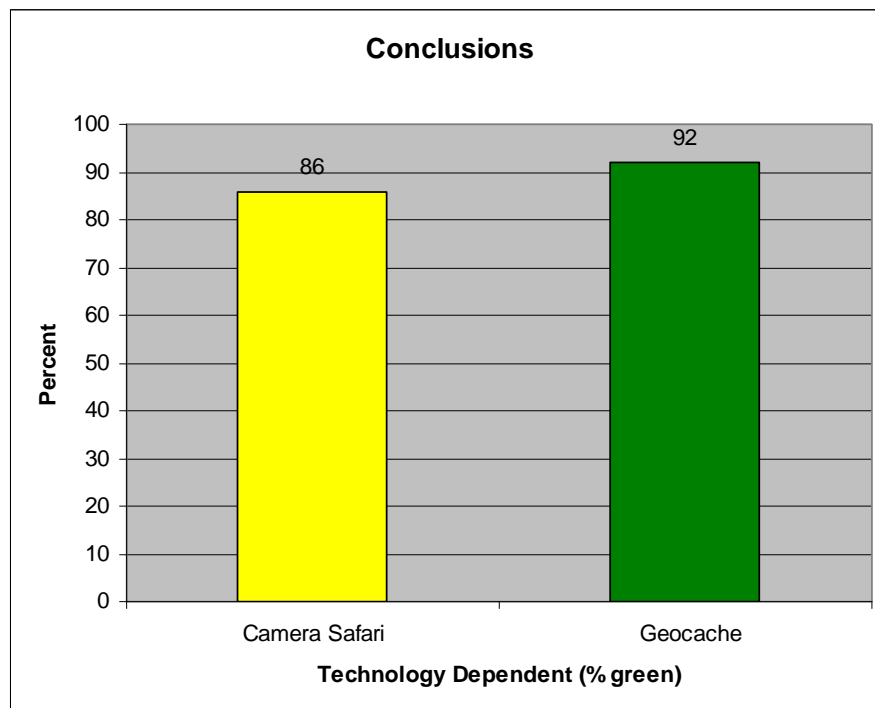
### **(3) Facilitator Feedback**

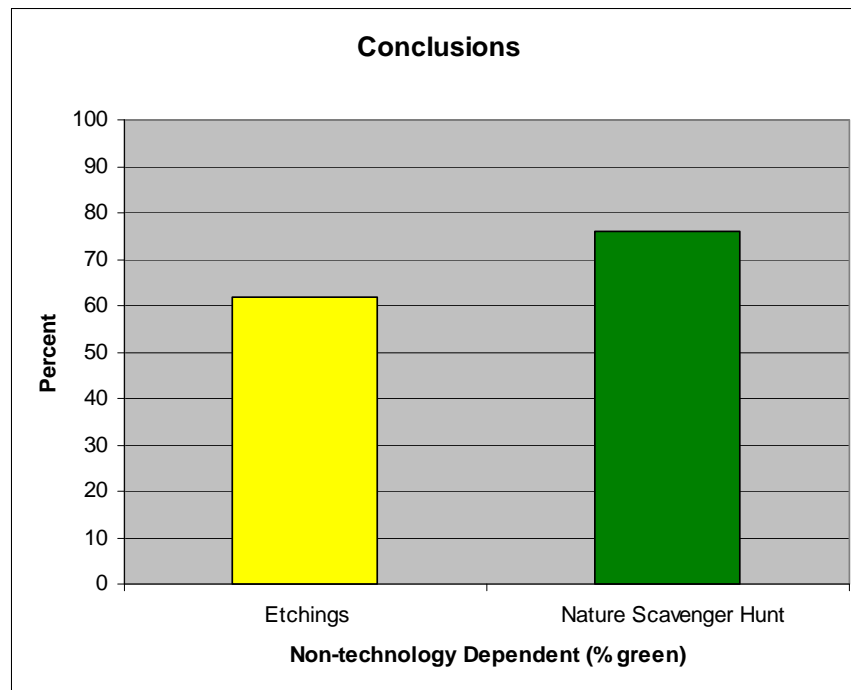
Facilitators thought the kids really enjoyed the nature scavenger hunt activity. Some facilitator comments included: "One kid said, 'I like doing this better than watching television.'" "The kids were pretty enthusiastic about finding the items." "[The youth] enjoyed it, especially the hike and the garden views." "Kids very excited to find things on list." "[The youth were] excited to discover nature." "Young kids liked the scavenger hunt but didn't like having to carry things with them {carried a sketchbook}." "They liked the hiking and exercising but it was too hot."

### **Overall**

Findings were evaluated for differences/similarities between technology-dependent and non-technology-dependent activities (see Figures 10 and 11). Green vote percentages were highest for the technology-dependent activities (geocache- 92 percent; camera safari- 86 percent) as compared to the non-technology-dependent activities (nature scavenger hunt- 76 percent; etchings- 62 percent).

**Figure 10. Comparing the technology-dependent activities**



**Figure 11. Comparing the non-technology-dependent activities**

The observers noted that most participants were interested in the activities, that most activities were easy for the children to do, and that they liked being outdoors. There was some disagreement about the age-appropriateness of the activities. Some observers thought the older kids were more interested in the technology-dependent activities and less interested in the non-technology-dependent activities. Others noted that the older kids enjoyed all of the activities, regardless of dependence on technology. Other remarks that appeared in more than one activity were related to nature (particularly wildlife), the terrain of the facility (steep in some areas), and competition between the youth (although some teamwork was also mentioned).

Many facilitator opinions focused on the positive aspects of the technology-dependent activities. Facilitators thought the kids enjoyed the camera safari, and were interested in taking good pictures. The facilitators also thought the kids really enjoyed the geocache activity, especially the GPS unit, and finding the treasures. However, the geocache activity may have been too complicated for the younger participants.

Facilitator remarks also focused on the positive aspects of the non-technology-dependent activities, though there was some disagreement over the etching/rubbings activity. Some facilitators thought the young children liked it but thought the older kids did not. Other facilitators thought the older kids did enjoy the activity. The facilitators also thought the kids really enjoyed the nature scavenger hunt activity.

## **Conclusions**

A survey of Los Angeles County (southern California) residents found that less than half the respondents had visited a national forest, state park, or open space preserve outside of a city during the height of travel season for even a one-hour excursion (Tierney, Dahl and Chavez 1998). In a study of 50 years of use of various public lands in the U.S., national parks in Japan, and national parks in Spain, Pergrams and Zaradic (2008) reported an ongoing and fundamental shift away from nature-based recreation. Nonetheless, studies have demonstrated that the primary role played by diet and physical activity in emotional and physical well-being is complemented by secondary roles played by connections to nature and social communities (Pretty et al. 2003). These authors suggest that closeness to nature increases sense of well-being, as well as the likelihood of understanding of and caring for nature. They also suggest that disconnections are harmful—both to individuals and to societies. How, then, do we make the reconnections?

The data evaluated here suggest the use of technology to get young people outdoors. However, as these findings are based on an exploratory study of 38 children and youth, the results cannot be generalized beyond those who participated. Much more research needs to be conducted with young people to confirm and refine these results. For example, exact replications of the study conducted (four specific activities) can further test technology- versus non-technology-dependent activities. In addition, follow-up studies might examine if the interest in these activities continues beyond the testing day. Another set of studies might examine age and use of technology in outdoor settings, and specifically whether some activities are better suited to older or younger children. Other studies can test the effectiveness of activities from the list (Table 1) that were not used in the exploratory study. These can be used to determine, for example whether it is technology or environmental education that most attracts youth to outdoor activities. In other words, the methodology is replicable, but the content of what is tested may be changed.

As well, future studies might examine Barnett and Weber's (2008) thesis that benefits accrue to young children from their participation in extracurricular recreational activities, with a particular research focus on natural area activities. Future work might also examine physical activity during outings such as Youth Day, especially for adolescents (Bradley et al. 2000; Caspersen, Pereira and Curran 2000), but also for the influence of technology on engaging or disengaging young people (Allison et al. 2005; Dwyer et al. 2006; Greiser et al. 2006).

Lessons learned from the exploratory study might facilitate further research. Following are things to expect when running a Youth Day, items to consider in planning, and problems that could be avoided.

### **What to Expect**

- The kids will enjoy being outside.
- The staff and everyone will have a great day.
- It will be tiring.
- Kids will tune into natural things (such as hawks and lizards).

### Items to Consider in Planning

- Logistics will be intensive—there were about 30 adults for 38 kids. This suggests the need for two adults for every three kids.
- The theme of taking away something from each activity (like a photo) worked well.
- Having technical facilitators for GPS and geocache is a good idea.
- Each activity needs a specific area for the activity (some different activity groups were led onto the same trail) and instruction needs to be clear about those areas—kids can be exposed to more places if each activity has its own area, and this will also result in decreased confusion about where to go.
- Consider a shorter day, especially for younger children. The teens wanted the day to continue.
- Give upfront instructions to youth to keep cell phones turned off and that no iPods are allowed.
- Provide transportation as necessary.
- Provide snacks and meals.
- Let planning groups do what they do best. For example, the city had access to people who could serve as facilitators while the USFS had people who could best plan the research.

### Problems You Might Avoid

- The hike was too strenuous for some kids, especially the younger ones.
- After the first round we had to change the timing on the camera safari (e.g., restricted prints of photos to one per child) and the etchings/rubbings (we decided to use half the time on one part and half on the other) to stay within time limits.
- The batteries for the cameras were a problem. We needed better quality batteries and recommend changing to fresh batteries between each group.
- Simplify the geocache instructions because kids were not that engaged when listening about satellites, etc. They got engaged when they could hold the GPS units.
- Make lesson plans well in advance of outings (one of the lessons was written on-site right before facilitator training).

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