

January 2014

## An Exploration of How Technology Use Influences Outdoor Recreation Choices

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### Recommended Citation

Gimple, Cassie (2014) "An Exploration of How Technology Use Influences Outdoor Recreation Choices," *Ursidae: The Undergraduate Research Journal at the University of Northern Colorado*: Vol. 3 : No. 3 , Article 3.

Available at: <http://digscholarship.unco.edu/urj/vol3/iss3/3>

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### **Abstract**

The purpose of this research was to determine if there is a need for technology to be accessible to people who visit parks and outdoor recreation sites. An online snowball and hard copy sample of 73 people completed a 29-item questionnaire assessing outdoor activities and the internal and external factors that surround those activities. Visual inspection of the percentage of people involved in each outdoor activity revealed that a majority of the sample population spent their outdoor recreation time hiking, camping and visiting National Parks. A Pearson product-moment correlation revealed that the number of times people participated in these outdoor activities had no correlation to their use of technology. T-test results indicated that how a person feels about their outdoor experience is not affected by whether they use technology. Overall, the study revealed that outdoor recreation choices are not affected by whether a person uses technology.

Keywords: Outdoor Recreation, Technology, National Parks

## An Exploration of How Technology Use Influences Outdoor Recreation Choices

The United States' National Parks have always been places where wilderness triumphs over the inventions of mankind. For many generations the national parks have been enjoyed by visitors who cherish the tranquility of the great outdoors away from technology (Zuckerman, 2013). However, in recent years this idea of getting away from technology while being outdoors is being questioned. The younger generations are so inundated with technology that they are apprehensive about the idea of going to a place where their technology no longer works.

Technology is increasing so much that the estimated number of wireless subscribers in the U.S. grew from 28.1 million in 1995 to 243.4 million by June 2007 (CTIA 2006), and as the use of wireless devices increases, so does the demand for infrastructure to support these services (NPS, 2008). The national parks are now going to test out expanding cell phone and internet service in five to ten units of the National Park System as part of a pilot program to see if visitors want this service. They also want to see if the National Park Service can both cut costs and provide more immediate information to visitors (Rupanshek, 2013). The purpose of this research was to determine if there is a need for technology to be accessible to people who visit parks and other outdoor recreation sites.

### **Technological Infrastructure in National Parks**

The national park service is committed to providing high-quality opportunities for visitors to enjoy the parks and to maintain an atmosphere that is inviting and accessible to everyone, within the boundaries of the national parks' mission statement (NPS, 2008). They believe that these visitors will now include a segment of Americans that will only feel the national parks are inviting and accessible with access to cell service and internet connection. The national park service is concerned that if they do not provide internet and cell phone access, they

will lose the interest and therefore the support of younger generations of visitors (Clement, 2013). The National Park Service has already seen an increase in the average age of national park visitors (The Economist, 2013). The National Park Hospitality Association believes that poor cell phone and internet connection will interfere with the visitor's enjoyable experience (Repanshek, 2013).

The national park service believes that with visitors having access to internet service they could reduce their impact on the environment by reducing waste from paper brochures, maps, and newsletters (Repanshek, 2013). The access to internet and cell phone service would also greatly increase the communication accessibility and reliability for park personnel, scientists, and emergency response personnel (NPS, 2008). With the ability to provide information to the public about operations and happenings within the park quickly through the use of the internet, the national parks will be better equipped to build a partnership with the public (Butowsky, 2010).

### **Support of Updated Technological Infrastructure**

The concessionaires within the national parks across America support the installation of internet services in the park. These concessionaires could profit from offering internet services to park; the concessionaires could also profit from developing apps that the visitors could purchase to enrich their experience within the park (Repanshek, 2013). These apps could include anything from maps of the trail systems to apps that identify the local wildlife. Other support comes from visitors and emergency response personnel that believe increased cell phone reception could save lives when they are in real danger. Increased technology in the parks can also curb the unruliness of visitor behavior, as was the case when park visitors were caught urinating in Old Faithful due to cameras installed nearby (Kaufman, 2010). The incorporation of technological devices, such as GPS units, has improved visitor experience. When a GPS system

that allowed visitors to learn about natural, historical, and cultural aspects as they passed by different areas was studied, it was rated as highly beneficial to visitor experience in the park (Rademaker, 2008). Many supporters of an updated technological infrastructure do not believe technology should be shunned by the national parks, but instead used to help further the enjoyment and appreciation of the park by the visitors (Clements, 2013).

### **Opposition to Updated Technological Infrastructure**

Visitors to national parks that oppose the increased access to internet and cell phone reception state that the national parks should be a respite from the technological chatter that is found at the hubs of society. The solitude provided by parks will quickly disappear and will be replaced by a hub of people using their phones and other devices. Current visitors to the national parks do not believe the solitude from technology is a deterrent to people visiting the parks (Repanshek, 2013). Many national park visitors also state that they do not want the natural beauty of the park to be diminished by unsightly towers for cell phone and internet service (NPS, 2008). Those that oppose increased technology within the parks also believe that it leads to more trouble within the parks. They refer to cases of people calling rescuers due to lack of planning because they were relying on personal locator devices such as SPOT and little else. They state these people could have avoided these situations if they had not been relying on technology and instead did an activity that suited their knowledge and skill level (Kaufman, 2010). Technology tends to give people a false sense of security which leads them to attempt activities outside of their abilities (Zuckerman, 2013).

### **Purpose**

The purpose of this research was to determine if there is a need for technology to be accessible to people who visit parks and outdoor recreation sites. This study may serve as a

reference for the National Park Service when weighing the positive and negative effects of increasing visitor access to internet and cell phone reception. Therefore these four research questions will guide this study.

R1: What outdoor activities do people participate in and do they use technology while recreating outdoors?

R2: If people do use technology while recreating outdoors, how does this affect their experience?

R3: What are the reasons people recreate and how does the use of technology affect these reasons?

R4: What are other factors that affect whether someone uses technology while recreating?

## **Methods**

### **Participants**

An online snowball sample was conducted by creating a link to the survey instrument on kwiksurveys.com. Another sample was conducted through hard copy surveys distributed through Outdoor Pursuits located on the University of Northern Colorado's campus. The study invitation and link to the questions along with the hard copy surveys were available from October 21, 2013 through November 11, 2013. The respondents were encouraged to share the link to the survey with friends and other outdoor enthusiasts once they completed the survey. The survey had 75 respondents. However, two were removed from the analysis for incomplete answers on over half of the questionnaire. The remaining outdoor recreationists (N=73) were analyzed.

Respondents ranged in age from 18 to 53 years. Of the 73 recreationalists surveyed, a majority of the respondents were male. All of the respondents were either currently attending college or had graduated from college with at least a bachelor's degree. The three most common

outdoor activities reported in the sample were hiking, visiting national parks, and camping. The most common form of technology that was reported to be used in the sample was looking up the weather on a cell phone while participating in an outdoor activity. This was closely followed by calling or texting friends and family while recreating outdoors.

## **Measures**

The instrument for this study was a 29-item questionnaire assessing outdoor activities and the internal and external factors that surround those activities. The frequency of specific outdoor activities, use of technology, and external factors of the outdoor activities were measured by continuous six point scales. The emotional feelings that surrounded these outdoor experiences were measured by a series of Likert items on six point scales. Two dichotomous questions were asked about the external factors that people looked for when choosing an outdoor location to recreate. Last, respondents were asked to answer basic demographic information.

## **Procedures**

In order to answer three of the four research questions, four Pearson product-moment correlations were conducted between technology use and another factor to determine potential patterns between each measure. For one of the four research questions, frequencies were run to determine the percentage of the sample population that participated in each of the four outdoor recreation activities. For one of the four research questions, independent-samples t-tests were conducted to assess mean differences between low technology use and high technology use. The factors used during these independent-samples t-test were people's emotional responses to outdoor recreation such as: happiness, satisfaction, relaxation, and being social. Another independent-samples t-test was conducted to assess the mean differences between low elevation gain and high elevation gain for the number of times a person hikes per year.

## Results

The purpose of this research was to determine if there is a need for technology to be accessible to people who visit parks and outdoor recreation sites. For the first research question, respondents were asked how many times they participated in visiting national parks, camping, backpacking, and hiking during the last year. Many people within the sample population went hiking (90.4%), visited a national park (86.3%), went camping (75.3%), and went backpacking (32.9%) at least once during the last year. Of the respondents, a good portion of the sample population reported that they went hiking (30.1%) over thirteen times during the last year. However, many people within the sample population did not go backpacking (67.1%) in the last year. See figure 1 for activities people engage in while recreating outdoors. A Pearson product-moment correlation coefficient was computed to assess the relationship between the number of times a person participated in outdoor activities and their use of technology. There was a correlation between the two variables  $r = .337$ ,  $n = 73$ ,  $p = .004$ . Overall, there was a weak, positive correlation between the number of times a person participated in outdoor recreation and their technology use. Increases in the number of times a person recreates outdoors was not strongly correlated with increases in technology use.

For the second research question, an independent-samples t-test was conducted to compare the emotional response of people who recreate outdoors in low technology use and high technology use conditions. Results indicated that the social aspect of the sample population's emotional responses was significantly higher among high technology use. While the results did show that the happiness aspect of emotional response was higher with technology use it was not found to be significant. It does not appear that technology use effects how happy, relaxed, or

satisfied the sample population was with their outdoor experience. See Table 1 for comparisons of the emotional response between no technology use and high technology use conditions.

For the third research question, an independent-samples t-test was conducted to compare times a person hikes per year in no elevation gain and large elevation gain conditions. There was a significant difference in the scores for no elevation gain ( $M=2.35$ ,  $SD=0.99$ ) and large elevation gain ( $M=4.75$ ,  $SD=1.5$ ) groups;  $t(19) = -3.95$ ,  $p = 0.001$ . These results suggest that the amount of elevation gain during a hike does have an effect on the amount of times a person goes hiking. Specifically, the results suggest that when people gain more elevation while hiking, they are going to hike more often than those that do not gain any elevation during their hiking experiences. A Pearson product-moment correlation coefficient was then computed to assess the relationship between the elevation gain during a hike and the use of technology. There was a correlation between the two variables  $r = 0.248$ ,  $n = 70$ ,  $p = 0.038$ . Overall, there was a weak, positive correlation between the elevation a person gains while hiking and their technology use. Therefore, increases in the elevation a person gains while hiking were not strongly correlated with increases in technology use.

For the fourth research question, a Pearson product-moment correlation coefficient was computed to assess the relationship between age and the use of technology. There was a correlation between the two variables  $r = -0.26$ ,  $n = 73$ ,  $p = 0.026$ . Overall, there was a weak, negative correlation between the age of a person and their technology use. Therefore, an increase in the age of a person was weakly correlated with decreases in technology use. However, this weak correlation was found to be significant. A Pearson product-moment correlation coefficient was then computed to assess the relationship between level of education and the use of technology. There was a correlation between the two variables  $r = -0.123$ ,  $n = 73$ ,  $p = 0.299$ .

Overall, there was a weak, negative correlation between the age of a person and their technology use. Therefore, an increase in the education level of a person was weakly correlated with decreases in technology use. This weak correlation was not found to be significant.

### **Conclusions**

The purpose of this research was to determine if there is a need for technology to be accessible to people who visit parks and outdoor recreational sites. A significantly higher percentage of the sample population hiked, camped, and visited National Parks than the percentage that went backpacking. This is an indication that the sample population tends to take shorter trips and like to stay closer to the amenities that society offers. However, when a Pearson product-moment correlation coefficient was run there was not a strong correlation between the number of times a person recreates outdoors and their use of technology. This would indicate that there are other factors that lead people to recreate outdoors other than having access to technology.

Analysis was then conducted to see what other factors might affect whether or not a person uses technology while recreating outdoors. A Pearson product-moment correlation coefficient was run on both age and technology use and education and technology use. It was discovered that the more education a person has and the older they are, the less likely they are to use technology while recreating outdoors. To determine the relationship between technology use and a person's outdoor experience, analysis was completed on the sample population's emotional response between low and high technology use. The analysis revealed that there is no relationship between technology use and how much a person enjoys their outdoor recreational experience.

A limitation to this study was there could have been a larger sample size if the survey had of been conducted over a longer time period. This may have also led to a larger ratio of males when compared to females in the sample population. Currently, the use of technology in the outdoors is not a widely debated topic. As this issue becomes more widely spread and is affecting more of the policies that are made by the agencies that control public, outdoor spaces, a continuation of this study may become more relevant.

Recommendations, based on the current research, are that agencies interested in providing access to internet and cell phone service. In order to increase visitation, parks should carefully consider whether the benefits outweigh the costs. Based on the current research, the number of times a person recreates outdoors did not increase or decrease based on their use of technology. The research also concluded that people did not have a better emotional response to their outdoor experience by having access to technology. Therefore, there is no indication that people are more likely to visit an area because they have access to technology there. It would be beneficial to the agencies interested in providing internet and cell phone service to conduct more research on how access to technology will effect visitation before implementing these programs. These agencies may also want to research other factors that cause people to recreate more often in a certain location. These factors may have a greater impact on visitation than access to technology.

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My Reviewer Comments:

- 1) I made a minor editing change on page 3 – (Repanshek, 2013).
- 2) I turned on track changes for everything else.
  - This article really only needs minor revisions, and then the article is publishable. Charts of data are good, and sections distinctions are good. DG

Table 1

Comparisons of the emotional response between low technology use and high technology use conditions

Measure	Low Technology Use		High Technology Use		<i>t</i>	<i>df</i>	<i>p-value</i>
	Mean	SD	Mean	SD			
Happy	2.68	0.19	3.05	0.52	-1.00	42	0.32
Relaxed	2.95	0.71	3.07	0.52	-0.291	40	0.773
Satisfied	2.88	0.46	3.04	0.48	-0.57	40	0.58
Social	2.75	0.27	3.26	0.51	-2.18	21	0.04

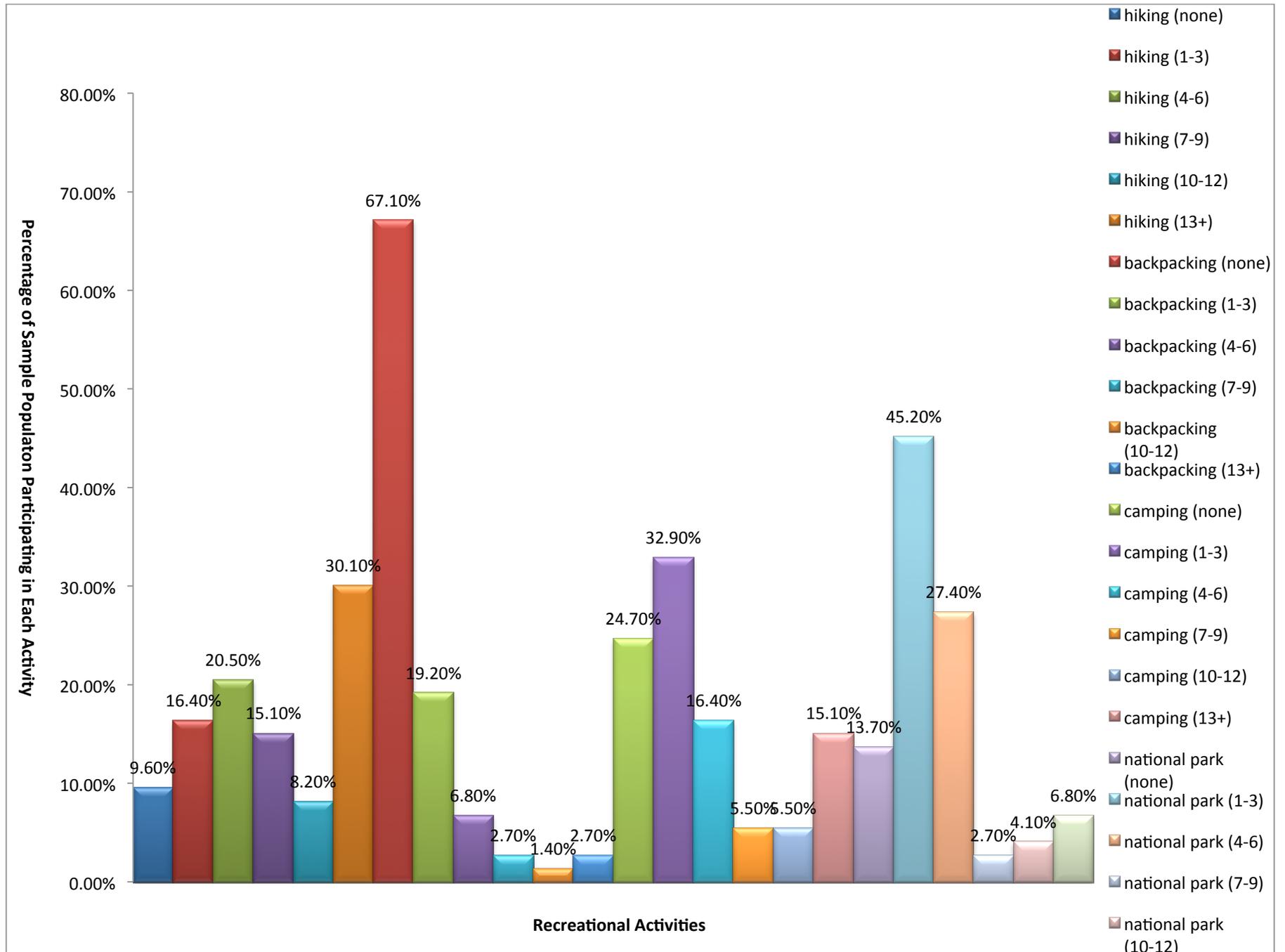


Figure 1. Activities people engage in while recreating outdoors. The higher the percentage, the more people within the sample population participated in the outdoor activity that many times within the last year.