

**The Evaluation of Internet Presence and Social Media Perceptions and Usage by
Visitors to Crater Lake National Park**

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Preface

This document reports on visitor perceptions and usage of online information and social media platforms when preparing for their trip to Crater Lake National Park, with the aim of informing more effective communication and outreach policy for the National Park Service. The document was prepared primarily for the Crater Lake Science and Learning Center and management officials at Crater Lake National Park, and secondarily for other parks and management officials associated with the National Park Service.

This report first discusses the growing relevance of online and social media, and its potential role as a tool for the National Park Service. The purpose and objectives are then be presented, followed by a report on the survey methodology used to collect visitor information. The remainder of the report engages five topical areas: demographics, visitor characteristics (such as group size or length of stay in the park), usage and preferences for social media in relation to the visit to the park, alternative sources of information in relation to the visit to the park, and preferences for potential Wi-Fi access at the park. Included in each of these six topical areas, the questions utilized to solicit information are presented, results are analyzed, and a discussion of how future management decisions can utilize this new information are offered. Areas of potential future research are also presented in the final summary and discussion section.

Acknowledgments:

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Executive Summary

The National Park Service is in need of an effective communication tool to best engage with the various demographic and ethnic visitors that come to the parks each year. Social media platforms such as Facebook and YouTube can provide the National Park Service with an online voice to reach these visitors, and in a very cost-effective and immediate manner. With increasing numbers of the US public active online, it is now more important than ever before to develop a social media strategy that is inviting, relevant and timely.

This research provides an initial insight into the kinds of platforms that park visitors use, why they use them, and how likely they are to be looking for various kinds of park information.

Key findings from this report include:

- Visitors have clear content-platform preferences.
- Visitors would prefer some manner of free Wi-Fi access on site.
- Visitors consider the National Park Service to be the most trustworthy source for trip related information.
- Family members and friends are the second most trusted trip related information source.

Managers would benefit from integrating these findings into a comprehensive social media strategy that visitors can access easily, engages visitors in conversation before and after their trip, and that can adequately address visitors concerns and information needs in a timely and effective manner. Managers should also consider the infrastructure costs associated with providing some form of free Wi-Fi access at the park.

Further research should examine the ways in which family members and friends share information with each other about their trip and how the National Park Service could become involved in those locations, as well as what other kinds of social media platforms do individuals use when planning their trips.

Introduction

New and emerging technologies such as social media and personalized websites hold significant potential for interactions with public audiences. For the National Park Service, and more specifically for Crater Lake National Park, the use of social media by visitors to plan their trip and experience the park warrants further investigation. Numerous research studies have shown that online content is more frequently driving planning decisions, and could even have an impact on how travelers experience their visit. The data collected from visitors to Crater Lake National Park will expand on previous social science work from the National Park Service, as well as contribute meaningful insight into potential and specific outreach strategies for the park. These types of strategies could include further use of social media and the park's web presence to target specific age groups, demographics, and younger visitors who are typically more proficient with newer technology.

The impacts of emerging technology have only been recently studied relative to the fields of tourism and recreation activities, with the earliest studies published in 2007. (Zeng & Gerritsen, 2014). For natural resource management professionals, there is an increasing need to make a park experience a memorable and relevant experience for visitors. With many different demographics and age groups contributing to the annual numbers of visitors per year, it is vital to communicate with these diverse communities in the most effective way possible (Parker, Green, & Johnson, 2014). Research has shown that when individuals are exposed to media that they consider relevant, they are significantly more likely to exhibit greater concern and participate more readily in decision-making processes (Hart, Nisbet & Shanahan, 2011). Additional research into wildlife-dependent recreation has also outlined three key strategies for increased efficacy in attracting and impacting diverse audiences: communication, partnerships, and outreach. Social media has the capability to aid park managers in each of these aspects, and further study could elucidate the most effective methods to use.

The National Parks Second Century Commission has explicitly identified social media and emerging user-generated content technologies as critical new avenues through which the National Park Service can communicate with the public. One of the

key recommendations of the Report called for the National Park Service to “facilitate use of current and leading-edge technologies and media to enhance place-based learning, including social networking” (NCPA, 2009). Studies such as this will ideally aid in the integration of newer technologies into the communication campaigns of the National Park Service.

Purpose

For the Crater Lake Science and Learning Center, social media lends itself well to reaching the Center’s mission of linking scientists, students, and visitors. Studies by Lin, Hong, and Huang (2012) and others have identified that to making science education personally and culturally relevant is a crucial element of a program’s success (Bell, Lewenstein, Shouse, & Feder, 2009). Social media has the ability to create a link between a person’s interests and a connection to the park, by offering options for planning, sharing of experiences with friends and family, and increased memory retention of the visit. (Litvin, Goldsmith, & Pan, 2008; Fotis, Buhalis, and Rossides, 2012; Yoo, Lee, Gretzel, & Fesenmaier, 2009).

Using social media as a flexible platform allows park managers to customize their information to a certain audience or individual in a very cost-effective way, and it has the potential to create online partnerships with community groups to further aid outreach and broaden the impact of the park (Matloka & Buhalis, 2010; Tham, 2013; Ružić & Biloš, 2010). Numerous reports done by the National Park Service have identified a growing visitor desire for technology at the parks, but this has only been studied on a larger national level. Inroads have been made into studying certain platforms with younger children, but those educational platforms might not be seen as relevant for other audiences (Subramaniam, Valdivia, Pellicone, Neigh, & Lowman, 2014; Littlejohn, Le, Russell, Hollenhorst, & Gramann, 2009; Gramann, 2003).

This study provides an exploratory analysis of how National Park visitors might choose their information online, what social media platforms are used most often for information from the National Park Service, and what kinds of information visitors would prefer from those social media platforms. The study also examines which alternative information sources could be used by the National Park Service to more effectively

communicate with visitors, and the existing attitudes and preferences for Wi-Fi access at the park. The study does this by soliciting survey responses concerning basic visitor demographics, visitor characteristics (such as length of stay and group size), social media usage and preferences, alternative sources for trip information, and preferences for Wi-Fi access at Crater Lake National Park.

The report will aid National Park Service management officials to make more informed decisions about what type of online presence and what kinds of online information would be most appropriate for communication to visitors. More broadly, it provides a basic understanding of what kinds of information visitors are looking for when planning their trips.

Objectives

This survey was designed to elicit the following information:

- (1) Demographics of park visitors;
- (2) Visitor characteristics;
- (3) General social media usage trends;
- (4) Social media usage trends specific to Crater Lake National Park;
- (5) Other sources used by visitors for information about Crater Lake National Park;
- (6) Preferences for Wi-Fi availability at Crater Lake National Park.

Methods

Study Population, Sample Selection, and Survey Administration

The study population consisted of visitors to Crater Lake National Park who were at least 15 years old. Surveys were administered outside the main visitor center at the base of the caldera and outside the gift shop at Rim Village. To eliminate the potential sampling error of drawing multiple participants from a single group (e.g. family) of visitors, only one participant per group completed the survey. For a similar reason, only every second visitor (or every third, depending on site traffic) was approached to complete a survey. Visitors from the same group were asked who had had the most recent birthday in order to truly randomize the participant selection. Participants were

offered a chance to win a free iPad by completing the survey and providing their email address. This email address list was maintained separately from the rest of the data and only the randomly drawn iPad winner was contacted after the survey.

Table 1. Survey Response Rate

	Yes	No	Total	% Yes
Visitor Center	273	142	415	65.78%
Gift Shop	307	189	496	61.90%
Total	580	331	911	63.67%

Survey Design

The survey was designed to gather information about visitors to Crater Lake National Park, their general social media usage and preferences, their preferences for trip related information from social media platforms when planning their visit, their preferences for Wi-Fi access at the park, and the alternative information resources they used to plan their trip. Visitors were also asked to indicate how much they trusted those alternative information sources. To obtain this information in a way that could be easily understood by the participants, the survey was segmented into nine distinct sections:

- (1) Social Media Usage;
- (2) Social Media Preferences;
- (3) Social Media Usage in regards to their trip;
- (4) Social Media Preferences in regards to their tip;
- (5) Alternative Sources used to plan their trip to Crater Lake National Park;
- (6) Level of trust in alternative information sources;
- (7) Preferences for Wi-Fi access;
- (8) Visitor Characteristics and Trip Information;
- (9) Basic Demographic Information.

Demographics

The National Park Service has collected information regarding the number of visitors to the parks each year, but in order to have a much richer understanding of how and why visitors choose to engage with the National Park Service online, more detailed demographic information is required. By linking demographics to visitors' Internet preferences, this study can potentially provide important context for park managers looking to target specific audiences. Visitors were asked basic information about themselves, such as their gender, their age, their education levels, ethnicity, and the regions where they lived (in the form of zip code response).

Results

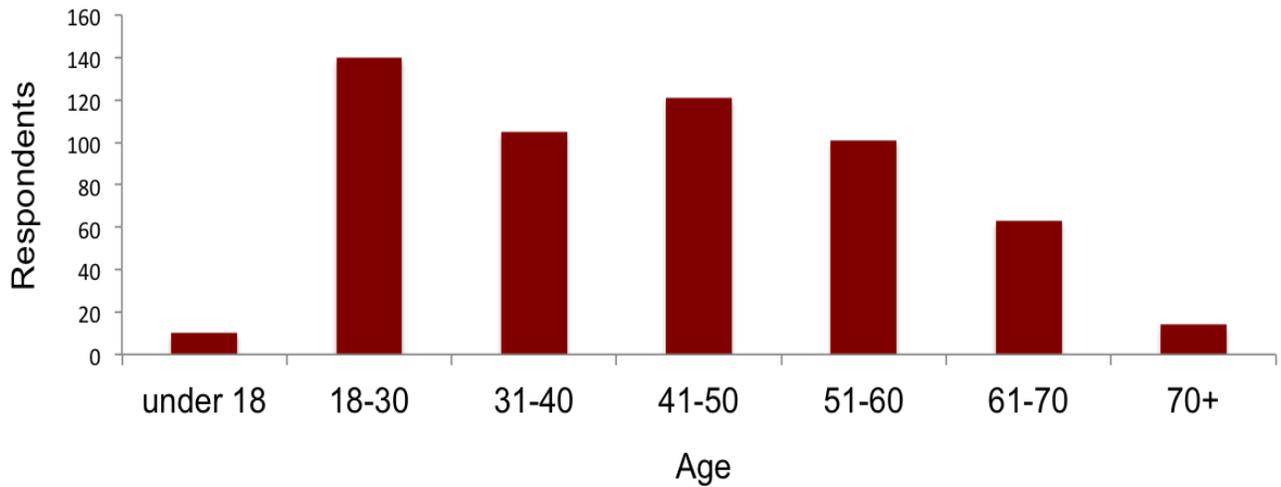
Gender. 563 respondents (97% of visitors surveyed) elected to provide their gender, of which the majority were male (53.64%).

Table 2. Visitor Gender

Male	302	56%
Female	261	46%

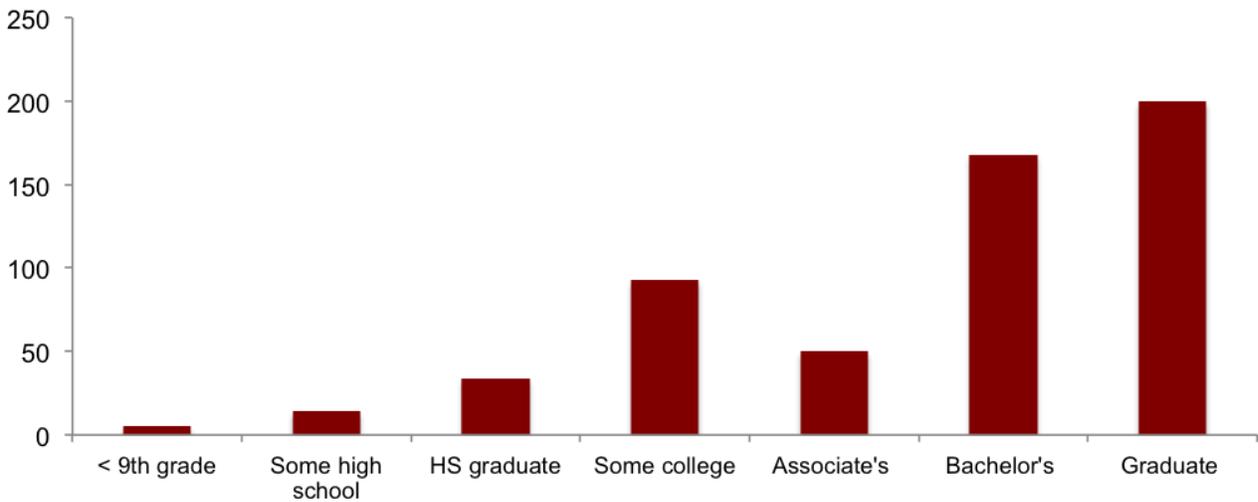
Age. 557 respondents (96% of visitors surveyed) elected to provide their age. The four largest age groups were individuals aged 18-25 (13%), 26-30 (12%), 41-45 (12%), and 31-35 (10%).

Figure 1. Visitor Age



Education. 564 respondents (97% of those surveyed) elected to provide their highest completed education level. Individuals with college degrees represented 74% of park visitors.

Figure 2. Visitors' Highest Completed Education Levels



Race/Ethnicity. 549 respondents (95% of those surveyed) elected to provide their race/ethnicity. The *overwhelming* majority of visitors identified themselves as White/Caucasian.

Table 3. Visitor Race/Ethnicity

White/Caucasian	471	86%
Black/African American	4	1%
Hispanic/Latino	13	2%
Asian	17	3%
American Indian	9	2%
Pacific Islander	1	0%
Some other race/multiracial	9	2%
Other	25	5%

Locale. Respondents. 548 respondents (94% of those surveyed) elected to provide information about where they lived. The majority of the visitors lived in either Oregon or one of the four neighboring states. International visitors comprised 12% of all park visitors.

Figure 3. Visitor Locale: United States

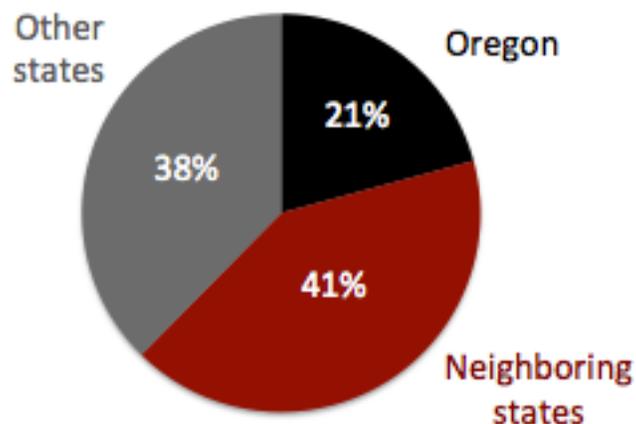
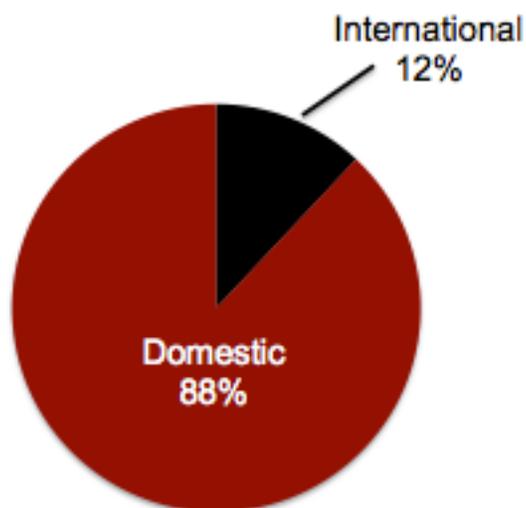


Figure 4. Visitor Locale: Domestic vs. International



Discussion

The demographic information obtained from the survey respondents is consistent with previous visitor studies. It is important to note that many of the park visitors came from regions near Oregon. This could have an impact on the kinds of information that park manager choose to include in their social media strategies. Collaborative relationships with similar parks or agencies in the Pacific Northwest could prove advantageous for Crater Lake National Park, especially when it pertains to raising awareness of the recreation opportunities available in the park.

The high number of younger individuals traveling through the park could be correlated with Crater Lake National Park's location along the Pacific Crest Trail. It is worth considering how this particular audience engages with the park in terms of planning their visit, and the ways in which the park managers could tailor messages to those individuals. Further research would indicate what information or platform preferences different populations have.

Most of the visitors to Crater Lake National Park have had some form of college education, and identify as White/Caucasian. It is important for managers to consider

how this audience might engage with social media, and what implications that could have for information content.

Managers also need to consider how visitors from other countries engage with information about their visit to the United States, and how to develop content that would entice them to the park. There was no significant difference in social media activity between US visitors and international visitors. Efforts to raise awareness about the park, especially targeting those that are from other countries, could be directed at the same social media platforms, but the content and relationships made would be different. Just as natural resource area managers should create social media linkages with similar agencies and parks in the US, so too should those connections be made with international agencies. International visitors might be very familiar with these agencies and having your information mutually shared or distributed would allow park managers to reach an audience they might not have otherwise.

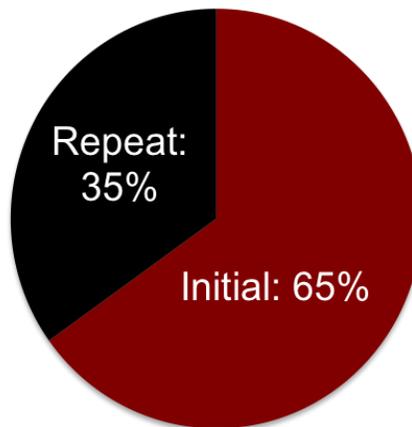
Visitor Characteristics

There is a need to identify what kinds of trips visitors are taking to Crater Lake National Park, including how long they are staying, how many people are in the group, and whether or not visitors have been to Crater Lake before. Understanding how these visitor/trip characteristics overlap with preferred information or preferred information sources would provide park managers with a greater ability to provide targeted information to the visitors that would most likely want it.

Results

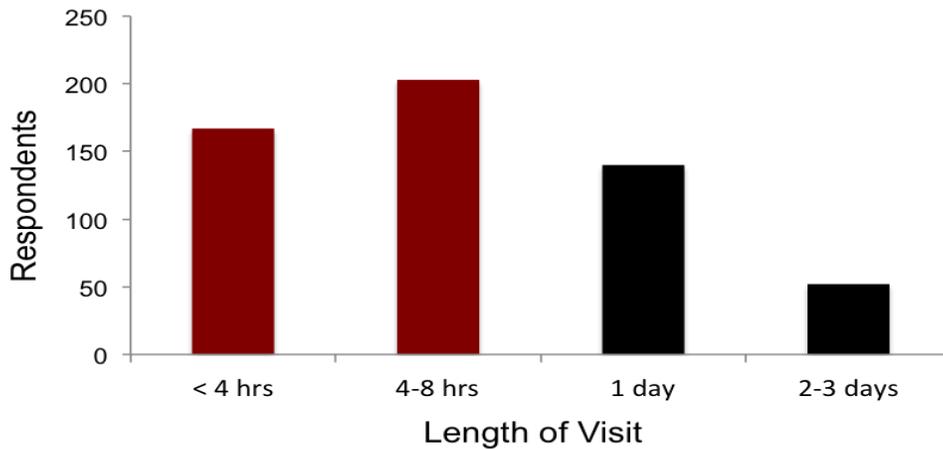
Initial vs. Repeat Visit. 562 of respondents (97% of those surveyed) elected to provide information about whether this was their first trip or a repeat visit to the park. The majority of respondents were visiting Crater Lake National Park for the first time.

Figure 5. Initial or Repeat Visit



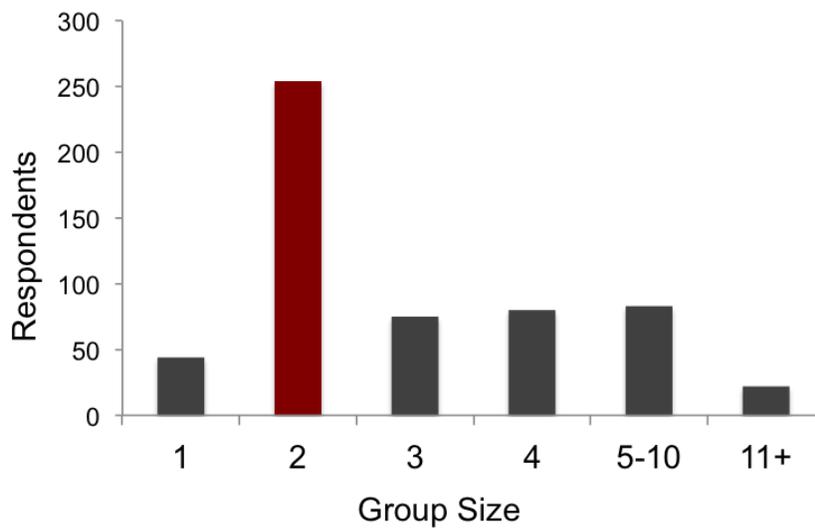
Length of Stay. 562 respondents (97% of those surveyed) elected to provide information about the length of their stay at the park. The majority of visitors were planning on staying in the park for less than one day.

Figure 6. Length of Visit



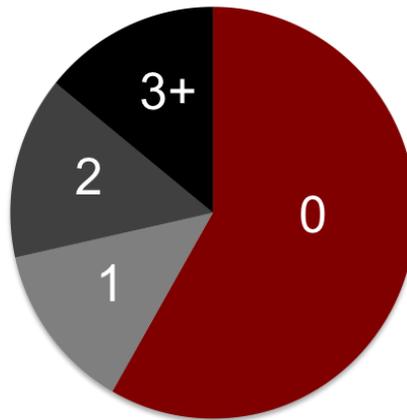
Group Size. 563 respondents (97% of those surveyed) elected to provide information about the size of the group with which they traveled to the park. The majority of the visitors were traveling to the park in groups of two.

Figure 7. Group Size



Group Composition. 558 respondents (96% of those surveyed) elected to provide information regarding the number of adults (18+) in their group. 547 respondents (% of those surveyed) elected to provide information regarding the number of minors in their group (under 18.) The majority of those groups were traveling without minors.

Figure 8. Group Composition: Minors



Discussion

Making an outdoor experience meaningful for first time and short-term visitors is a key concern of many resource managers. For a park visit to be relevant and memorable for those visitors after they depart is just as important as well. Engaging with these visitors through online content to assist in trip planning and memory retention of the trip could create a more last impression than their short time in the park.

Many visitors also indicated that they were traveling without children, in groups of two. These visitors could have a greater level of flexibility than those visitors traveling with children. Developing engaging online content becomes even more important if many of these pairs are short-term visitors. Managers should strive to ensure that their communication strategies include providing these visitors with information about potential opportunities in the park, and create an online environment that encourages the sharing of their trip experience with others.

Returning visitors and more long-term visitors would also benefit from these kinds of conversation-oriented communications. Allowing visitors that have experienced the park to provide their own input would provide potential visitors with genuine testimonies. It would also allow for Crater Lake National Park staff to address grievances publicly, should a visitor have suggestions for improvement.

Social media platforms also provide opportunities for highly tailored content to be displayed for audiences that might not have been aware of the information before. For example, sharing multi-media content about Junior Ranger activities might encourage a family to plan their trip to the park, or updates regarding trail repairs could influence a backpacking group to schedule their trip a bit earlier or a bit later. By providing visitors with the best information possible for whatever activities they prefer, managers can improve a visitor's experience before they even arrive at the park.

General Social Media Usage and Preferences

As previously discussed, using social media to provide visitors with highly tailored content can improve a visitor's experience within the park before they even arrive. Social media platforms are varied and have different media formats. Identifying the best platform for park-related content has as much to do with the visitor and when they arrive as it does with the visitor remembering their trip when they return home.

The following questions were used to identify what kinds of social media visitors are most comfortable with, which ones are used most frequently, and why those platforms are used over others for certain activities. A better understanding of what visitors are doing online will allow managers to better target their intended audiences with the best possible media.

Visitors were asked to identify various social media platforms that they use, as well as the general reasons for using those platforms. The platforms listed included Facebook, Twitter, Instagram, Google+, YouTube, and Flickr. Visitors were also allowed to write in the names of other platforms used. However, none of these supplementary answers provided a compelling argument for the inclusion of other social media platforms.

Visitors were also asked to identify the primary reasons behind their usage of specific platforms, with results relating to topics such as information sharing, entertainment, and keeping in contact with family and friends. This information was asked to not only provide a baseline of visitor activity, but to determine if there were certain online behaviors, preferences, or desired information that natural area managers could benefit from understanding more thoroughly.

Results

Of the 580 individuals surveyed, 100% responded with information regarding whether or not they used social media platforms of some kind in the last month. A number of social media platforms were used more often than others, especially Facebook, YouTube, and Instagram.

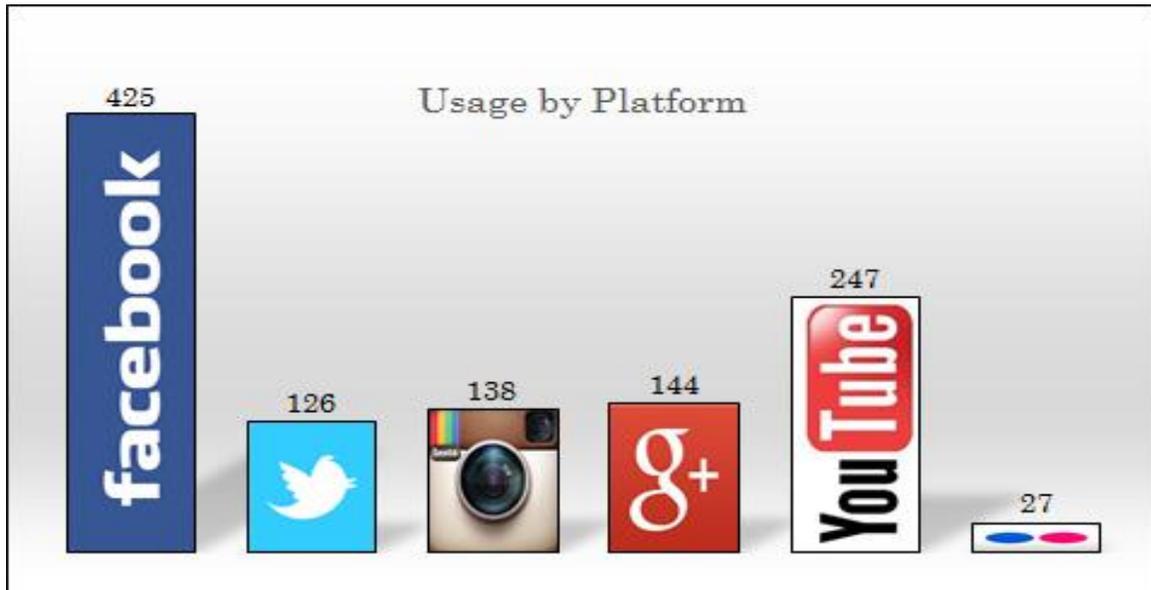
General Usage of Social Media. Over 75% of respondents indicated that they used social media in the last 30 days. This is consistent with earlier social media research findings, with numbers continually increasing.

Table 4. General Usage of Social Media

Yes	441	76%
No	139	24%

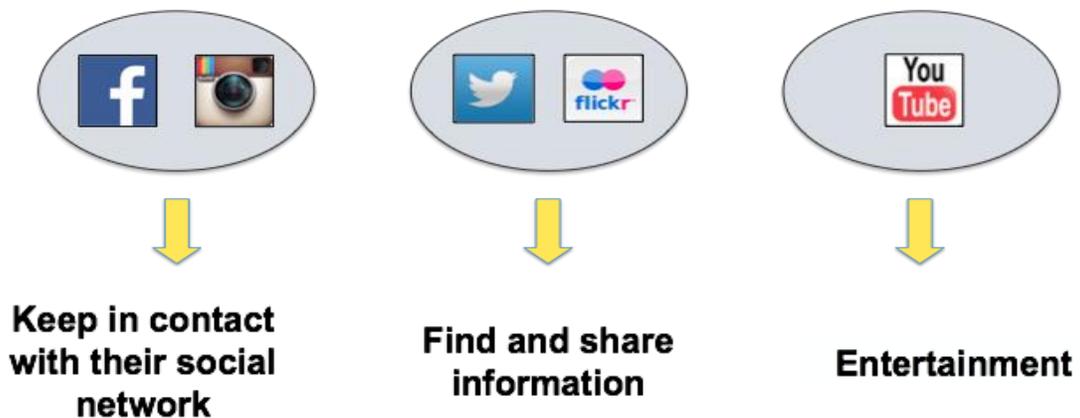
Usage of Social Media Platforms. The majority of visitors use Facebook regularly, followed by YouTube and Instagram. Google+ data is reported here, but is excluded from further analysis. There appeared to be confused as to what Google+ is, with many visitors confusing it with the search engine Google. These findings are consistent with national social media usage estimates.

Figure 9. Usage of Social Media Platforms



Activity-Platform Preferences. Facebook and Instagram were most frequently used to keep in contact with others in one's social network. Twitter and Flickr were used primarily to find and share information, and YouTube was used mostly for entertainment purposes.

Figure 10. Activity- Platform Preferences



Discussion

The number of visitors that reported use of some sort of recent social media use is consistent with current research and survey trends for the U.S. The Pew Research Institute reported that in 2014, 76% of online adults were active on some form of social media site. Facebook was the social media choice used most frequently, with 71% of the online adult population active on the platform (Duggan et al. 2015). This coincides with the results presented in this report.

Visitors have clear activity-platform preferences. Successful outreach strategies to potential and previous visitors should take these into account and post media content to sites where visitors are mostly likely to look for them. Linking content from one social media platform to another should also keep these preferences in mind. Content needs to be entertaining, directed, and brief enough to capture the visitor's attention. Multi-media platforms enable posts to be linked from one platform to the other, and could encourage more website traffic. Several software applications exist for this kind of post management, and communicators would benefit from doing more research into what kinds of post content and timing would have the greatest impact to the broadest audience.

As previously mentioned, the value of interaction with visitors online also lends itself well when tailoring content to certain platforms. As visitors respond to the content that is being posted, managers will gain a better understanding of what visitors might be looking for. Managers also benefit from hearing directly from the public in response to park conditions, resources, or planned activities. The better tailored the content is to the platforms where visitors are most likely to search for it, the more likely visitors are to encounter that content, respond to that content, and potentially share that content with others.

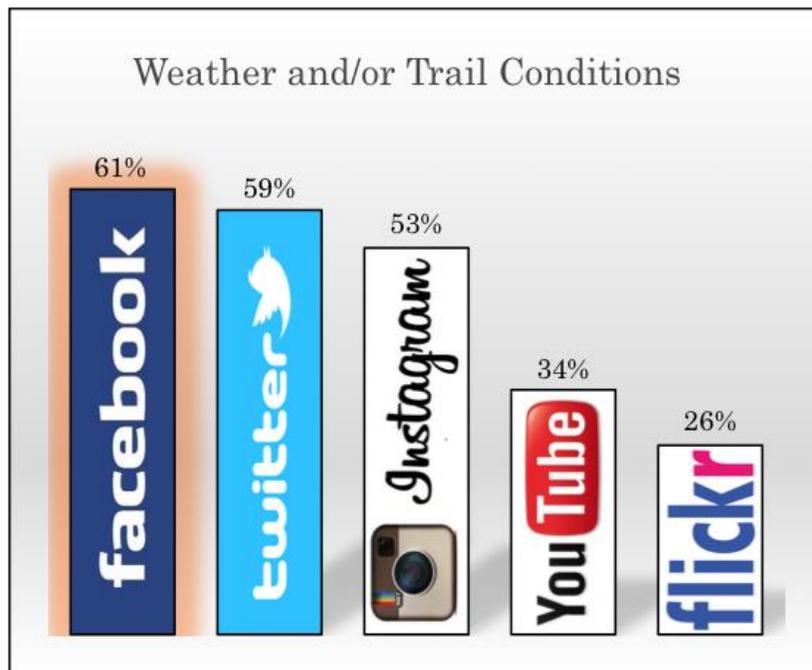
Preferences for Crater Lake Content

In order to customize the online content to the individuals most likely to use those platforms, natural resource and recreation managers need to understand the kinds of information these individuals would look for most. Visitors were asked what kinds of information they would most like to find on each of the six social media platforms. Multiple answers were allowed, and visitors were asked to only respond to the questions that correlated to the platforms they already use. For those without social media, they were asked generally about what kinds of information they would like to find if they were active on social media and if Crater Lake National Park had an account as well.

Results

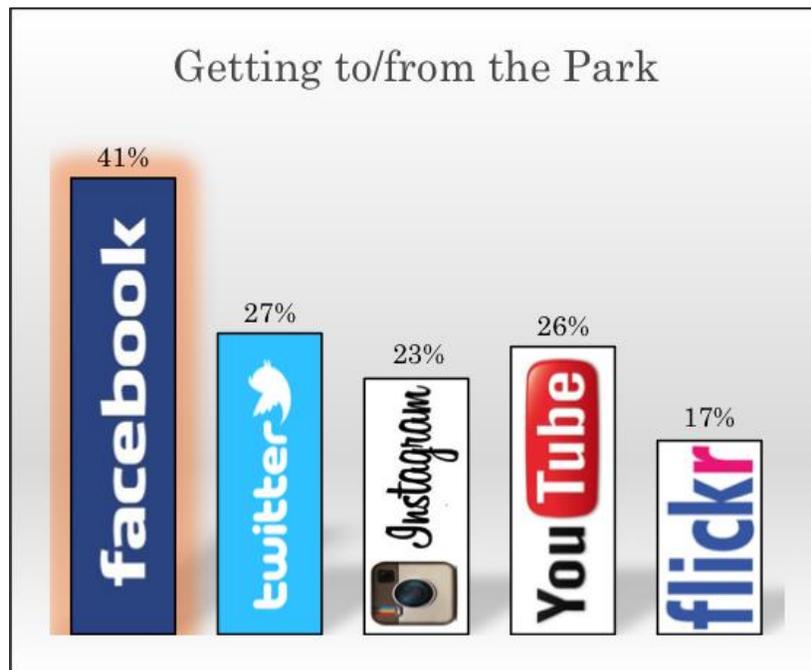
This data indicate that visitors have a clear preference for certain platforms when searching for certain park-related information. Those without social media would prefer to find information about weather and trail conditions through social media (if they were to get an account of some kind). However, these visitors generally selected all of the available answers, so that particular data point might not be indicative of any larger insight. Visitors preferred to use Facebook for information regarding weather and/or trail conditions in the park, directions to the park, recreational activities available in the park, and local amenities and activities that might not necessarily be park related. Visitors preferred to use YouTube for information regarding the natural/cultural history of Crater Lake and wildlife found in the park.

Figure 11. Visitors Prefer Facebook for Weather and Trail Conditions



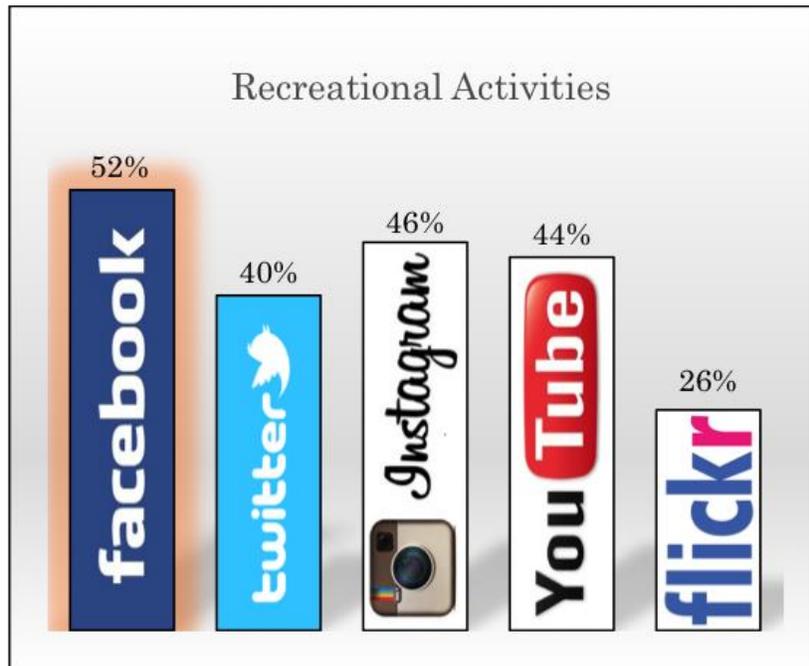
What is especially of note with these particular results is that Twitter is a platform that is also highly preferred. Given the more immediate nature of announcements such as weather and trail conditions, it is important to note that visitors prefer such kinds of information from platforms like Facebook and Twitter, platforms that are generally more utilized for timely announcements.

Figure 12. Visitors Prefer Facebook for Directions



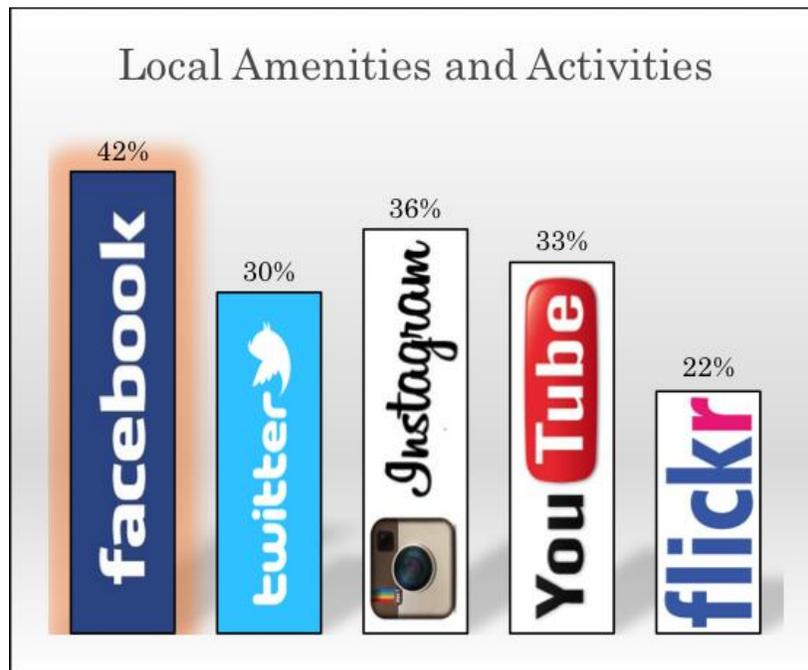
What is especially interesting with these particular results is that Facebook appears to be the platform primarily used, with no clearly selected alternatives. This could be due to the fact that Facebook is a platform with clearly separated pages for maps, photos, and contact information. It is also a platform that is linked with Google Map plug-ins.

Figure 13. Visitors Prefer Facebook for Recreational Activities



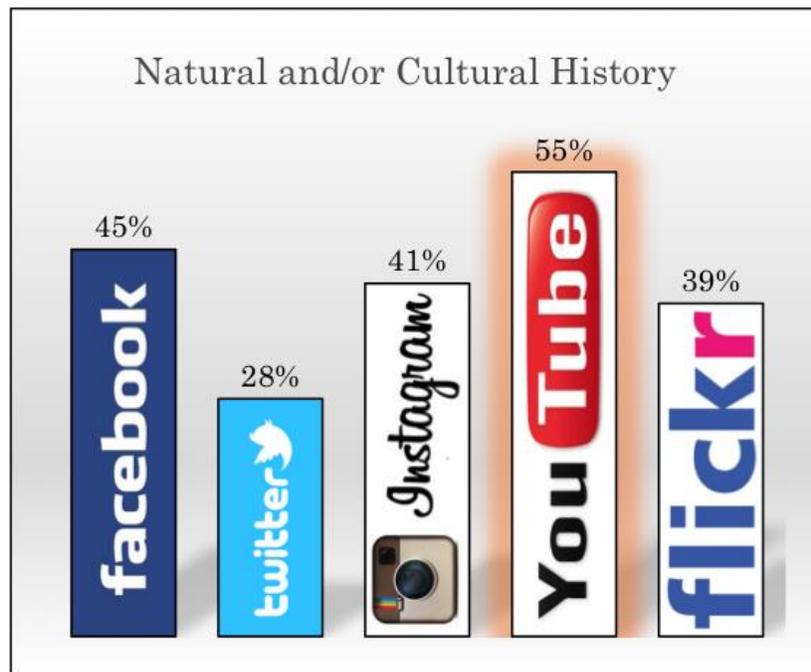
What is especially interesting about this particular set of results is that visitors also preferred Instagram and YouTube for information about recreational activities available in the park. This could potentially be due to visitors looking at photographs and videos of others engaging in recreational activities prior to the trip. Instagram and YouTube are multi-media platforms, more so than Twitter and Flickr, which could make them more suitable choices when formulating trip itineraries.

Figure 14. Visitors Prefer Facebook for Local Amenities and Activities



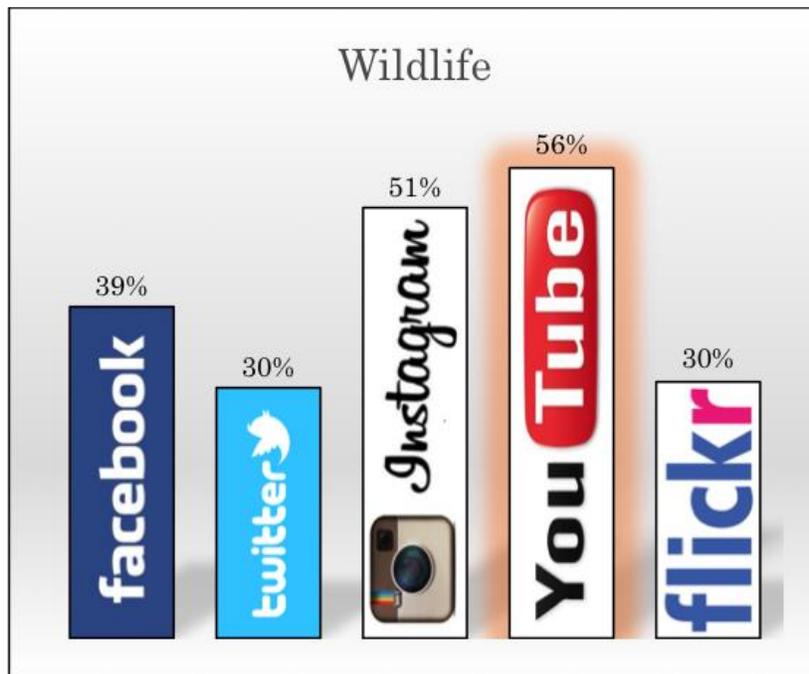
What is especially interesting about this particular set of results is that visitors also preferred Instagram for information about local amenities and activities in the area. Further research could explore the reasons behind this second preference, but as previously mentioned, this could be due to visitors viewing photographs of the amenities and activities offered by the surrounding communities/resorts/campsites. The slightly lower rate of preference for YouTube could also indicate that visitors would prefer to research activity options before the beginning of their trip.

Figure 15. Visitors Prefer YouTube for Natural and/or Cultural History



What is especially interesting about these particular results is that visitors did not prefer Facebook for their information about the history of the park; rather, they preferred YouTube. This could be due to the fact that visitors choose to research the features of the park before they arrive. YouTube could provide visitors with in depth videos created by the park, other visitors, travel agencies, etc., and could offer visitors options for their visit. The preference for video content for natural/cultural history might indicate that visitors want context with that kind of information – context that would be provided through video.

Figure 16. Visitors Prefer YouTube for Wildlife



What is especially interesting about these particular results is that visitors did not prefer Facebook for their information about the wildlife of the park; rather, they preferred YouTube. As in the case of the natural and cultural history of the park, YouTube could provide a platform that allows visitors to explore the wildlife of the park from their home. Visitors also preferred Instagram for information about wildlife more so than for information about the natural and cultural history of the park. This could be due to the fact that visitors might prefer images of the wildlife they might see, as opposed to images of historical/cultural sites.

Discussion

Visitors' trip-related preferences align with their general social media preferences. These results provide a more in depth look at which platforms visitors would most likely visit when searching for information about Crater Lake National Park. Most respondents indicated they use Facebook regularly, which could account for Facebook's prevalence for most park-related information. However, the preference for Instagram and YouTube for non-immediate information suggests that Facebook is actually preferred, even when individuals have multiple platforms at their disposal. Managers need to consider Facebook as a valuable tool in their communication tool kit, and encourage visitors to post content as well.

Platforms with image and video sharing capabilities such as Instagram and YouTube appear to be used most for information about activities and features that visitors might encounter on their trip. Whether this is due to visitors planning their trip or revisiting memories after their trip is unclear. However, this preference is a clear indication of visitors' desire to virtually experience the park in some way. Multi-media content is critical in this regard, as it gives visitors additional context to the events announcements, advertisements, and updates about the park.

Managers need to be aware of these kinds of platforms and the purposes for which they are being used by the public. Content that is shared across multiple platforms should not be delivered using the exact same messaging styles, and it is therefore crucial that managers understand how to send which content to what platform in what kind of tone so as to maximize exposure.

Alternative Information Sources

Visitors plan their trip using multiple trusted information sources. Identifying the sources that individuals use most allows managers to conserve their communication efforts and only target the venues that would maximize their impact on particular audiences. Visitors were asked to select whichever information sources they would use when planning their trip to Crater Lake National Park. Multiple responses were allowed. Visitors were then asked to indicate how much they trusted each source.

Results

Alternative Information Sources. Most respondents report that they would seek out and trust trip-related information provided to them by family members and close friends. The National Park Service was also ranked highly, as well as “online non-news content.” This could be due to the wording of the survey instrument. Individuals were being asked about how they use social media, a form of online non-news content, for information. While this was not the original intention of the question, it is reasonable to believe that visitors were under the impression that the two were equivalent.

Levels of Trust in Alternative Sources. Visitors ranked the National Park Service as the most trusted source of trip related information, followed closely by family and friends. Respondents also indicated online non-news sources as a highly trusted information source, which could be interpreted as social media. This could either be due to the survey bias caused by the completion of the social media sections immediately prior, or visitors could genuinely prefer to receive their information from similar sources.

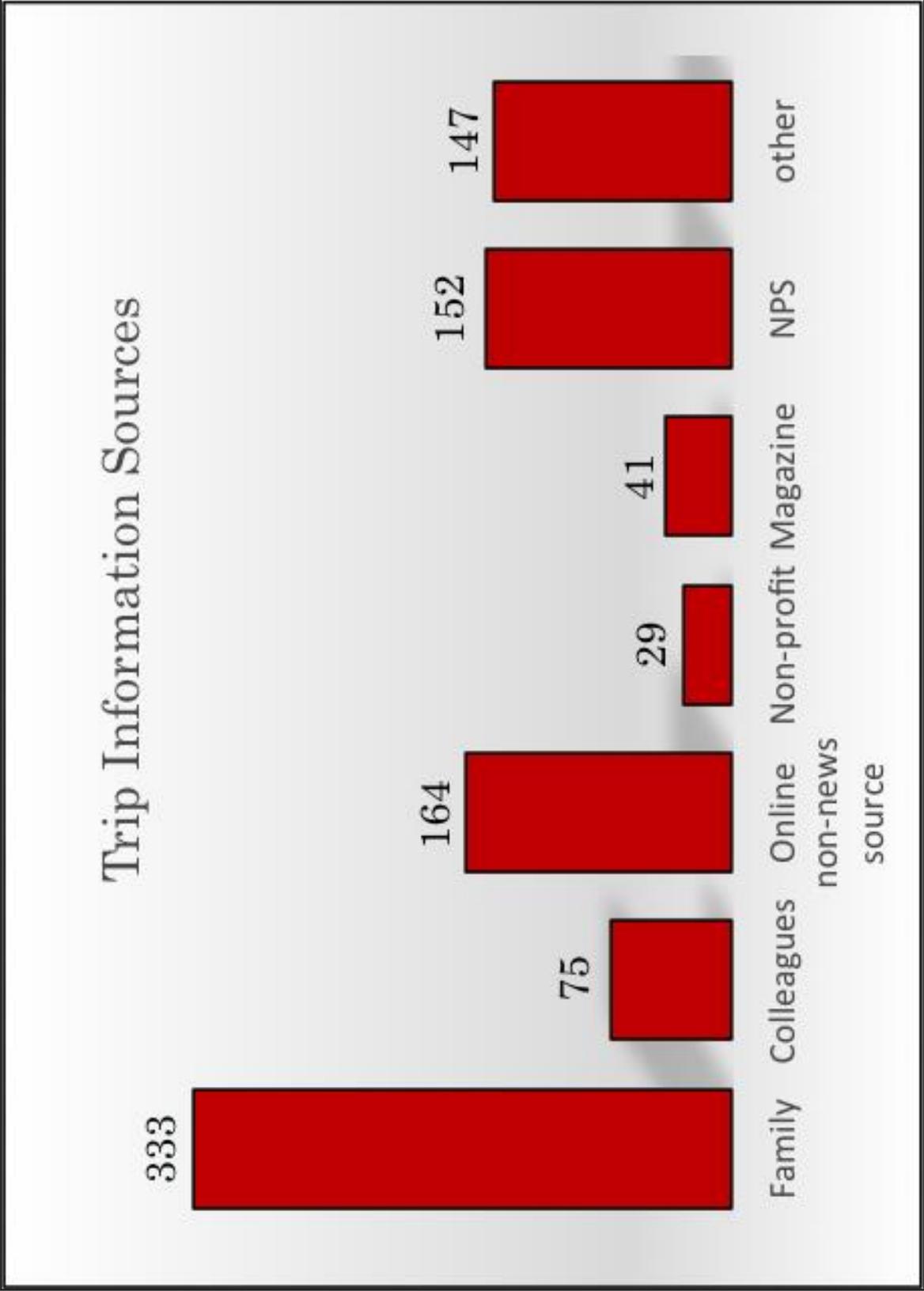


Figure 17. Alternative Information Sources Visitors Prefer for Trip Related Information

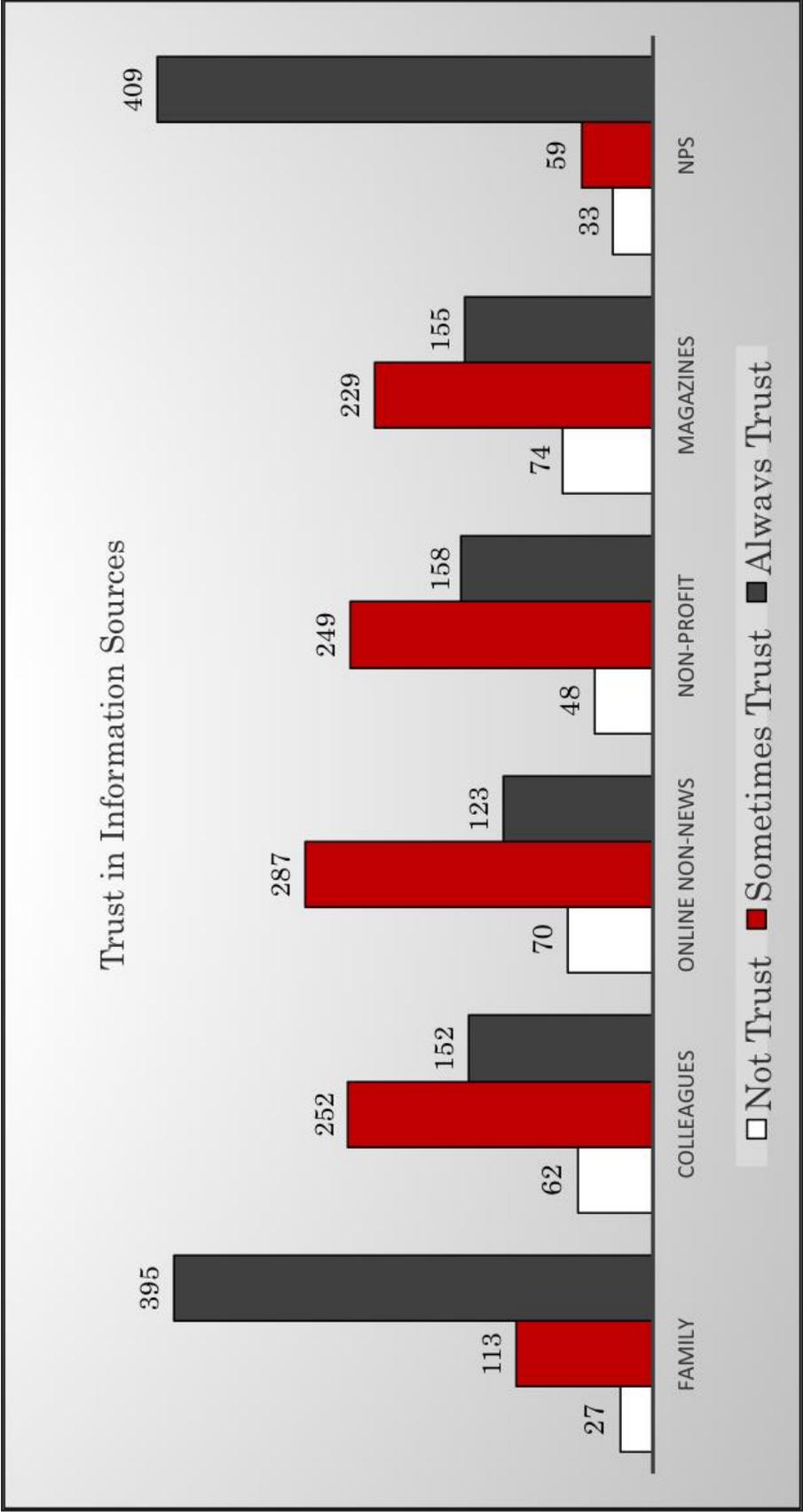


Figure 18. Visitor Trust in Alternative Sources for Trip-Related Information

Discussion

Previous research shows that family and friends are a highly trusted source (Smith et al., 2012), especially in reference to an individual's social-psychological connection with local environments. The results of this study support these findings, and add a better understanding of which sources individuals trust most. The National Park Service needs to capitalize on its position as the most trusted trip-related information source and create opportunities where visitors can interact and ask specific questions. The mutually beneficial relationship opportunities offered by social media would allow visitors to plan their trip specifically to their needs, as well as integrate park staff more into the visitors' thought processes before they arrive in the park. Insights gained from these exchanges could lead to better programs, activities, and resources offered at the park.

This kind of trust relationship can also be used to the National Park Service's advantage for not only information dissemination, but also for conversations with visitors. Potential visitors could read the posts made by previous visitors and ask questions themselves, allowing the National Park Service employees to directly address those questions and interests and to tailor their future posts.

Preferences for Wi-Fi Access

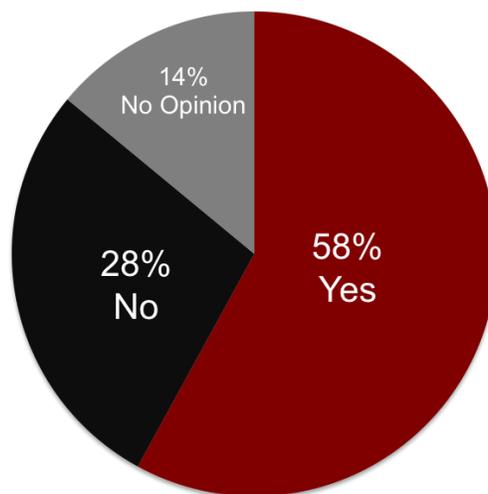
With an increasing number of technology, applications, and communication platforms available online, it is important to understand how visitors would prefer to engage with online content while on site. Ideologically, one can argue that wilderness should not have Internet access provided. Anecdotally, however, many of the visitors surveyed expressed interest in having Wi-Fi access in centralized locations in the park. They indicated that they would especially prefer to have access to bank accounts and travel reservations for later in the trip, and that being asked to pay for Wi-Fi access that was inconsistent did not provide them with those kinds of opportunities.

Visitors were asked if having Wi-Fi access at the park would allow them to have a higher quality recreation experience. They were also asked if they would support or oppose having Wi-Fi access at the park.

Results

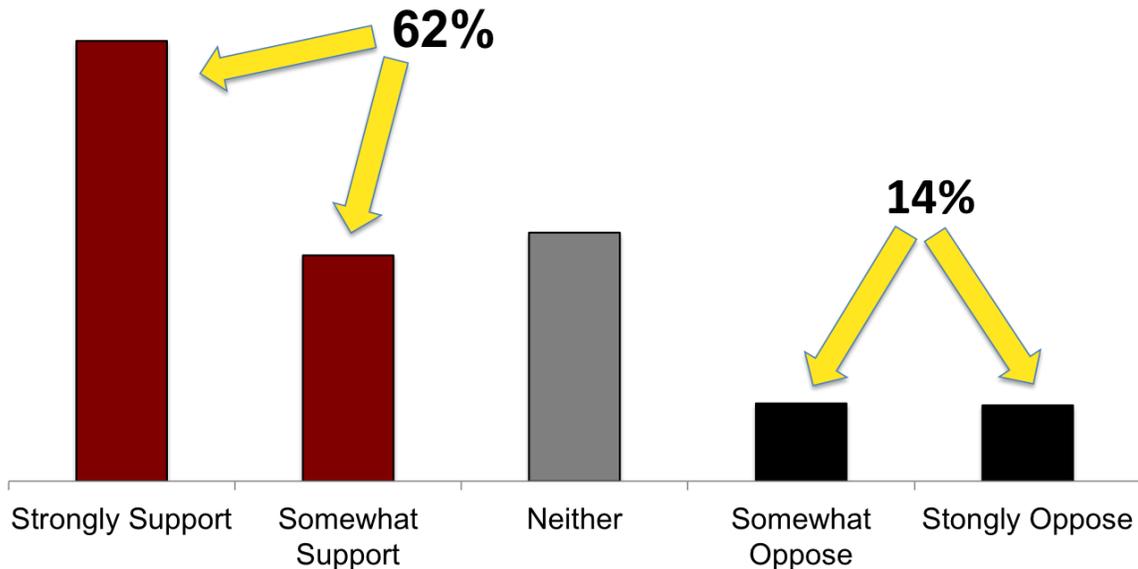
Recreation Experience. 564 respondents (97% of those surveyed) elected to answer whether or not their reaction experience would be improved by Wi-Fi access on site. 58% agreed with the statement, with only 28% disagreeing. 14% of visitors had no opinion.

Figure 19. Visitors who link Wi-Fi access with a higher quality experience



Support/Opposition to Wi-Fi on site. 563 respondents (97% of those surveyed) elected to answer whether or not they supported having Wi-Fi available in the park. 62% indicated that they would support such an addition, with only 14% in opposition. 24% had no opinion.

Figure 20. Visitor support or opposition to Wi-Fi access in the park



Discussion

Wi-Fi infrastructure can be an expensive and complex pursuit, given a park's remote location and other possible resource limitations. These questions were designed to understand whether the majority of visitors would prefer the park provide such services. Further research could examine whether visitors would be willing to pay additional fees for park entrance if Wi-Fi were to be provided, and whether or not visitors would be satisfied with Wi-Fi in limited locations in the park.

Anecdotally, the visitors that were opposed to the addition of Wi-Fi felt that way for ideological reasons. Many expressed that they were coming to the park to "get away from it all," and were notably distressed by the idea of the addition. Again, this supports the idea that visitors might benefit from having Wi-Fi in centralized locations (that they can access easily) so as to manage their finances and other professional or other trip affairs while they are away. Having a small access point should not impact the other visitors' enjoyment of the park.

Future Research and Conclusions

These results may hopefully offer managers with a better understanding of which social media platforms visitors are using, as well as how to better connect park information with visitors' interests. Additionally, they may also offer insight into the numbers of different visitor ages, ethnicities, and backgrounds and how their trips to the park are structured. Moving forward, there are many opportunities for more research that can also help Crater Lake National Park and the broader communities of the National Park Service enhance their communication strategies.

Methodologies such as content analysis of visitor posts could explain how visitors are most impacted by the park, which parts they remember the most, and which parts they felt no affinity towards. This approach would be best suited for one park, but conclusions could potentially be generalized to others.

Larger scale surveys could capture more data from visitors to other parks, but the logistics of getting these kinds of surveys completed would require consideration. The survey in this study was several pages long, and a chance to win an iPad was offered as compensation. A better understanding of how all National Park Service visitors engage with the park through online content could also be conducted through those online platforms, but it would not include the opinions of the non-online visitors.

Results from this study indicate that visitors have clear preferences for certain kinds of information from Crater Lake National Park managers. As social media platforms enjoy increasing popularity, it is important for park managers to continue to evaluate these preferences, and to be flexible to the information needs of their visitors.

The platform content preferences that were expressed by visitors provide managers with an opportunity to specialize the information that they offer to visitors, and as the National Park Service launches the #FindYourPark campaign, further insights can be gained about what information suits what platform best, especially when combined with larger #FYP initiatives.

It is critical that park managers develop some kind of social media strategy, especially in light of the findings regarding trusted information sources. When

individuals clearly give credence to what the National Park Service communicates, it indicates that there is already an audience willing to receive that information. Social media platforms can provide not only a mechanism by which the Park Service can communicate, but also by which family members and friends may communicate to others about their trip.

As the second most trusted information source, family and friends that are active on social media are much more likely to come across park related information and trust it more than they otherwise might. As park managers engage in conversation with visitors through social media, there is a very real chance that others will see those exchanges and trust the associated information.

These benefits are all available through platforms that, at present, are still 100% free. At a time when park budgets face increasing cuts, seasonal resource variability, and bleak climate change projections, it is imperative that park managers use every available communication resource to connect with their visitors. Social media provides this capability, and can be accessed and managed easily, quickly, and used by visitors from a number of different ethnic, socio-economic, and demographic backgrounds.

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Appendices

A. Consent form for Adult Respondents

**North Carolina State University
INFORMED CONSENT FOR YOUR PARTICIPATION IN RESEARCH
WHILE VISITING CRATER LAKE NATIONAL PARK**

Project title: The Evaluation of Internet Presence and Social Media Perceptions and Usage by Visitors to Crater Lake National Park

Lead investigator: Jordan W. Smith, Ph.D.
jwsmit12@ncsu.edu

Websites and social media have tremendous potential to inform and influence our decision, especially when planning trips and sharing trip experiences. By studying how visitors use the Internet and social media to plan park visits, park and natural resource managers can gain a better understanding of how to make these web presences better and more efficient. We would like you to participate in a short study that will allow us to learn how park visitors use the Internet and social media to plan their trip.

Your participation will involve completing a 5-minute questionnaire about your Internet and social media use related to this trip. The questions concern your average Internet use, reasons for using social media, and your preferences regarding Internet availability at the park in the future. Your participation in this study is completely voluntary. You have the right to not participate or stop participating at any time.

Risks and Benefits

Participation in this research involves little, if any, personal risks. All questions are non-sensitive in nature. You are not guaranteed any personal benefits from participation. By providing your email address at the end of the survey, you will be entered to win an iPad.

Confidentiality

The information in the study records will be completely confidential. Data will be stored securely in a password-protected database accessible only to project personnel. No reference will be made in oral or written reports that could link you to your responses or participation in the study. You will NOT be asked to write your name on any study materials to prevent matching your identity to individual responses.

Further Questions

If you have questions at any time about the study or the procedures, you may contact Dr. Jordan W. Smith, at jwsmit12@ncsu.edu, or (919) 515-3437. If you feel you have not been treated according to the descriptions in this form, or that your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, at debra_paxton@ncsu.edu or (919) 515-4514.

Participant's Consent

"Yes, I have read and understand the above information. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled."

Participant's signature _____ **Date** _____

Investigator's signature _____ **Date** _____

B. Consent form for Minor Respondents

**North Carolina State University
INFORMED CONSENT FOR YOUR CHILD TO PARTICIPATE IN RESEARCH
WHILE VISITING CRATER LAKE NATIONAL PARK**

Project title: The Evaluation of Internet Presence and Social Media Perceptions and Usage by Visitors to Crater Lake National Park

Lead investigator: Jordan W. Smith, Ph.D.
jwsmit12@ncsu.edu

Websites and social media have tremendous potential to inform and influence our decision, especially when planning trips and sharing trip experiences. By studying how visitors use the Internet and social media to plan park visits, park and natural resource managers can establish web-based presences that lead to more enjoyable outdoor recreational experiences. We would like you to participate in a short study that will allow us to learn how park visitors use the Internet and social media to plan their trip.

Your child's participation will involve completing a 5-minute questionnaire about his or her Internet and social media use related to this trip. The questions concern his or her average Internet use, reasons for using social media, and his or her preferences regarding Internet availability at the park in the future. Your child's participation in this study is completely voluntary. You have the right not to allow your child to participate.

Risks and Benefits

Participation in this research involves little, if any, personal risks. All questions are non-sensitive in nature. You are not guaranteed any personal benefits from participation. By volunteering your email address at the end of the survey, you will be entered to win an iPad.

Confidentiality

The information in the study records will be completely confidential. Data will be stored securely in a password-protected database accessible only to project personnel. No reference will be made in oral or written reports that could link your child to their responses or participation in the study. Your child will NOT be asked to give his or her name on any study materials to prevent matching his or her identity to responses.

Further Questions

If you have questions at any time about the study or the procedures, you may contact Dr. Jordan W. Smith, at jwsmit12@ncsu.edu, or (919) 515-3437. If you feel you or your child have not been treated according to the descriptions in this form, or that your child's rights as a participant in the research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, at debra_paxton@ncsu.edu or (919) 515-4514.

Parent/Guardian Consent

"Yes, I have read and understand the above information. I agree to let my child participate in this study with the understanding that I may choose not to have them participate or to stop participating at any time without penalty or loss of benefits to which I, or my child, am otherwise entitled."

Parent/Guardian's signature _____ **Date** _____

Child's Assent to Participate

"I have read and understand the above information and agree to participate in this study."

Child's signature _____ **Date** _____

Investigator's signature _____ **Date** _____

C. Survey for Respondents Not Active on Social Media

Thank you for participating in the survey! Before you begin, please make sure you have signed the informed consent form. If you have any questions, feel free to ask the research assistant for clarification.

If Crater Lake National Park were to have social media accounts, what types of information would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions in the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

Did you visit the Crater Lake National Park website prior to this visit?

- Yes
- No

Did you use the Crater Lake National Park website to plan this visit?

- Yes
- No

What other information sources did you use to plan this trip?

- Close friends and/or family
- Coworkers and/or friends you do not consider close
- Online non-news sources (e.g. Wikipedia)
- Material provided by an organization or group (e.g. school, church, non-profit, etc.)
- Magazines
- National Park Service publications
- Other (please specify): _____

How much would you trust the trip-related information you received from that source?

	I would not get my information from this source.	I would seek out information from this source, but would be cautious about trusting it	I would seek out information from this source, and I would always trust it.
Close friends and/or family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coworkers and/or other friends you do not consider close	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online non-news sources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Material provided by an organization or group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National Park Service publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Would having Wi-Fi access at Crater Lake National Park allow you to have higher quality recreation experiences during your visit?

- Yes
- No
- No opinion

How strongly do you either support or oppose having Wi-Fi access at Crater Lake National Park?

- Strongly support
- Somewhat support
- Neither support nor oppose
- Somewhat oppose
- Strongly oppose

Is this your first visit to Crater Lake National Park?

- Yes
- No

How long will you be staying at Crater Lake National Park during this trip?

- less than 4 hours
- 4-8 hours
- Overnight (1-2 days)
- Overnight (3+ days)

How many individuals are with your group?

- Just myself
- 2
- 3-6
- 7-10
- 11+

How many adults are in your group (18+)?

How many individuals under the age of 18 are in your group?

What is your gender?

- Male
- Female

What is your age? _____

What is the highest level of education that you have completed?

- Less than 9th grade
- 9th-12th grade, no diploma
- High school graduate
- Some college, no degree
- Associate's degree
- Bachelor's degree
- Graduate or professional degree

What is your race/ethnicity?

- White/Caucasian
- Black or African American
- Hispanic or Latino
- Asian
- American Indian
- Pacific Islander
- Some other race/multiracial
- Other (please specify): _____

What is your home zip code? _____

Thank you for your participation! If you would like to be included in a drawing to win an iPad, please provide your email address to the research assistant. Your email address will not be linked to your survey answers, and will only be used in the drawing.

Enjoy your trip to Crater Lake National Park!

D. Survey for Respondents Active on Social Media

Thank you for participating in the survey! Before you begin, please make sure you have signed the informed consent form. If you have any questions, feel free to ask the research assistant for clarification.

Which of the following social media sites have you used in the past month?

- Facebook
- Twitter
- Instagram
- Google+
- YouTube
- Flickr
- If another social media site, please specify: _____

Please only answer the following sections for the social media accounts that you have indicated above.

Facebook

How often do you use Facebook?

- Several times a day
- Once or twice daily
- Several times a week
- Once or twice weekly
- Once or twice monthly

What are your main reasons for using Facebook?

- To keep in contact with friends and family
- To stay informed of others in your extended social network
- Entertainment purposes (e.g. games, video, etc.)
- To express your opinions
- To find and share information

Have you visited the Crater Lake National Park Facebook page?

- Yes
- No

What types of information specifically from the Crater Lake National Park Facebook page would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions at the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

Twitter

How often do you use Twitter?

- Several times a day
- Once or twice daily
- Several times a week
- Once or twice weekly
- Once or twice monthly

What are your main reasons for using Twitter?

- To keep in contact with family and friends
- To stay informed of others in your extended social network
- Entertainment purposes (e.g. games, videos, etc.)
- To express your opinions
- To find and share information

Have you visited the Crater Lake National Park Twitter page?

- Yes
- No

What types of information specifically from the Crater Lake National Park Twitter page would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions in the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

Instagram

How often do you use Instagram?

- Several times a day
- Once or twice daily
- Several times a week
- Once or twice weekly
- Once or twice monthly

What are your main reasons for using Instagram?

- To keep in contact with family and friends
- To stay informed of others in your extended social network
- Entertainment purposes (e.g. games, video, etc.)
- To express your opinions
- To find and share information

If Crater Lake National Park were to have an Instagram account, what types of information would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions in the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

Google+

How often do you use Google+?

- Several times a day
- Once or twice daily
- Several times a week
- Once or twice weekly
- Once or twice monthly

What are your main reasons for using Google+?

- To keep in contact with family and friends
- To stay informed of others in your extended social network
- Entertainment purposes (e.g. games, videos, etc.)
- To express your opinions
- To find and share information

If Crater Lake National Park were to have a Google+ account, what types of information would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions in the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

YouTube

How often do you use YouTube?

- Several times a day
- Once or twice daily
- Several times a week
- Once or twice weekly
- Once or twice monthly

What are your main reasons for using YouTube?

- To keep in contact with family and friends
- To stay informed of others in your extended social network
- Entertainment (e.g. games, videos, etc.)
- To express your opinions
- To find and share information

If Crater Lake National Park were to have a YouTube account, what types of information would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions in the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

Flickr

How often do you use Flickr?

- Several times a day
- Once or twice daily
- Several times a week
- Once or twice weekly
- Once or twice monthly

What are your main reasons for using Flickr?

- To keep in contact with family and friends
- To stay informed of others in your extended social network
- Entertainment (e.g. games, videos, etc.)
- To express your opinions
- To find and share information

Have you visited the Crater Lake National Park Flickr page?

- Yes
- No

What types of information from the Crater Lake National Park Flickr page would allow you to have more enjoyable recreation experiences?

- Information about current weather/trail conditions in the Park
- Information about the Park's natural and cultural history
- Information about available recreational activities in the Park
- Information about wildlife that can be seen within the Park
- Information about getting to/from the Park
- Information about local amenities and activities around the Park
- Other (please specify): _____
- None of the above

(The section on specific social media sites is finished. Please answer all the remaining questions.)

Did you use any of your social media accounts to plan this trip? If so, which ones?

- Facebook
- Twitter
- Instagram
- Google+
- YouTube
- Flickr
- If some other social media site, please specify: _____
- I did not use any of my social media accounts to plan this visit.

Did you visit the Crater Lake National Park website prior to this visit?

- Yes
- No

Did you use the Crater Lake National Park website to plan this visit?

- Yes
- No

What other information sources did you use to plan this trip?

- Close friends and/or family
- Coworkers and/or friends you do not consider close
- Online non-news sources (e.g. Wikipedia)
- Material provided by an organization or group (e.g. school, church, non-profit, etc.)
- Magazines
- National Park Service publications
- Other (please specify): _____

How much would you trust the trip-related information you received from that source?

	I would not get my information from this source.	I would seek out information from this source, but would be cautious about trusting it	I would seek out information from this source, and I would always trust it.
Close friends and/or family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coworkers and/or other friends you do not consider close	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online non-news sources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Material provided by an organization or group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
National Park Service publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Would having Wi-Fi access at Crater Lake National Park allow you to have higher quality recreation experiences during your visit?

- Yes
- No
- No opinion

How strongly do you either support or oppose having Wi-Fi access at Crater Lake National Park?

- Strongly support
- Somewhat support
- Neither support nor oppose
- Somewhat oppose
- Strongly oppose

Is this your first visit to Crater Lake National Park?

- Yes
- No

How long will you be staying at Crater Lake National Park during this trip?

- less than 4 hours
- 4-8 hours
- Overnight (1-2 days)
- Overnight (3+ days)

How many individuals are with your group?

- Just myself
- 2
- 3-6
- 7-10
- 11+

How many adults are in your group (18+)? _____

How many individuals under the age of 18 are in your group? _____

What is your gender?

- Male
- Female

What is your age? _____

What is the highest level of education that you have completed?

- Less than 9th grade
- 9th-12th grade, no diploma
- High school graduate
- Some college, no degree
- Associate's degree
- Bachelor's degree
- Graduate or professional degree

What is your race/ethnicity?

- White/Caucasian
- Black or African American
- Hispanic or Latino
- Asian
- American Indian
- Pacific Islander
- Some other race/multiracial
- Other (please specify): _____

What is your home zip code? _____

Thank you for your participation! If you would like to be included in a drawing to win an iPad, please provide your email address to the research assistant. Your email address will not be linked to your survey answers, and will only be used in the drawing.

Enjoy your trip to Crater Lake National Park!