

# Technology on the Trail: Using Cultural Probes to Understand Hikers

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## ABSTRACT

The definition of technology may have changed quite a bit over the years, but people have been bringing technology to remote, natural locations since long before concepts like recreational hiking or national parks existed. Nowadays, “digital” is usually implied before the word technology, and discussion of technology and trails often revolves around smartphones and GPS systems. However, a wide variety of hiking gear has benefited from precise engineering and product design.

Even with more digital products hitting the shelves, many hikers go out on the trail to get away from or limit their use of technology, however they may define that word. Before any technology for the trail can be designed, the diverse perspectives of hikers must be explored rather than taking them for granted. Polling hikers through digital means or even delivering prototypes for research through design seems disingenuous when part of the target audience has negative attitudes towards technology. For this reason, cultural probes stood out as a useful method for understanding hikers and inspiring future directions for Technology on the Trail. The heart of the matter is indeed a question of culture, so probes are a logical choice for teasing out a variety of viewpoints.

The goal of this study is not to design new technology. Rather, the goal is to find a way to make technology and nature more harmonious in the context of hiking. This could end up requiring new designs, but it could also be a matter of shifting perspective instead. No device or gear will ever be for everyone, and that’s natural. Technology on the Trail can still seek to support both users of technology and the bystanders who are affected by the technology use of others.

# Technology on the Trail: Using Cultural Probes to Understand Hikers

Sarah Grace Fields

## GENERAL AUDIENCE ABSTRACT

Technology is nothing new on the trail. People have been bringing various “technologies” to remote, natural locations long before recreational hiking or national parks existed. The definition of technology, however, has changed quite a bit over the years. Long ago, the stars were an important aspect of wayfinding, and devices to track star positions were innovative. Nowadays, people tend to see smartphones and GPS systems as technology. Hiking technology has been growing more advanced in recent years, including many digital technologies.

However, many hikers go out on the trail to get away from or limit their use of technology. Hikers have a diverse range of perspectives on how technology should and shouldn't fit into outdoor settings, and designers should listen to these perspectives before creating new technologies. This study aims to create a dialogue with hikers that explores their usage of and opinions on technology for hiking. Several activities were created that would allow participants to creatively engage with us researchers, such as a scrapbook activity and a scavenger hunt. These methods follow a style of research called “cultural probes” in which researchers use creative prompts and activities to explore the culture of a target audience.

By listening to the diverse perspectives of hikers, this study hopes to find a way to make technology and nature more harmonious. No device or gear will ever be for everyone, and that's natural. Technology on the Trail can still seek to support the people who do want to use technology, and it can seek to make those technologies minimally invasive for people who don't.

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# Chapter 1: Introduction

For the first few decades of its lifespan, digital computing technology was tethered by cords and rooted somewhere inside. Even when laptops first appeared, they were heavy and unwieldy. With the relatively recent arrival of smartphones, tablet computers, and a host of other digital gadgets, computing has mobilized. However, these mobile technologies are rarely designed for environments truly different from indoor settings. Outside, smartphones must function through rain and snow, and on “the trail,” they must endure lack of connectivity and an ever dwindling power source.

“Technology on the Trail” is a research initiative at Virginia Tech that seeks to explore how technology does (and doesn’t) work in trail-like environments, especially in the context of hiking.

## Technology

Technology is nothing new on the trail. People have been bringing various “technologies” to remote, natural locations long before concepts like recreational hiking or national parks existed. The definition of technology, however, has changed quite a bit over the years. Long ago, the stars were an important aspect of wayfinding, and devices to track star positions were innovative.

Nowadays, people tend to see smartphones and GPS systems as technology. “Digital” is usually implied before the word technology. However, a wide variety of hiking gear has benefited from precise engineering and product design. Entire books exist specifically to catalog and detail the top tier hiking gear for various hiking scenarios, and they address everything from boots to tents to backpacks [Fletcher and Rawlins]. While these technologies themselves might not be digital, they result from a wide variety of digital processes. And whether it’s a backpack or a GPS wayfinder, every hiker will need to bring some form of technology with them.

Physical considerations when packing have changed surprisingly little with the evolution of technology. Weight and durability are a primary concern detailed in the catalog of gear. Utility, especially gear with multiple functions such as a washbucket-cookware, also comes into play. With digital technology, electric power and battery life have been introduced to the mix. At the time of writing this thesis, it’s more economical to bring spare batteries for devices than it is to carry heavy generator and charging solutions.

Niche technologies are also gaining traction in the market. Many outdoor hobbies are benefiting from the ability to find gear online, and even small communities like extreme mountain climbers can find devices marketed specifically to them. Although not all of these products are marketed specifically for mountain climbers, Jane Pell describes in a paper the combination of products she used to train for summiting Mount Everest:

“From 2014, I trained 6 days per week. I used wearable sensors linked to iOS apps to monitor my progress and set personal fitness milestones: a Jawbone UP fitness tracker paired with a digital sleep-improvement program featuring cognitive behavioral therapy called Sleepio; Tony Robbins Ultimate Edge: Hour of Power audio for mental conditioning during physical exercise; as well as a range of other neurosonic enhancement programs from the QDreams Mind Library and I Can Be Anything, Human Progress Apps. In later preconditioning stages, I recorded weight, hemoglobin and blood tests, and V02 MAX fitness results by the Beep Test (aka the Leger-test or 20m shuttle run), then compared results each month.” [Mueller and Pell]

This also introduces the complexity of appropriation. Few GPS-enabled smartphone apps were designed specifically to help people navigate through dangerous wilderness areas, but some hobbyists use them in such a way. Overreliance on technology with faults or without features specifically for these contexts could endanger lives, and it’s a possibility that search and rescue teams worry about.

## **Nature**

In a time facing significant environmental strife and where human populations are largely disconnected from natural environments, new thoughts are evolving around technology and its relationship with nature.

Technology specifically for studying nature exists, like climate monitoring stations. Fields like climate science have benefited greatly from digital technology both in the form of software modeling systems and physical sensors.

There is also technology for observing nature in general, such as trail cams that hunters use to remotely watch the movement of prey. Streams of live footage of nature have gained popularity on the Internet, and some wildlife refuge centers have set up such devices

However, nature and wilderness are frequently viewed as at odds with technology and the touch of humankind. Evidence of human activity, like roads or windmills, detract from the natural landscape. Smartphones and computers distract us from the beauty of nature, and digital media depictions of natural landscapes can’t come close to the physical experience of being there. These viewpoints aren’t right or wrong, but they do set an important undertone when talking about technology on the trail. In some respects, digital technology must first prove it has a right to be on the trail at all.

## **Situating This Study**

Before any design or insertion of digital technology takes place, a better understanding must be sought of the complex relationship between hikers and digital technology.

Polling hikers through digital means or even delivering prototypes for research through design seems disingenuous when part of the target audience has negative attitudes towards technology. For this reason, cultural probes stood out as a useful method for understanding hikers and inspiring future directions for Technology on the Trail. The heart of the matter is indeed a question of culture, so probes are a logical choice for teasing out a variety of viewpoints.

The goal of this study is not to design new technology. Rather, the goal is to find a way to make technology and nature more harmonious in the context of hiking. This could end up requiring new designs, but it could also be a matter of shifting perspective instead. No device or gear will ever be for everyone, and that's natural. Technology on the Trail can still seek to support the people who do want to use technology, and it can seek to make those technologies minimally invasive for people who don't.

This study is not inherently critical of technology. It seeks to understand the many perspectives about technology on hikes, and some of those may themselves be critical. Respecting those viewpoints is an important consideration for Technology on the Trail.

## **Organization of Thesis**

A table of contents is provided before this introduction, but provided here is a brief conceptual overview of the thesis's flow.

After this introduction, the Literature Review chapter is laid out with technology on the trail studies, an interlude of indoor technology about nature, and then discussion of cultural studies of hiking. The use of cultural probes is covered immediately after that.

The Methods chapter begins with a background connecting the literature review and other concepts from the Technology on the Trail initiative to this study. Then, the design of the study and the process of running it is covered.

The Results and Discussion section combines the responses of the participants with an analysis of the results. The emphasis is placed on providing as much direct data as possible, i.e., the responses themselves. Broad themes and notable passages are highlighted. Bios of each participant are also included.

At the end, the Conclusion ties up the themes and includes Contributions and Future Work.



## Chapter 2: Literature Review

This section will cover four major sections of literature. First, this section will detail current research surrounding technology and hiking, including technology designed for hiking and technology designed about hiking. Second, hiking as a culture and community will be discussed. Third, literature will be discussed about cultural probes including what they are and why one would use them. Fourth, methods for analyzing data as relevant to cultural probe results will be included.

### Technology on the Trail

As technology has become more mobile, the need to study technology in its everyday environment rather than a laboratory has grown. To complicate matters, technology has also added and refined methods of sensing its surroundings. The most ubiquitous example is the smartphone. Smartphones can passively sense the sound, sights, and specific touches around it, and they can also use GPS and Wifi to geolocate themselves. As smartphones ingrain themselves in our society, they find their way into just about any environment that humans inhabit.

However, people bring far more than smartphones along for their outdoor recreation. In a paper exploring an unexpected earthquake interrupting a planned Everest ascent, researcher Sarah Jane Pell wrote,

“I packed a NeXUS-10 MK-II biofeedback kit, a laptop with Biomind software (to analyze the NeXUS-10 data), another laptop to augment my devices, and creative and alpine equipment. In Nepal, I bought two pre-paid (NCell) SIMs: one for my mobile phone and one for prepaid data for a Wifi router (called the BRCK). I also had to buy a “not-so-smart” 2G mobile phone because my 4G smartphone appeared locked (even though it was purchased in Asia).” [Mueller and Pell]

That doesn't include all the technology that helped her prepare for the trip, such as a described training regime through apps or the technology that helped her research and plan her excursion. Some of these technologies, such as the BRCK, were designed to be used in remote and rural locations. Others, such as mobile phones, were not.

The technologies carried by humans are only part of the potential realization of technology outdoors. In *Urban Sensing: Out of the Woods*, Dana Cuff et al. discuss projects where installations or even buildings themselves sense and interact with citizens in urban environments [Cuff, Hansen, and Kang]. Whether for security purposes or more general monitoring, cameras in public places such as schools and tollways have become commonplace in America. However, installing similar technology on the trail is fraught with logistical difficulties that will be expanded on in this section.

## **In the Wild**

In response to the increasing mobility of technology, the field of human-computer interaction has shifted to studying technology in a context-dependent setting. In her paper “Interaction Design Gone Wild: Striving for Wild Theory,” Yvonne Rogers (whose other work will be discussed in sections below) lays out the case for shifting to contexts “in the wild” [Rogers]. In this case, “the wild” is not limited to wilderness in an environmental sense. Rather, in the wild is the direct opposite of a contrived laboratory environment, meaning it focuses on situations and events that occur naturally in daily life.

Rogers emphasizes the need to design in the wild, evaluate in the wild, and craft theory in the wild. This places a heavy emphasis on prototypes being tested in the wild, since these fall in an intersection of design and evaluation.

The crux of doing studies “in the wild” is the context of the environment. Lab experiments are arranged too carefully for participants to behave as they would in their everyday life. As an example, Rogers describes a research project where multi-user interfaces were studied in various lab contexts, refined based on results and other empirical research, and then transitioned to a wild context where the natural behavior of people proceeded to go against some of the base assumptions of their research. In the lab, participants had only one task: using the interface. In our everyday life, we juggle a wide variety of tasks and disruptions at any given time.

The shift to natural environments is also about keeping the user at the center of design. Natural user behavior has never been as simple as independent and dependent variables. The relationship between the person and the context in which they’re using technology affects how that interaction will take place. People generally talk on the phone differently when in public versus when in their own homes. When going on long hikes, technology usage is also going to differ from urban settings.

In that sense, while the “wild” being discussed doesn’t literally mean nature, it sets an important backdrop for “technology on the trail” research. Recreating the outdoors in a lab environment is difficult and rather antithetical, and attempting to control an outdoor environment to mirror a lab setting is nearly as difficult. Natural environments are complex systems with a much wider variety of conditions to account for than any indoor setting. There might be rain, animals might stop by, lighting varies wildly by time of day and cloud conditions, wireless networks might not cover the area, etc.

People also behave differently in the context of outdoor, natural environments than they would in a city. This will become particularly relevant when we discuss hiking culture in a later section.

## **Merging of Technology and Trails in Academia**

Several research projects have attempted to merge technology and the outdoors for the purpose of teaching children. A long tradition of teaching children outdoors and in natural environments exists in the form of school field trips, and many parks and nature reserves have visitor centers with kid-friendly information at the ready. However, most of this information is analog. A wide range of digital devices have potential for being mechanisms of instruction.

### *Ambient Wood*

Ambient Wood broke new ground in the early 2000s by embedding various digital devices into an isolated woodland environment for kids on a field trip to explore [Rogers et al.]. The novel experience was meant to integrate learning about nature and natural processes into the environment itself. Sensors could track the location of the children, who explored the woods at their own pace in pairs, and several multimedia devices would provide information in context. It was the ultimate field trip guide, but incorporated into a digital system and aimed at self-initiated learning.

The children were given a “probing device” that could sense and display the level of light or moisture at that location, which encouraged the children to search for differences in light and moisture between different parts of the woods, e.g. under a rock or on the side of a tree. Their other two handheld devices were a PDA and an “ambient horn,” which would deliver images with sound or just sound respectively when the children reached specific locations. This encouraged the children to hunt for locations that would deliver information to their devices. There was also a stationary “periscope” installed that children could approach to see predetermined content.

This project emphasized learning in context, the context in this case being the woods. With digital devices, media that might have been used in a classroom context could instead be experienced alongside the actual physical process. For example, the PDA would display information on photosynthesis, and the children were able to measure the level of light present near leaves.

Another important theme is the balance between delivering notifications and content versus self-initiated interaction. This theme will also appear in a later section when we discuss an app for asocial hiking. For Ambient Wood, the researchers found that sometimes “ambient” noises were too ambient, and the children wouldn’t hear something like bird chatter playing on speakers because it blended into the background noise of the forest. While being unobtrusive is the goal of having ambient information, obviously the media needs to be noticeable to accomplish its goal. Another problem with ambient information was distraction. Sometimes the children were in the middle of exploring something when their devices delivered location-based information, and they failed to notice the ping.

To solve this, the researchers set up a hybrid system for their second study. The location of the children would still trigger sounds, but these sounds were delivered to the ambient

horn for the children to play whenever they were ready. This puts the terms of the interaction back in the hands of the children. They found this method significantly increased the attention paid to the various sounds.

The second study also added another method of self-initiated interaction in the form of a remote facilitator. The children could discuss organisms they found with a remote facilitator, and that facilitator could send their PDA images in real time based on what the children were identifying. In cases where the facilitator guessed the identification wrong, further clarifications were discussed between the children and facilitator which further enhancing learning.

The logistical and technical troubles overcome by the Ambient Wood project will be discussed in a section below which explores that topic in multiple contexts.

### ***Tangible Flags***

Another project aiming to use digital technology to enhance learning in nature on field trips was the Tangible Flags project [Chipman et al.]. This study took place on a short trail in Rock Creek Park, a national park in Washington, D.C. After an iterative and collaborative design process with children, “tangible flags” were crafted out of felt and other children’s art supplies and embedded with an RFID tag. These flags could be left as physical artifacts along the trail to mark the location and context of digital content being generated with a tablet device. After scanning the RFID tag with the tablet, the children could collaborate on a digital document that included writing and drawing capabilities.

Like Ambient Wood, this project included a system of positioning digital context in the physical world. In this case, the RFID tags inside the tangible flags were the anchor. Digital tablets were also employed in both cases, but for Tangible Flags, the tablets were the only digital device. The tangible flags themselves also contrast the devices used in Ambient Wood with their colorful individualization and low tech crafting aesthetic. The information and media about the natural context were also primarily generated by the children in the Tangible Flags study, unlike the pre-selected information available in the Ambient Wood. In both Ambient Wood and Tangible Flags, there were periods of open exploration by the children as well as interaction with an expert or adult. In the Tangible Flags study, a park ranger guided the children on a walk to discuss the content generated on the various Tangible Flags after the period of exploration.

In her talk delivered at the CHCI’s Technology on the Trail workshop, one of the lead researchers on the Tangible Flags project, Allison Druin, discussed the concept of the “iChild.” Young children growing up in the digital age have become technology agnostic, and they switch constantly between virtual and physical platforms as well as between creating and consuming content. Bursts of learning are situated in context. At the University of Maryland, the Human-Computer Interaction Lab she works with employ these concepts as part of their “cooperative inquiry” method of doing participatory design research with children.

These concepts can be best seen in the interaction between the physical flags placed by the children and the virtual information they link to. On their screens, the children can see the collaborative information written and drawn by other children about the physical context marked by the flag. They also ask and answer questions in the digital space. Tangible Flags highlights a process of communicating information and answering questions using the digital-physical hybrid, whereas Ambient Wood focused more narrowly on the discovery and learning of classroom knowledge.

In both of these academic endeavors, screens and digital technology in general are featured conspicuously. In the Ambient Wood project, they found that being too discrete, such as ambient bird chatter from a speaker, led to the children missing the information. In the culture section of this literature review, we will revisit the idea of how intrusive digital technology can be.

### ***Learnings from an Earthquake-Interrupted Everest Expedition***

Field trips and student education are one reason people visit “the trail,” but what about hobbyists and enthusiasts? In 2016, adventurer Sarah Jane Pell and coauthor Florian ‘Floyd’ Mueller published an article about an intended summit of Mt. Everest being interrupted by the devastating earthquakes in Nepal in April 2015 [Mueller and Pell]. This paper dives deep into “adventure” oriented outdoor experiences, and the role that technology plays in Pell’s journey in particular is analyzed.

In recent years, many sports and recreation activities have embraced technology. Some, like geocaching, are entirely based around technology. Engineering and manufacturing have changed the production of equipment like skis or climbing gear. Retail chains that cater specifically to outdoor equipment have spread across the country, and new technology specifically for this kind of recreation has been produced, such as the NeXUS-10 device that Pell uses to measure the oxygen levels in her co-climber’s blood in order to confirm a diagnosis of altitude sickness. This proliferation of technology in outdoor recreation calls for better study of how technology can support but not interfere with the experience of adventure and nature, which is what Pell and Mueller’s paper set out to begin.

The paper highlight two dimensions along which the role of technology can be situated. One is expected versus unexpected which refers to the situation or manner in which the technology is used. The second is instrumental versus experiential. Both of these are continuums, and their combinations create 4 distinct roles: coach, rescuer, documentarian, and mentor. To situate a few examples, a coach might be a mindfulness or sports training app, a rescuer might be a beacon (discussed in the hiking section below), and a documentarian might be a GoPro or a blogging platform.

The expected versus unexpected dimension highlights the dynamic of appropriating technology. In the paper, Pell describes holding her closed laptop above her head to

shield herself from falling debris while exiting the building mid-earthquake. Note that this use of the technology is unexpected both for the adventurer and for the designers. Although preparation and training are vital parts of an adventure or extreme sport, these people will still be faced with unexpected events during their experience.

The experience versus instrumental dimension played a role in the outdoor learning environments discussed previously. The projects had instrumental goals of teaching specific lessons and concepts to children, but the outdoor environment also enhanced the experience of the children. Whereas a classroom might be solidly in the instrumental and expected corner, which categorizes it as a coaching role, the outdoor learning environments incorporated a wide variety of experiences.

The last concept of interest introduced in this paper is the significance of where the technology is placed in relation to the body. Technology could be an accessory such as something slipped into a backpack, an extension such as special clothing, or a part of the body such as an oxygen mask. These distinctions are particularly important for an extreme adventure like climbing Mount Everest, but they will be revisited in the context of hiking later.

## **Problems and Considerations**

None of these projects was pulled off without overcoming challenges, and the particular difficulties of working in outdoor environments will be the focus of this section. There are obvious differences when working outdoors, such as the lack of an outlet within reach (which is surprisingly similar to college classrooms), but these researchers also highlight specific difficulties their projects overcame that could be useful for future projects.

In a paper titled “From Snark to Park: Lessons learnt moving pervasive experiences from indoors to outdoors,” the researchers who created the Ambient Wood project described the differences between running Ambient Wood outside and running a similar project (named The Hunting of the Snark) indoors [Harris et al.]. Although some technological advances since 2004 have affected how a modern team might tackle a similar project, the paper lays out important concepts.

The papers divides their considerations into three categories: technological, logistical, and design. In the technological category, physical considerations like software, hardware, networking, and power are included. In the logistical category, physical considerations like stability of the environment, mounting points, and safety are included. In the design category, considerations like authenticity, user experience, participation, and reflection are included.

The networking in Ambient Wood relied on IEEE802.11 communicating devices set up by the researchers themselves. Because trees partially impede radio signals, the project had to make use of more than one antenna. Within the last decade, cell phone and Wifi

coverage has expanded significantly, but as Harmon discusses in her dissertation, thru hikers of remote trails still frequently lose connection to any wireless networks. Network coverage and the blocking of signals by trees and other geography are still big considerations for technology outdoors.

Similarly, powering devices remains an issue. The need to consistently power multiple devices for five or more hours drove the Ambient Wood project to select for hardware and software with more efficient battery usage. They were able to fine-tune parameters such as the frequency of their devices and the brightness of the screens in order to maximize battery life. As the many players of Pokemon Go discovered this year, efficient use of battery power is still a hurdle that many apps stumble on.

Detecting the location of users was a key component of Ambient Wood, and a number of options existed for consideration. The Hunting of the Snark project was able to use ultrasound, but the Ambient Wood team quickly ruled this impractical outside due to the need for a stable environment and solid surfaces for sound echoing. The options used in Ambient Wood include GPS, radio pinging, and dead reckoning. The Tangible Flags project used RFID tags, and more recently, hikers of the Pacific Crest Trail used a tracker called SPOT.

The logistical concerns of working outdoors center on the dynamism of the environment, which varies both daily with conditions like wind and also over long periods of time such as seasons and growing foliage. This lack of stability complicates the setup and maintenance of technological structures outdoors, as discovered by the Ambient Wood team when they set up their network in the woods. One of their trial runs became known as the “wet run” due to rain. Despite that day being a “trial” run, they dealt with a complication that would have no effect on their actual runs.

Moving beyond the physical concerns, “Urban Sensing: Out of the Woods” explores some of the ethical issues surrounding technology use and its movement beyond fixed points [Cuff, Hansen, and Kang]. Technology is not only delivering information, but also constantly sensing it, such as the tracking of children in the woods. However, most sensing devices (particularly smartphones) are not isolated in a tiny woodland environment for the short duration of a field trip.

## **Technology about the Trail**

Both hiking trails and nature in its entirety are increasingly of interest to people, so it’s worth exploring some of the ways in which technology attempts to bring the outdoors inside. People have always been recording nature from the first landscape paintings to the latest and greatest technology like GoPro cameras.

The rise of online videos and streaming have created genres like nature cams. Anyone with access to the Internet and a browser can find livestreams which show them real time

footage from the streaming camera, and livestreams of wildlife are particularly common [Opar]. Zoos sometimes set up livestreams of their new arrivals, and wildlife refuge centers can promote their cause with livestreams of their inhabitants. These streams can serve a variety of purposes from calming background noise to material for mindfulness or relaxation practices.

The travel and tourism industries also have reason to digitize some of the outdoor experience, such as documenting the location to entice prospective visitors. Google Maps has invested in sending their Street View cameras into a number of internationally renowned natural environments, including the Grand Canyon National Park, the Swiss Alps, and the Great Barrier Reef [Panganiban]. Although these experiences aren't in real time, anyone with access to Google Maps can click to go on a digital trip through these amazing natural landscapes.

Video games about nature and hiking have also gained popularity. The research community has its share of game experiences, one fitting example being "ASCENT: A First Person Mountain Climbing Game on the Oculus Rift" [Dufour et al.]. These researchers used actual satellite images and topographical data to create realistic mountainscapes of The Seven Summits, the seven mountains which are the highest on their continent. The game emphasizes realism by implementing detailed climbing equipment and enforcing a stamina system.

The game Firewatch also gained popularity among a wide variety of gamers in 2016 [Firewatch]. The plot follows a fire lookout stationed Colorado, and the player walks, runs, and climbs through the beautifully rendered Colorado landscape entirely alone except for a hand radio through which they interact with a coworker. The story is built around the interactions with said coworker, and the game has basic climbing mechanics, but the majority of the player's time is spent walking through the wilderness and enjoying the view.

Even games which are not focused solely on the scenery, such as the survival horror game The Long Dark which takes place in Canadian wilderness, often take pains to render detailed and aesthetically pleasing landscapes [The Long Dark]. One of the most popular modern games is The Elder Scrolls V: Skyrim, and countless user-made mods exist for the sole purpose of enhancing the visual appearance of the landscape. In one newsworthy example, a player installed over 100 such aesthetic mods and posted screenshots which could often be mistaken for photographs of beautiful forests and mountains [Plunkett].

These games are no longer solely about fighting or winning. Players genuinely want to experience beauty and nature, and a wide variety of games exist which offer some aspect of simulated wilderness.



## Hiking: Getting Away from “It All”

If anyone with Internet access can take a virtual hike, then what key components separate authentic outdoor experiences from the virtual approximations? Most people would agree that looking at the Grand Canyon in virtual reality is different than stepping foot in it, so what drives people outside and across the country to experience it in person?

To begin discussing hiking as an escape, this section begins with the example of HOBBIT, an asocial hiking app tested by a research group in Germany [Posti, Schöning, and Häkkinen]. In their paper, they describe the design and evaluation of an app which allows people to avoid nearby hikers on a trail. By monitoring the Wifi and Bluetooth of nearby smartphones, this smartphone app will alert the user to approaching people and suggest an alternate route. The app can also suggest which routes are likely to be less populated. This setup is aided by the fact that the trial trails are a network of connected paths, giving the users many options for routes.

The initial evaluations of the concept of an asocial navigation app were 44% positive and 40% negative. These users self-reported their reasons for hiking as “enjoying the nature” (47%), “physical exercise” (38%), “relaxation” (25%), and “for fun” (14%). They also voted for the design which included an actual map of the routes and the other hiker locations rather than just a text message or a radar view, so the app ended up with more utilitarian purpose than just avoiding others. Several participants ignored the warnings of the app and proceeded to run into other hikers on the trail, but they reported afterward that the vibration alone allowed them to mentally prepare to meet the other hikers.

This example is confirmed by research about hikers on the Pacific Crest Trail published in Ellie Harmon’s dissertation [Harmon]. While completing a thru hike herself, Harmon discussed technology and hiking with other hikers on the PCT. Many of them were hiking to get away from other people, but more than that, they were attempting to get away from society and its neverending obligations. When confronted with a weekend hiker who was only completing a small stretch of the PCT, the John Muir Trail, the thru hiker said, “You don’t have to quit your job to hike the JMT.” Other hikers hope to get away from technology, but many of them still have smartphones and flock to the Internet whenever fleeting access is available. So if thru hikers aren’t abandoning the comforts of modern society in order to avoid modern technology, then what are they running from?

In “Stories of the Smartphone in Everyday Discourse: Conflict, Tension, and Instability,” Harmon and Melissa Mazmanian discuss the ways in which smartphones have become the manifestation of work and social ties in the average person’s life [Harmon and Mazmanian]. Through media and general culture, a pervasive image exists of a multitasking master who is also distracted by and addicted to the smartphone. The opposite image also exists, depicting an authentic human who is truly present when interacting with others, but who also winds up being an out of touch luddite.

The paper highlights a situation in which a father at his kid's soccer game worries that checking his work email on his smartphone isn't being "truly present" for this family activity. However, if the father didn't own a smartphone at all, he wouldn't be able to telecommute and would likely be stuck in the office and therefore completely absent from the soccer game. In that sense, mobile technology has brought more freedom to some people, but that mobile technology becomes strongly associated with the forces which demand attention remotely. Indeed, Harmon notes in her work the numerous "digital detox" events and camps that exist to help people disconnect from technology and connect instead to nature.

## **Non-Use**

When considering "technology on the trail," it is therefore important to consider the technology which people intentionally do not use while on the trail. Non-use has been studied more broadly within HCI, but too often non-use is seen as an audience of potential future users that could be converted with the right design. The dichotomy between use and non-use also fails to capture the reality of negotiating technology use on a daily basis. If the father in the prior example chooses not to look at his smartphone during the soccer game, is he a user or a non-user?

In "On the Importance and Implications of Studying Technology Non-Use," the authors break down the potential reasons behind non-use and its significance, if any [Baumer et al.]. They suggest that rather than seeing non-use as the absence of something, the question of relevance to the researcher is what exists in place of that non-use. The ubiquity of a technology also impacts the perceptibility of its non-use. For example, the absence of a smartphone on a trail would be more obvious than the absence of a smartwatch because far fewer people use the latter.

Harmon's work also addresses the balance between use and non-use. Although participants in her ethnographic studies reported feeling constantly connected to their devices, her actual observations were of sporadic periods of use and non-use [Harmon]. This suggests that even while not physically using or paying attention to their smartphones, participants feel them weighing on their minds.

## **Hiking Culture**

So how does the use and non-use of technology shape the communities of hiking and outdoor recreation? This section begins with an in depth look at the research of Norma Su about how technology shapes the hunting subculture, then addresses the parallels in hiking.

## ***Hunting***

The backbone of the hunting culture is the ethos of “Fair Chase,” the practice of giving the prey an equal or advantageous chance to survive the encounter with the hunter [Su and Cheon]. The hunters also championed an immersion in nature that Su termed “country competence,” and many of the hunters knew the land and the species they hunted intimately.

Most hunters achieved Fair Chase either by using specific technologies or, far more often, refusing to use certain technologies. For example, all but one of the hunters were against the use of drones for hunting. However, a wide array of hunting technology exists, and subcultures within the hunting community were organized around their technology use. The most divisive choice was that of weapon usage, such as hunters who use recurve bows and hunters who use muzzleloader guns.

Su’s work explored the dialectic tension contrasting the hunter’s own weapon choice with that of the “opposing” groups. Bow hunters compared the ethics of their own weapon with that of the unethical crossbow, which they termed “crossguns.” Other dividing lines were automatic rifles, guns versus bows, specific decoys, and so on. A major part of each group’s self-definition was the comparison to the technology they refused to use.

Trail cameras were also a point of contention among hunters. Some hunters felt they were in opposition to Fair Chase principles because they went against country competence. A hunter with a trail cam didn’t have to be able to recognize signs and learn animal movement patterns if they monitored a camera remotely. They also felt the cameras caused hunters to fixate on specific animals that routinely passed the camera, and the sense of ownership or entitlement to this animal went against the spirit of hunting. However, some hunters acknowledged that trail cams could be useful for allowing specific demographics of hunters to have the time and resources to hunt, and they could also remotely connect someone with the land.

Country competence was acknowledged to be a key component of hunting by most of the hunters. Having a sense of the land and of animal behavior were just as important as actually hunting. Technology, such as those trail cams, was often seen as hindering this connection. Manual processes like tracking animals, luring in prey with decoys, and skilled shots were seen as an important part of country competence. Sometimes, country competence was even in opposition of a scientific or ecological perspective because it emphasized a very local and experiential view of the land.

With the advent of social media, hunters have also become hyper aware of the perspective of hunting from outsiders. Many of the hunters described taking pains to display Fair Chase ethos and general empathy when posting pictures of or discussing their hobby. Some also expressed disdain for the kind of hunters who post pictures without thinking about showing respect to the animal.

The tension between insiders and outsiders in a hobby was also suggested by the paper on the role of technology in adventure sports. A rise in adventure-oriented tourism has

created a separate group from the more traditional and hardcore adventure seeking communities, and the plethora of new gear and destinations has targeted the newer group. So, the phenomenon is not limited just to hunting subcultures.

## ***Hiking***

So then, how has hiking as a community been changed by technology? Some of Ellie Harmon's work on hiking the Pacific Crest Trail reveals a few details about the community of thru hikers of the PCT [Harmon].

Electrical power and battery life become a key consideration in technology use for thru hikers. But being completely without digital devices is rare, so hikers often flock to charging stations and Wi-fi hotspots when they stop in towns or at the homes of thru hiker rest stops called "trail angels." These electrical pit stops are like proverbial watering holes where many hikers run into each other and mingle.

Several apps have been developed specifically for the major trails of the United States, and two common ones are Guthook's and Halfmile. Many hikers use these apps for information on mileage, locations, water sources, and more, and their influence is so pervasive that many people refer to locations by the mile marker according to the app rather than the place's name. Many hikers consider it irresponsible if people are unaware of the water reports and the general trail, so individuals are must turn to apps or Facebook groups if they want to avoid dealing with old, possibly dated paper guides.

The ability to connect on Facebook in real time across the entire trail has also created significant change. Hikers can plan events, meetups, and track each other's progress, and anyone on the trail can warn of (or promote) conditions as they occur. However, thru hikers now also must negotiate their ability to remain connected to their family and friends distantly, such as requirements to check in and say they're doing okay. Every year, the PCT Facebook page gets posts from worried family members because their hiker's SPOT device, a GPS-based technology that sends a daily message that its owner is okay, failed to establish a signal and send a message for longer than a day.

Disconnecting from the grid entirely is more difficult than it used to be, but wireless networks of varying sorts still don't cover the deeply remote areas that many thru hikers frequent.

## **Cultural Probes**

### **What are They?**

In the field of HCI, cultural probes were developed as a method of learning more about a specific audience in an open-ended, creative manner. The approach was introduced by Gaver et al. in 1999 in a paper that described their use of cultural probes for a research project titled The Presence Project [Gaver, Dunne, and Pacenti]. This project sought to increase the presence of elderly citizens in communities across the European Union. To create designs, the researchers first needed to understand the communities in question, but they were dealing with a wide variety of cultures and a vague, open design space.

Their solution was to employ a new method they termed cultural probes. These probes included a number of activities given to the participants in a large envelope. There were maps with stickers and questions, photo albums to tell stories, a media diary, and a disposable camera, among other things. Pre-addressed postcards with questions to answer were included, and these materials could all be mailed back over time.

Gaver et al. emphasized the artist-designer approach to working with cultural probes. The entire process is acknowledged to be highly subjective, but this subjectivity can be used for inspiration in creating innovative new designs.

The responses to probes offer clues and glances of participant's life and mindset. In a later paper titled Cultural Probes and the Value of Uncertainty, Gaver et al. restate that probes were intended to take these subjectively interpreted insights to inspire everything from new designs to new roles for technology in life [Gaver et al.]. They warn of the danger of being too rigid and analytical in the cultural probe approach, which was becoming a common occurrence as the probe was appropriated by different groups of researchers and organizations with different goals. Adjusting the method is one thing, but using cultural probes to ask structured, concrete questions and to analyze it and impose rigid interpretations is antithetical to the intent of the original method.

That there will be uncertainty in research is itself certain. Even the most rigid analyses contain some uncertainty. Instead of pretending the uncertainty doesn't exist or minimizing it, cultural probes seek to embrace and benefit from it. The looseness of understanding can be an advantage, and interpretations can be valuable without worrying about being completely accurate. Cultural probes contain many layers of interpretation: the researchers design the probes that the participants read and interpret, often trying to guess the motivation of the researchers to begin with, and those responses end up being interpreted by the researchers again in turn.

In another probe study, Gaver et al. describe using disposable cameras again with even stranger prompts, such as "something red" and "something you'd like to get rid of" [Gaver et al.]. The pictures that came back would include valuable information about the state of the participant's home even if that wasn't the focus of the photograph. There is great value in getting a picture of an unusual and unpolished area of the participant's life as opposed to receiving a picture of a bedroom with the sheets tucked in, clothes put away, carpets vacuumed, and so on. The oddity and indirect nature of the prompts

encourages less scripted answers. In this way, cultural probes can embrace the practice of making the familiar strange.

## **Why Use Probes**

Unlike most data collection methods, cultural probes have the potential to be extremely personal and foster a connection between researchers and participants [Gaver, Dunne, and Pacenti]. When well crafted, probes can show participants that researchers put care and effort into customizing the probe for its task, communicating a level of commitment beyond generic questions [Gaver, Dunne, and Pacenti][Wallace et al.].

Asking direct questions nets direct, predictable answers. Absurdity and strangeness can gather unexpected and inspiring answers instead [Gaver et al.]. Researchers, like all human beings, assume they know certain things and often end up blind to certain possibilities and alternate perspectives. The uncertain returns of cultural probes are one of their greatest assets. It opens up the realm of answers and invites responses like stories, fears, intimate details, self-reflection, and more.

Cultural probes also introduce an element of time into the responses from participants [Wallace et al.]. The activities are not immediate question-answer sessions. Most probes stay with participants for weeks, and over that time, participants can reflect on how and what they want to answer. They're less likely to reply with the first answer that comes to mind.

## **Success in Probes**

In *Making Design Probes Work*, the researchers take a more situated approach than Gaver's original vague and absurd principles, but their guidelines follow the same principle of embracing co-creativity between the researchers and the participants [Wallace et al.]. Their probes are a material means of interacting with the participants, and the same participants who participated in the probe also benefit from the designs.

Co-creativity is the key to a successful probe design. The researchers design and shape the beginning of a probe, and the participants complete it. Having the design and activity formed in a partially completed state gives the participant scaffolding for how to finish the prompt while allowing for creative freedom within the given space. A participant given a blank notebook with a few instructions will be at a loss compared to a participant given, for example, a paper house to construct with prompts for something to write on each wall. The scaffolding is also helpful to participants who are unused to creative crafting type activities.

Good design probes are "objects explicitly awaiting closure" [Wallace et al.]. They invite participants to complete them and have a clear end state. The boundaries of the probe, such as physical space limitations or time limits on audio recordings, are important for

making the probes completable. The limitations force participants to be selective about their answer.

There is also a balance between probes appearing thoughtful and crafted, but not appearing to be so perfected that the participant is reluctant to add their own mark to it. Thematic unity and creativity come into play here. For example, one of the probes described is a tiny fabric pillow that participants could keep nearby while they slept, and the pillow could be unfolded to allow the participant to write prompted responses on each face of the pillow. The concept of a pillow and of sleeping near it both inspire a feeling of intimacy, shaping the kind of response the participant thinks to include.

When working with multiple activities in a probe, including probes of differing lengths also adds strength to the overall responses. Starting with faster, lightweight activities can serve as an icebreaker of sorts between the participants and the researchers. These probes are better for lighter questions and introductions since a quick, shallow probe attached to a deep, intimate question would be jarring.

Overall, the design of the probe should show that the researcher put a great deal of thought into it [Wallace et al.]. One of the advantages of cultural probes is the acknowledgement of the researcher's influence on the design and interpretation of the entire method. A well designed probe is a cocreative activity between the participant and the researcher.

## Chapter 3: Methods

### Background

Media commonly portrays people in one of two extreme camps: people who hate and don't use technology, and people who love technology and use it constantly. The contrast is especially stark when considering what technologies one brings outdoors and how they use them. In reality, there exists a range of opinions about how technology should factor into outdoor hiking experiences, why individuals do or don't include technology on their hikes, and how technology factors into sharing their hiking experiences during or after the hike. Compiling these many perspectives would provide a much deeper understanding of culture often flattened into technophobes vs technophiles.

This is the motivation behind the cultural probe study described in the next few chapters. A more solid understanding of the stakeholders would greatly benefit the fledgling Technology on the Trail initiative.

### Research Questions

An important area of interest for this study surrounded how the participant feels about hiking. The subjective experience of hiking is just as important to design as how people use technology and how they negotiate nonuse.

1. Q1: What does a person consider to be hiking, and what is considered not hiking?
2. Q2: How do people share/communicate their experiences and stories of being on the trail with others, especially digitally?
3. Q3: How do people appreciate the great outdoors while also interacting with technology?
4. Q4: How do hikers perceive and stereotypes other hikers or people in relation to the technology those people use?

These questions all focus on the participant's current mindset about technology use on the trail and while participating in outdoor recreation. Hikers who intentionally leave technology behind while hiking are an intended demographic to draw participants from.

The overall goals of the study meshed well with the methodology of cultural probes as discussed in the literature review. This method allowed the study to gather creative responses completed on the participant's own time, and the open-ended nature of the activities allows for greater freedom to answer in whichever way is comfortable to the participant. The activities could also divide the overall probe kit into smaller chunks which the participants could pick and choose from.



## **Methods**

This section will detail the design of the contents in the probe kit as well as the methodology of the study itself.

The exact worksheets included in the probe kit as well as an inventory of supply contents can be found in the appendix.

### **Probe Activity Design**

The probe kit contained six activities which ranged from an estimated five minutes to multiple hours to complete. These activities could be completed in any order as desired by the participants. Each individual activity could be completed without needing to work on any other activities.

#### ***Pre-existing Activities: Scavenger Hunt and Scrapbook***

The Scavenger Hunt and Scrapbook activities are both activities that other cultural probe studies have employed to collect data.

For the Scavenger Hunt, the potential prompts accumulated over the course of two months based on conversations with colleagues and other hikers. Based on feedback from colleagues, the best twenty prompts were chosen for the final activity instructions. Participants were asked to complete twelve to fifteen of the prompts rather than all twenty because seeing which prompts the participants decided not to complete could also be valuable data rather than forcing an answer they don't care about.

The appeal of the Scrapbook activity was its far more visually oriented, craftier nature. It brought diversity into the final products of the activities in this kit. Unlike the Scavenger Hunt, the Scrapbook prompts were kept intentionally vague to allow participants greater creative freedom.

Scrapbooks also have the advantage of being a generally understood concept for preserving memories and especially photographs, so the specific Scrapbook prompts could leverage that idea. Scrapbooking encourages the use of photographs with important meaning to the crafter, and the limited space meant participants would be careful when selecting which images to include. This would demonstrate both what kinds of photographs the participants took while hiking and which they cared about enough to share (if any).

However, scrapbooking is a particular skill/hobby and not many people have experience with it, so the probe kit needed to make the activity as painless as possible. To that end, the kit included basic scrapbooking materials that will be described in a section below.

### ***Activities with Existing Model: Would You Rather and Streaming Live***

Two of the activities did not come straight from the literature about probe kits, but they did have real world models which the participants would be familiar with.

The “Would You Rather…” game has existed in various forms but is often used for ice breakers or as a party game. The quick and accessible nature of this game made it an ideal introductory activity to the cultural probe kit. It warms the participants up and allows them to quickly complete an entire activity in the kit, serving as a hook and a morale boost.

Often, the canonical Would You Rather game pits two undesirable choices or two desirable choices with a caveat against each other. These choices are rarely dichotomous, e.g. the choices could be “Would you rather live on the Moon or on Mars?” instead of “Would you rather live on the Moon or not on the Moon?” This makes the questions less scientifically rigorous, so the activity was designed with the intent to acclimate the participants to the kit and to introduce many of the overarching themes of Technology on the Trail to prime them for future, vaguer activities.

Similarly to the Scavenger Hunt prompts, the Would You Rather questions accumulated over the course of a few months and underwent rounds of revision before the best were selected for the probe kit. The questions were phrased carefully to be as clear and concise as possible. The worksheet was laid out to have the separate choices in two separate columns with an “or” between the columns and horizontal lines between the questions for visual clarity.

The Streaming Live activity (the full worksheet title is Streaming Live from the Trail) is built from the modern concept of livestreams. As touched on in the literature review, nature cams and wildlife livestreams are growing in popularity. Even platforms like Facebook are buying into the popularity of livestreaming. However, not everyone understands what these are, especially some of the target audience who are not heavily involved in technology. The activity needed to be framed in a way to be generally accessible.

The activity itself draws on the concept of having the participant fill in the skeleton of a livestreaming user interface. In a manner similar to design fiction, the activity describes a hypothetical near future where livestreaming from the outdoors has grown popular. The instructions explain what live video and 360 video are for someone with no familiarity with the modern day analogue. The layout of the given interface mimicked modern Youtube and Twitch.tv, and blank lines were provided in the places where participants

would write descriptions. One example was provided at the top of the interface as a model for participants to use.

### *New Activities: Hike Club and Indoor Hike*

The Hike Club and Indoor Hike activities were developed from scratch in an attempt to have an embodied activity which followed the theme of “making the familiar strange.”

The Indoor Hike was the most involved activity in the entire probe kit, and it underwent more extreme iterations than most of the activities. By resituating the environment of “a hike” to be indoors, the activity hoped to defy the participant’s definition of a hike and cause them to reflect on which aspects of a hike are its defining features. Rather than ask “what is a hike” it asks “what isn’t a hike?”

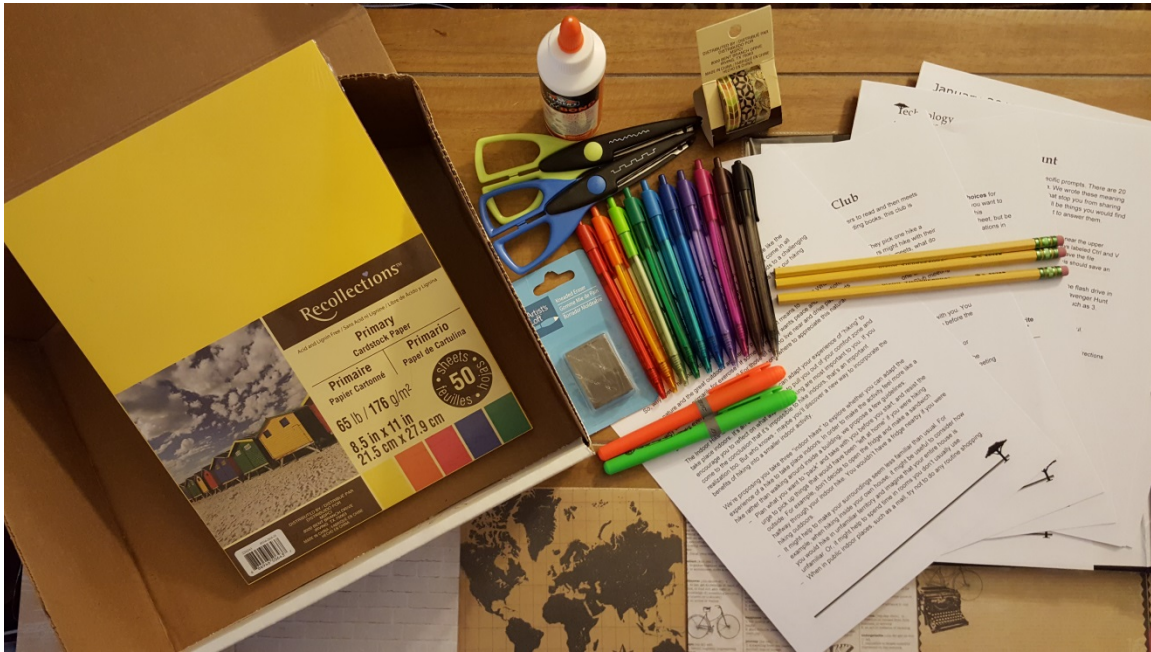
The activity was almost left out of the kit on the grounds of being too confusing. This was due to the initial vagueness of the instructions, which caused both frustration and a wider variety of enactments than intended. The idea behind being vague was to allow the participants to fill in as many blanks as possible. Rather than tell them movement was a necessary part of an indoor hike, they would come to that conclusion when trying to enact a hike indoors. However, the vagueness was easier to misinterpret, such as one early test run in which the tester closed their eyes and imagined the entire trip. When the next iteration was drafted, the intent of the activity was included in the instructions along with some suggested hiking locations. The form of feedback from the participant remained open-ended, allowing some freedom based on how their self-reflecting turned out.

The Hike Club activity’s concept was less “strange” than the Indoor Hike because it had a conceptual parallel. This activity flipped around the idea of the social nature of hiking from a do-it-together activity to a shared-interest activity. Rather than a club meeting to hike together, the club members would meet separately and discuss this hikes. The parallel drawn was to a book club: members read the book separately and discuss it afterwards. That familiar context gave the activity a more tangible frame than the Indoor Hike.

The other, looser parallel is the concept of discussing hikes in passing or on social media, an area of interest to Technology on the Trail. However, this connection was not explicitly stated in the instructions.

Based on feedback from a colleague, the potential response format of this activity expanded to include two options: hypothetical description of their concept of the club or a physical meeting of friends. For the physical meeting, the suggestions included a full club meeting with people who’d hiked the same trail or having a friend interview the participant. The option of thinking through a hypothetical club meeting gave a method of responding to shyer, busier, or less social participants.

## Assembling the Probe Kit



**Image 3.1: Materials included in each probe kit box**

After the instructions for the activities were finalized, the probe kit itself needed to be solidified and assembled. The kit contained everything the participant would need to complete the probe, including writing utensils and an eraser, so the participant wouldn't have to search for materials or buy anything for the Scrapbook.

One important supply was the flash drive. All instructions and other printed materials were included as pdf files on the flash drive. They were arranged into folders based on activity. The folder hierarchy also included folders for the participants to drop any digital answers to any component in the probe, but this was especially relevant for the Scavenger Hunt where many of the prompts were for screenshots or webpages.

The printed materials were tucked under the lid of the scrapbook cover. A complete supply inventory is in the appendix, but the broad list includes writing utensils, colored pens, a kneaded eraser (which doubled as a good fidget toy), and scrapbooking materials including glue, washi tape, stickers, patterned paper, and cardstock. Special patterned scissors were included in the kit, but it was assumed that the participants would have regular scissors in their home if they desired a straight cut edge. It was also assumed they would have clear tape if desired.

The scrapbook paper came in a 12x12 inch booklet of themed patterns, and each page was cut into four 6x6inch squares. Because there were not enough patterns for every participant to receive one of each pattern, the sheets were grouped into sets of twelve similar patterns, and each participant received two sheets from each grouping. So while

participants did not have identical scrapbook supplies, they were thematically comparable.

All supplies were packed into the same box which became the kit to deliver to the participant. The participants had roughly a month before returning the entire kit.

### **IRB Process**

The precise IRB forms can be found in the appendix. The IRB process began after completing the instructions for each activity but before buying any supplies. Consent forms were created for adults and also for children and their parents so that anyone over the age of thirteen could participate.

One round of clarifications was needed before IRB approval.

Payment was offered to participants in tiers based upon how many activities they completed, so a participant who only completed two activities would still receive some payment.

### **Recruitment**

Participants were recruited primarily via networking and snowball sampling. Organizations on the Virginia Tech campus related to hiking were contacted (including OCVT, Hiking Club, and Honors students), and several colleagues had acquaintances who hiked and knew other hikers. One participant heard a spiel about Technology on the Trail at an ICAT event and approached the researchers. Another participant found the [technologyonthetrail.wordpress.com](http://technologyonthetrail.wordpress.com) site and contacted the researchers.

The sample size was eight individuals. Two additional participants signed the consent form and received kits, but dropped out.

The sample for this study is not meant to be representative. The aim was to cast the widest net for a diverse population in hopes of hearing new perspectives and information not previously documented in technology and trail related research. Each participant's responses are more like a case study.

This study methodology suffers from the same self-selection bias of choosing to participant that most studies in this genre do, and it also suffers from an additional round of selection bias from which activities the participants chose to complete out of the total kit.

The recruitment was a rolling process taking place from January through March, and each participant had their kit for roughly a month before sending it back.

## Analysis of Data

As the literature review of technology and trail related papers took place, the researchers pulled out a list of main themes to turn into codes to use when analyzing the data from this probe study. This list went through several iterations of weeding out irrelevant terms and combining similar terms that occurred in different papers.

The codes are not for quantitative

Generic	Broad Concepts	Sociality	Motivations	Society / Work	Danger
Nature	Exploration	Community	Goals	Work	Safety
Science	Relaxation	Family	Autonomy	Wasted time	Protection
Environment	Fun	Collaboration	Control	Overstimulation	Awareness
Wildlife	Adventure	Togetherness	Self-care	Disconnecting	Injury
Education	Challenge	Asocial	Distraction		
	Reflection	Tourism	Being present		
	Authenticity	Insiders	Hobby		
	Recording	Outsiders	Immersion in nature		
	Monitoring	Locals	Exercise		
	Preparation	Local view	Beauty		
	Navigation	Broad view	Tradition		
	Motivation	Stereotypes			
	Change				

**Table 3.1: The main conceptual codes used to guide probe analysis**

The table above shows the main list of content-oriented codes based on conceptual categories. Several other codes existed for broader analysis, e.g. “text-heavy” and “people photographs.”

## Chapter 4: Results and Discussion

This chapter will go over the results to the probe kits and analyze the important themes and concepts to pull from the data. First, the participants as individuals will be summarized. Then the results to the more involved activities will be discussed followed by a broader look at the probes as a whole.

### Response Rates

A total of eight participants (out of ten recruited) completed at least one activity in the probe kit. Names have been changed for anonymity.

Participant	Age	Gender	WYR	Scav Hunt	Streaming	Hike Club	Indoor Hike	Scrapbook
Alice	50	F	X	X		X		X
James	13	M	X	X	X			X
Mary	54	F	X	X	X	X	X	X
Michael	29	M	X	X				
Sally	19	F	X	X				X
Susan	60	F	X	X	X	X	X	X
Teresa	31	F	X					
Will	22	M	X	X	X			X

**Table 4.1: Which participants responded to which activities.**

The table above shows which participants responded to which activities. The instructions for individual activities suggested a threshold for how much of it to complete, but if the participant completed any of the activity at all, then that data is included and analyzed.

### Activity Response Rates

The activities above are organized horizontally based on the general estimate of how much time they would take to complete, where the Would You Rather activity on the far left is the fastest and the Scrapbook activity on the far right is the longest.

Every participant responded to the Would You Rather questions, and several wrote comments in the margins to elaborate on their answers. However, only three participants used the extra blank spaces to create their own Would You Rather questions. Even so, the

high response rate means every participant read and considered each question. This activity was designed to be fast with easy buy-in to the probe kit, so it succeeded in being an activity that everyone completed at some point in their kit response process.

The Scavenger Hunt was also designed to be a faster activity with an easy threshold for participation. It succeeded in being the second most completed activity. Every participant who answered scavenger hunt prompts did so by putting files on the flash drive provided in the kit. The files were a mixture of personal photos, screenshots of webpages, pictures pulled from the Internet, and in Susan's case, written out explanations. Several of the photos had stock watermarks on them, but a few others were able to be found in Google Image search results, such as a cat that goes hiking.

The Scrapbook also had a high response rate, but only two participants completed all five suggested scrapbook pages. Most participants who did any of the Scrapbook activity completed three pages. Even so, the response rate is high considering the amount of time and planning involved in pulling a scrapbook page together. This could be partially due to the ease of conceptualizing what a scrapbook page should be.

In comparison, the more abstract activities, the Indoor Hike and Hike Club, had the lowest response rate. While Hike Club would physically be faster to enact than pulling together Scrapbook pages, the participants had less rigid framing of the activity and the intended response, so the activity could have been harder to approach. Or, it could purely have been a matter of which activities were "fun" or fulfilling. The Scrapbook activity resulted in a tangible and (ideally) aesthetically pleasing result. The Indoor Hike was both lengthy and produced no definite outcome, and only two participants responded to it. (Alice jotted down three intended Indoor Hike destinations on her worksheet, but she ran out of time to complete them.)

The most nuanced responses came from the Indoor Hike, Hike Club, and the Scrapbook activities. These will be discussed in detail in the following sections.

## **Participant Bios**

Summaries of the eight participants are provided here in alphabetical order with the details that participants self-reported on their Demographics Survey sheet. All answers were fill-in-the-blank, and the answers are typed here including original capitalization and spelling. The names have been changed to the fake names that will be used throughout this chapter.

These bios will also be revisited with highlights of each participant's responses at the end of the Discussion section.

Alice  
Age: 50



Gender: Female

Relationship status: Married

Ethnicity: Caucasian (Irish American; 1st generation)

Job field: academia; AP faculty

Hiking frequency: weekly

Typical hike length: 2-7 hrs

Comfort with and use of technology: I am quite comfortable w/ technology - I was an early adopter of internet, learning html in the mid 90's, I am founder and president of a SAAS academic application. I have intentionally organized my life to reduce the constant bombardment of technology - I live in a rural area and we have decided not to have internet at home. I use technology daily at work for many hours.

James

Age: 13

Gender: ♂ Male

Relationship status: Single

Ethnicity: White

Job field: in middle school

Hiking frequency: 1 or 2 times every 2 months

Typical hike length: large virity

Comfort with and use of technology: moderetly comfortable with technology used everyday (almost) reearch, videos, games,

Mary

Age: 54

Gender: female

Relationship status: not married but in a relationship

Ethnicity: American

Job field: Sales Management

Hiking frequency: once a month

Typical hike length: 3 miles

Comfort with and use of technology: I am comfortable with the basic use of technology and use it on a daily basis at work and at home. I use my phone for e-mail, as a camera, and for google searches in addition to using it as a phone to call + text. I use the internet at work for many things such as looking at our competition, inspiration for product ideas, market analysis, etc. I am not comfortable with the use of technology beyond the basics and often have to ask my children for help!

Michael

Age: 29

Gender: Male

Relationship status: Single

Ethnicity: Caucasian

Job field: Computer Science

Hiking frequency: In an ideal world, weekly. In reality, monthly.

Typical hike length: 3-5 hours

Comfort with and use of technology: I prefer technology over most people. It's ingrained into my life to a significant degree, and I use it for basically everything. Except GPS. For whatever reason, I prefer driving on my own and potentially getting lost to having a disembodied robot voice telling me where to turn. (Surprisingly fitting with #5 "would you rather.")

Sally

Age: 19

Gender: Female

Relationship status: Single

Ethnicity: White

Job field: Student, (research as part-time job)

Hiking frequency: once/week during school year, otherwise almost every day (I went on a 10-week 1,000+ mile hike last summer)

Typical hike length: 8 miles

Comfort with and use of technology: I am comfortable with smartphones/internet. I use a smartphone to record GPS when I'm running, to text, call, and check the news. I use my laptop for schoolwork and streaming music.

Susan

Age: 60

Gender: Female

Relationship status: Married

Ethnicity: American (English, Hungarian, German)

Job field: Environmental Consulting

Hiking frequency: 1-2 times per week - 1-2 miles on beach; sometimes (@ 1/month) longer hikes @ 5 miles. Used to hike more when I lived in NH - would hike in woods or climb mountains. On vacations I take longer hikes 8-15 miles. Also take kayak paddles usually @ 8-12 miles; longer on vacation.

Typical hike length:

Comfort with and use of technology: I am not comfortable with general use of technology such as smart phones and internet. I use my phone for calls, texting, photos, clock, and sometimes driving directions - nothing else. I use the internet for work often and rarely use it for fun as I'm on the computer for work all day and don't like to use it for free time.

Teresa

Age: 31

Gender: Female

Relationship status: Married

Ethnicity: white/Caucasian

Job field: academia (humanities/social sciences)

Hiking frequency: once or twice per month

Typical hike length: 2-4 hours

Comfort with and use of technology: Comfortable late adopter. I've had a smartphone for less than a year (though I had a tablet before that). I use the internet every day for work/research, communication, news, and entertainment.

Will

Age: 22

Gender: M

Relationship status: single

Ethnicity: white

Job field: grad student

Hiking frequency: undergrad: multiple times her month; Texas A&M grad student:

~2x/semester and more over breaks

Typical hike length: dayhike: 10-20 mi. (weekend) backpacking trip: 15-30 mi.

Comfort with and use of technology: Very comfortable with smartphones since May 2016 when I got my first smartphone. Moderately tech savvy for typical college-aged millennial, sometimes more so. I use technology nearly 24/7 and look at a screen for the majority of the day. Use my personal computer for school assignments and notes, TA duties, writing my thesis, etc. Use my smartphone for communication, entertainment, navigation, camera, password manager, etc. Use my internet-abled TV for entertainment.

## **A Closer Look at the Activities**

### **Indoor Hike**

Mary and Susan both completed the Indoor Hike activity. Alice wrote down several intended locations on her instruction sheet, but did not complete them. The Indoor Hike instructions asked participants to hike in a public building such as a mall, in their own house, and in a location of their choice.

Because the two responses contain key similarities, the two responses are provided below followed by discussion of both of them.

#### ***Mary's Indoor Hike***

The following is the entirety of Mary's written response. Three photographs were also provided of people sitting on benches in a crowded mall.

Over the past few weeks I took three indoor hikes. One was to a nearby mall, one was in a hotel that I was staying in on a business trip to Salt Lake City, Utah and the last one was in my own house. This exercise really made me think about what constitutes hiking for me, why I like hiking and whether hiking indoors is really hiking for me.

I have listed the aspects of hiking that are important to me and then whether or not my indoor hikes fulfilled these.

**Exercise:** One of the reasons why I hike is for the exercise and although my indoor hikes were not as rigorous as most outdoor hikes, I definitely feel that indoor hiking accomplishes the goal of getting exercise. Especially when stairs are involved such as in my house and the hotel!

**Seeing Nature and Beautiful Scenery:** This is one aspect of hiking that indoor hiking can't fulfill for me. While you can look at things and people and see things you wouldn't normally notice if you were shopping as opposed to indoor hiking, it is just not the same as being outdoors and looking at the natural scenery around you.

**Peacefulness:** Whether I'm hiking alone or with friends and family, hiking brings me a certain peacefulness or calmness. I think it has to do with being outside and as I said above, being immersed in the nature and scenery around me. For the most part, indoor hiking did not provide this for me. Walking around a noisy mall was not calming nor was walking the mostly empty halls of a hotel. Surprisingly when I took a little rest during the hike inside my own house I did find it rather peaceful. I took it in a guest room where I never spend any time so I think the newness and quietness of this room were peaceful.

**Feeling of Accomplishment:** When I hike there is usually a start and finish whether it is a loop through the woods, a hike to a waterfall or a hike to the top of a mountain. There is a goal and finishing the hike gives me a feeling of accomplishment. Other than knowing I had exercised, there was no feeling of accomplishment on my indoor hikes.

There were some advantages to indoor hiking. It works for the times when the weather outside is just too rotten to hike. Another advantage is that you can stick babies and little kids in strollers which you can't usually do in hikes outside. And just as you see people stopping to relax on the trail or kids playing, I also saw this on my mall hike. See photos.

### ***Susan's Indoor Hike***

The following is the entirety of Susan's response.

#### **Ikea**

I didn't feel like this was hiking for the following reasons:

- There is no beautiful scenery or animals.
- It was too crowded with people,
- you didn't need to bring anything with you as there was water, drinks, and food

- You didn't need to bring clothing for changing weather

It did feel like a hike in a way because there is a marked trail on the floor that takes you through both levels of the store.

I found it to be an interesting experience especially for people watching, a different animal than I usually watch on the trail! I actually took the trail twice. The first time I went slowly, took some photographs, left the marked trail and wandered through the various types of household goods and did some people watching. It was interesting to see entire families shopping, people resting on couches, making phone calls, eating snacks, and snapping photos, taking notes and talking to store personnel. It took me an hour and 20 minutes to meander through the store this way. There were people of all ages and nationalities. Talk about a multicultural venue! I saw people having races with the shopping carts and racing through the warehouse area by running and jumping on the warehouse carts for a ride. It looked like fun, but I'm sure against the rules. After I completed this hike, I went through the store again at a fast walking pace staying only on the marked trail. I was sometimes slowed by the crowds, but amazingly, it only took 7 minutes to walk through the store using this method. I conclude that the trail through the store is a great sales idea as people tend to follow it through the entire store rather than just going into the shop for something specific. Judging by the carts at the check-out line, the impulse buying is huge! And of course the trail leads to the cafeteria where there is abundant food and drink for the whole family!

### **New Orleans Aquarium**

This did not feel like a hike for the same reasons as above. There were also a lot of strollers. However, you do receive a map of the aquarium presenting the location of the various exhibits and of course the cafeteria which is more like a hike. I tried to treat this exercise as more of a hike so I did not tarry long at exhibits but instead tried get more of a sense of the aquarium as a whole and how it was laid out. It was basically set up with areas of different ecosystems (artic area, saltwater ocean, pond, swamp, tropical forest, etc.) and then a trail to follow through each ecosystem. I think this was generally a logical and organized way for people to tour the facility. It was fun to see the excitement of children viewing some of the exhibits, but I found myself feeling sad at the captivity of life for some of the animals such as the penguins and otters. They were in fabricated natural settings, but the areas were too small and boring for the animals.

### **Stop & Shop Grocery Store**

A grocery store essentially has a trail if you go up and down all of the aisles. It's interesting what you find when you are not shopping for specific items. For instance the store carries a strawasaurus which is a plastic dinosaur with a plastic straw from which you can drink. Certain aisles have lists in alphabetic order that tell you in which aisles you can find specific items. Some trails have signs in front

of different trees or plants indicating what they are and sometimes what they can be used for. The grocery store has labels and sometimes recipes that include ingredients sold in the store.

### **Indoor Hike Discussion**

Both participants listed what they consider to be key features of a hike in response to this activity. They also indicated which features were missing from an “indoor hike,” and Susan began her entire response with, “I didn’t feel like this was hiking...” The commonalities in their responses include missing the beauty of the outdoors, disliking the crowdedness of public places, accomplishing some type of goal, and mentioning families.

#### ***Beauty***

The beauty of nature is the most prevalent theme in all of the probe responses, and both participants here name it as a reason an “indoor hike” doesn’t fulfill their hiking needs. They both invoke the phrase “beautiful scenery,” and Susan also mentions wildlife as an aspect of nature important to hikes. One of Susan’s hikes took place in the New Orleans Aquarium, and she describes the exhibits as “fabricated natural settings” and mentions feeling bad for the animals living in them. The exhibits are not authentic enough to fill the natural beauty requirement of a hike.

#### ***Taking the Indoor Hikes***

The participants also went out of their way to enact “hiking” despite being in familiar public places. They mention behaving differently, and they also wrote about noticing things they wouldn’t normally think about. Mary’s phrasing was that she would “see things you wouldn’t normally notice if you were shopping as opposed to indoor hiking,” Susan listed many of the things in the stores that she never noticed before.

Another hiking behavior they both wrote about is people watching. Susan comments that people are “a different animal than I usually watch on the trail!” The three pictures Mary included with her Indoor Hike document were of strangers stopping to rest in the mall, and the end of her response lists resting people as a commonality between indoor and outdoor hiking. Both participants also mention families and specifically strollers, although Mary considers the ability to bring strollers to be an advantage to indoor hiking while Susan mentions them directly after stating the aquarium didn’t feel like a hike. Family is a theme that comes up often across the various responses of both Mary and Susan, particularly in Mary’s scrapbook and Susan’s Hike Club.

In her description of peacefulness as an important aspect of hiking, Mary mentions being surprised by experiencing peacefulness when taking a rest in her own house during her

indoor hike. She used a guest room which she rarely goes to, implying the novelty had some effect on her ability to enact hiking.

Another interesting aspect Susan brings up is the idea of trails as an integral part of hiking. After noting the reasons why her indoor hike wasn't hiking, she writes, "It did feel like a hike in a way because there is a marked trail on the floor..." She followed this trail for her hike, taking an hour and twenty minutes the first time through. She then completed a quicker seven minute redo. She received a map of the aquarium on her second hike, and she again writes about following trails through the exhibits.

Susan's response also highlights a lay of the land mentality when she says, "I tried to treat this exercise as more of a hike so I did not tarry long at exhibits but instead tried get more of a sense of the aquarium as a whole and how it was laid out." In her grocery store response, she also comments on the layout of the store. This plays into the general concept of noticing things during their indoor hikes that they wouldn't notice on an average day, and it also links to the idea of the goal of being "immersed in nature" while hiking, although in this case the participants are immersed in their indoor environments.

### *Unique Aspects*

Exercise was the first point listed in Mary's list of important hiking features, and this never comes up in Mary's response. However, the idea of exercise does recur in other responses to the probe by other participants.

Susan's list features animals in the first point alongside beautiful scenery, and her description of the aquarium also brings up the animals in the exhibits. Wildlife was a relatively common theme throughout the probes, but especially in Susan's responses.

The idea of preparing for a hike by bringing along supplies takes up the last two bullet points of Susan's list of reasons an indoor hike isn't a hike.

### **Hike Club**

Mary and Susan both completed the Hike Club activity. The instructions offered a choice between creating a hypothetical description of Hike Club or physically meeting with others, and Mary chose the former while Susan chose the latter.

### *Mary's Hike Club*

The following is the entirety of Mary's Hike Club response.

I took a hike today that some of my friends have already taken. We did not meet but I have spoken to them and I am writing a summary of what I think a Hike

Club meeting might be like. My hike club is made up of mostly neighbors and we meet about once a month to discuss a hike over yummy refreshments. We rotate houses and take turns picking which hike everyone will take.

Hike: The hike we have completed is the Lawrence Creek Trail at Fort Harrison State Park in Indiana. The hike was 3.6 miles long.

Description: This trail is a loop that winds through woods and ravines with lots of ups and downs, It is a multi-use hike and bike trail and would be most beautiful in the Fall with all of the colors. It takes about an hour and a half to complete if you don't stop too much. I would classify it as moderate in terms of difficulty.

Discussion & Sharing: We shared photos and stories from our hikes and discussed what we liked and didn't like about the hike. We talk about whether we would recommend it to others. We decided to ask the president of our neighborhood association if we could post little reviews of our hikes on the neighborhood website so people can pick which hikes might be good for them and their families.

We end our meeting by picking the next hike!

Mary's hypothetical Hike Club includes members of her neighborhood meeting rather than local "hikers" or "friends." She also describes the club reaching out to a neighborhood-level organization to post reviews on their website. This response focuses on local community more than most of the responses to these probes. The activities of their club would further the needs of their neighborhood, such as listing reviews of which hikes are appropriate for families.

Their activities mirror a book club almost exactly, which is the example used to frame the activity in the instructions. Notably, the Hike Club members also take turns deciding which hike will be next, providing members a degree of autonomy in the shared club activities. They also share photos at the meeting, implying use of some form of camera or phone.

Mary provided a set of photos taken on her Lawrence Creek Trail hike, and they were all focused on scenery with no people in sight.

### ***Susan's Hike Club***

The following is an excerpt of the most topical examples of Susan's Hike Club interview. She created a set of questions to ask several members of her family who had hiked the same trail in the Grand Teton mountain range in Wyoming. She was present with said family members for the same hike, but many years had passed both between the hikes in question and between the most recent one and these questions. Some of this discussion occurred in person, and other responses were in emails between Susan and the members



of her Hike Club (geographical distance made meeting difficult). In total, there were fifteen questions.

**2) What did you like the best about the hike?**

Dad's answer was pretty much the same. The scenery and hiking as a family. I guessed I like all 3 hikes for the same reason, the scenery, the animals, and hiking with family. I was also proud that my nieces completed the hike. On the rainy hike, my nieces liked the views and all the animals, especially the Pika and the Marmots. One niece also indicated that the lake was the most beautiful place she had have ever been. On the second trip with the good weather one niece liked hiking with family and all of the different kinds of flowers and the second niece liked reaching the goal and putting achy feet in the cold water and both also like the views of the lake and surrounding mountains.

...

**9) What was the most important aspect of completing the hike to you? How did it make you feel?**

Again Dad just indicated he was glad that we all were able to see the beautiful scenery at the top and also could have a sense of accomplishment from completing a long trip. My niece on the fires trip indicated "the experience of persevering was the best part of it and finishing" on the second trip one niece indicated it made her very happy that she reached the top, and the other indicated " I remember just being happy we made it to the top. At the end of the hike I remember starting to skip steps to get there even faster so that we could see the lake and put our feet in the water. It was a hot day when we hiked!"

...

**14) Would increased knowledge and technology make the hike better or worse?**

Dad and I both thought that technology on the hike would detract from the experience of just enjoying the sights, sounds, and odors. On the rainy trip, niece indicated that "technology for info on maps and directions might be nice or the incline and difficult in different areas, I think it would be better". On the second trip one niece indicated increased knowledge about the hike and technology would make the hiking experience worse because you would try to pay attention to the little things instead of just finding them. My other niece indicated that she thinks more knowledge and technology while on the hike would get in the way with the hike because it would be distracting.

**15) Can you think of any technology that would make the hike more fun for you?**

Again, Dad and I agree that as long as you bring good clothing for the climate, food, water, first aid, camera, and maps you don't need anything else. Rainy trip niece indicated that she couldn't think of other technology that would be useful that wasn't mentioned above. One niece on second trip indicated she would just bring her phone as she would take more pictures than she did with her camera. The other niece indicated "No, I cannot think of any other technology that would make the hike more fun. I feel like you shouldn't have a lot of technology while on a hike. It should be the time when you take in the nature around you without distractions. More technology would get in the way of experiencing the scenery around you."

Susan's questions include both hiking and technology oriented prompts. She describes herself as being uncomfortable with technology and rarely uses anything except a camera, so these questions were likely included to speak to the Technology on the Trail theme or to satisfy her curiosity about the technology usage of her nieces.

Although her nieces are high school or younger, they use familiar language about technology being distracting or interfering with appreciation of nature. In response to a question about whether they would use hypothetical apps to improve their experience, only one niece indicated any desire for more technology, and the desire in question was for an app that could identify plants and animals along the way. One niece mentioned several times that part of the hiking experience was not knowing what to expect beforehand, so she wouldn't want to do any kind of online research about the hike.

The primary use of technology on this trip was for photography to document the experience. Question 11 addressed whether the hikers brought technology with them, and the participant wrote about her niece's cell phone photography, "She indicated that she is the type of person who likes to capture moments so she can look back at them and remember the experiences that she had."

In a follow-up email Susan sent without prompting, she attached photos of the hikes discussed above (several scenery shots, two photos including wildlife, and one including both her nieces) and included the following comment.

I was glad to hear that all 4 girls would like to hike again. The fact that I learned somethings about them that I didn't know before made me realize that getting together and talking about a hike with people afterwards would be a rewarding experience. I think it would work with people who hiked at different times but I think also with people you do hike with. Sure you talk about the hike during meals/drinks after the hike, but I think with a list of more probing questions, you could find out more about how the experience of the hike affected people and learn more about people. Interesting by-product of the experience.

Both this passage and the Hike Club question responses show the activity prompted self-reflection in the participant (and, possibly, her family members). The experience of the activity sounded positive.

## Scrapbooks

Six of the eight participants completed at least one scrapbook page (out of five pages with prompts) in the probe. Five of the responses were crafted with paper and photos in the physical scrapbooks, and one was written up in digital form and put on the flash drive. Susan's, Alice's, and James's responses were heavily text based.

This section will highlight the most exemplary scrapbook pages across all responses organized by features of the page. Relevant themes will be pulled out in the following discussion section.

When necessary to maintain anonymity, washi tape was placed by the researcher over the faces in photographs.

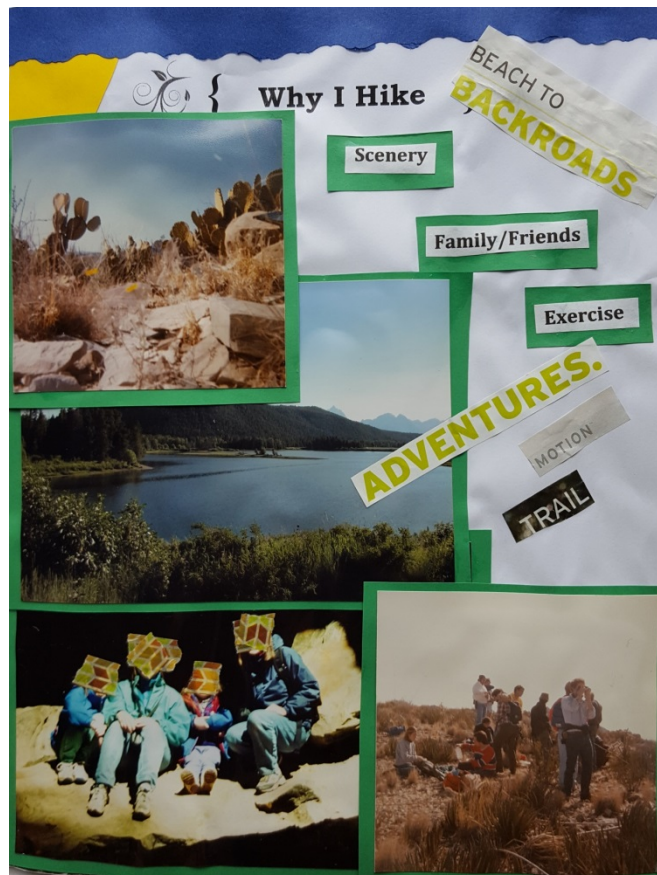
### *Image-oriented responses*



**Image 4.1: A Hiking Story scrapbook page from Will.**

Many of the participants chose photos to adorn the pages of their scrapbooks. Out of seventeen physical pages and five digital ones, twelve of the pages lean heavily towards image content. At most, captions are written near the photos to explain them, such as on the “A Hiking Story” page by Will pictured above. Images, and particularly photographs, are the typical content in scrapbooks, so the leaning towards image content is to be expected.

The content of the photographs across the entire study balanced fairly evenly between photographs focusing on scenery and photographs focusing on people. Most of the five physical scrapbooks included both. Some individual pages contain both, such as Will’s page above, and others include one or the other, such as Will’s page responding to the “Who I Think of on the Trail” prompt.



**Image 4.2: Why I Hike scrapbook page from Mary.**

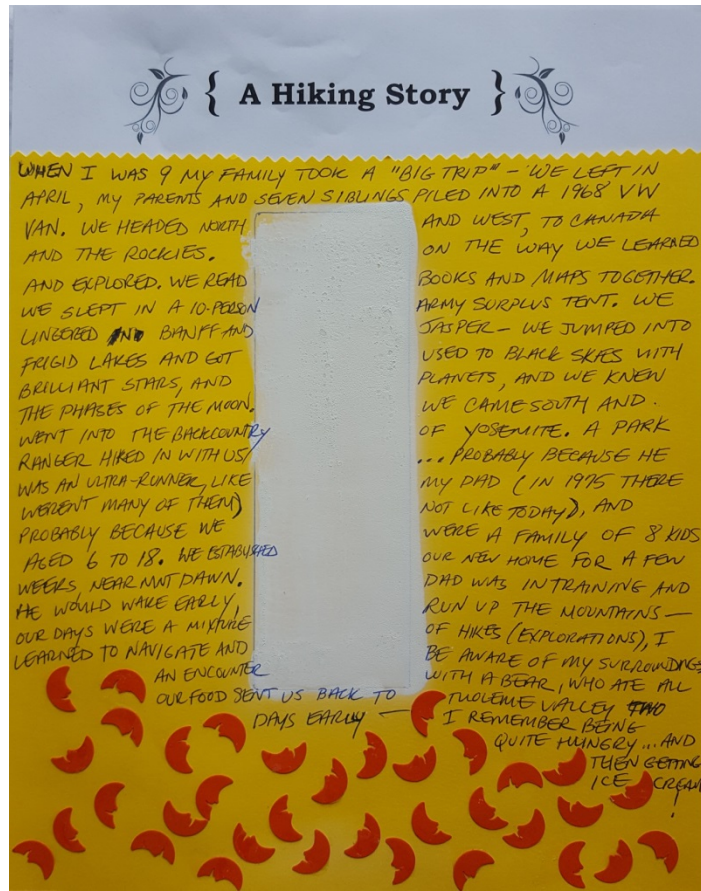
Mary’s photo-laden pages featured a rarity: photos printed on photograph paper. Some of these photos, such as the bottom two on the page pictured above, appear to be old photos. It is unclear whether she had photos lying around or she printed them at a store, but either choice shows more initiative than the standard home printer.

## *Text-heavy responses*

### **WHY I HIKE**

1. I like to be outdoors
2. To see plant and animal life
3. To spend time with my dog
4. To reduce stress
5. To inhale the odors (ie. plant growth, salt of the ocean, moss in the woods, blooming lilacs in a park, etc.) and take in the sounds (Spring peepers, swaying trees, hooting owls, call of the coyote or the loon, and even the urban sounds of the cranes in the boat yard, the sounding of a lighthouse, the street musician) in which I hike
6. To get exercise.
7. To see new places. To see familiar places.
8. To see beautiful scenery such as mountains, waterfalls, canyons, ocean views, glaciers, geologic wonders, plains teeming with buffalo or elk and other ecosystems with wildlife.
9. To view sunsets or sunrises in beautiful places.
10. To visit old places to see how they have changed through the years or seasons.
11. To spend quality time with friends.
12. To let my mind rest and wander
13. To travel from 1 place to another by my own power and to spend the night in solitude.
14. To get away from urban areas and people
15. To get to the top of a mountain, to a mountain lake, to the end of a trail, etc.
16. To challenge myself
17. To get my nieces, nephews, and grandchildren outdoors so they can experience wilderness areas and challenges
18. To be alone. To be where people and technology can't find me

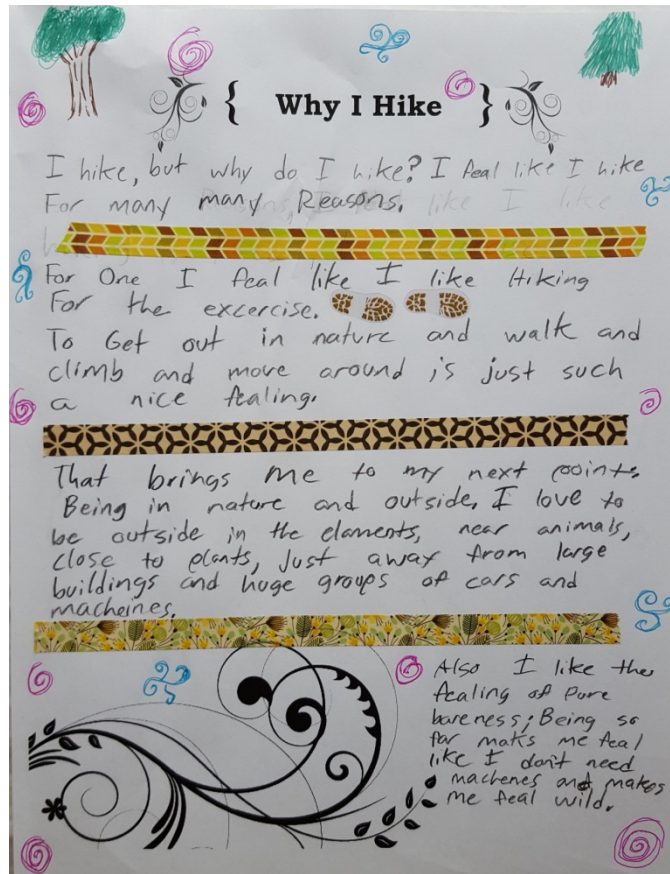
Three participants (Alice, Susan, and James) included pages in their scrapbook with fully written content. For Susan and Alice, some of these paragraphs focused on stories. James's writing contained a mixture of self-reflection and general description of hiking concepts.



**Image 4.3: A Hiking Story scrapbook page from Alice.**

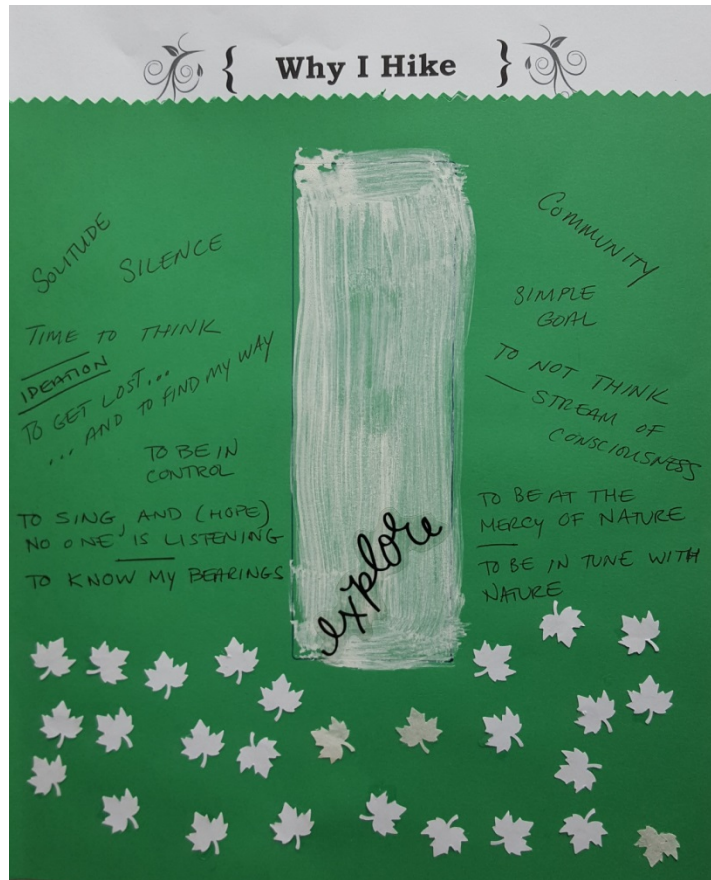
Pictured above, Alice used her “A Hiking Story” page to write a long description of a childhood camping trip with her family. In contrast to Susan’s digital response, Alice’s story is limited by the physical length of the page and her own handwriting style. However, her writing brings up many points and details that a few photographs on the page would not be able to accomplish (in this study, a picture does not seem to be worth quite a thousand words). That she is able to respond by writing rather than following a strict scrapbook photo fashion is a strength of the scrapbooks used in this probe.

***Mixed images and text***



**Image 4.4: Why I Hike scrapbook page from James.**

Finally, some participants mixed both image and text heavy pages. Even the pages mentioned above that leaned heavily towards text content typically included some visual element to frame or decorate the page. James used washi tape to separate his pages into sections, and he put stickers and drew swirls to decorate the empty space left beside his writing.



**Image 4.5: Why I Hike scrapbook page from Alice.**

The most striking mixture of text and meaningful illustration are shown in Alice’s pages. She painted a white blaze on the center of every page (including a few which she never fully fleshed out with other content) in a manner reminiscent of the white blazes that mark the Appalachian Trail, a trail that holds a lot of meaning for her. This depiction of a hiking symbol will come up in the discussion section. One of her pages features a story of a camping trip taken with her family when she was young fitted around the edges of the trail blaze. Another, pictured above, has text written for the theme “Why I Hike.”

***Supplies used***

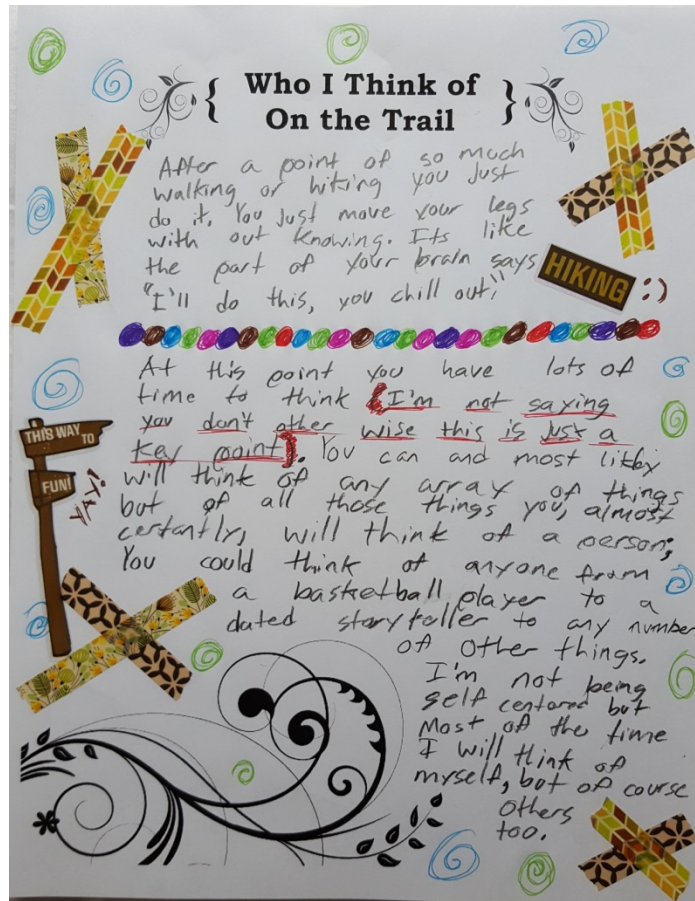




**Image 4.6: Why I Hike scrapbook page from Sally.**

In addition to photographs and written content, the pages contain decorative supplies provided with the probe contents. Primarily, these are pieces of construction paper, pieces of patterned scrapbook paper, stickers, and washi tape (patterned tape). These supplies were meant to ease the participants into scrapbooking (as the hobby is not common enough to assume participants would have any experience) and also give them easy tools to create more decorative, pride-worthy pages with less effort. The scrapbook pages featured throughout this section show a wide variety of aesthetic appeal and flexibility, and every participant chose different supplies to favor.

The participants were provided with a selection of scrapbook paper from a themed set, and the kits contained more squares than the participant would reasonably use for five scrapbook pages. The actual selection of papers included therefore provide some insight. Pictured above, Sally's page uses paper with floral patterns and natural browns to sit behind the photos featured on the page. The chickadee bird in the upper left corner is cut out of a different scrapbook paper square and pasted here. She also used color pens to enhance and create an artistic expressionist look on several of the photos. In a later page, Sally choose the scrapbook papers featuring maps and grid-like patterns to sit behind her photographs.



**Image 4.7: Who I Think Of On The Trail scrapbook page from James.**

The camping-themed stickers were also a hit with several participants. The thirteen year old boy was delighted to keep them, and he also laid at least one sticker on every completed page. His “Who I Think of On the Trail” page contained a signpost sticker with the writing “this way to fun,” and beside it he wrote “Yay!” He also used the sticker that said “Hiking” and drew “: )” next to it. This page is included for your viewing pleasure.

The washi tape was used primarily for borders between sections, such as the text-heavy pages from James. Three of the scrapbooks included washi tape on a page, but only James included some on every page.

Notably, two of the participants used their own supplies on their scrapbook pages. Alice’s previously discussed trail blazes were painted with her own supplies, but the small leaf and moon cutouts decorating the bottom of her two pages are her own supplies as well (or originate from a paper hole puncher that she owns even if the actual paper she used is from the probe kit, which is unclear). Mary also used her own supplies by cutting out words from a magazine, such as “Adventure” and “Motion,” to paste onto one of her pages alongside photos, which can be seen above.

## **Connections Between Activities**

All activities were given the participants in the same probe kit with the understanding that individual activities would influence the responses to other activities, and evidence of this cropped up in several responses.

On his demographics worksheet, Michael wrote as part of his answer to how comfortable he was with technology, “For whatever reason, I prefer driving on my own and potentially getting lost to having a disembodied robot voice telling me where to turn. (Surprisingly fitting with #5 "would you rather.")” The Would You Rather prompt in question asks, “Would you rather...have your phone map app ping you a notification if you start straying from the trail... or have your phone map app stay silent so you can discover when you've strayed off the trail on your own?”

After turning in her probe activities, Susan sent a follow up email with additional digital pictures and a few paragraphs of explanation and context. She wrote, “These are examples of beautiful photographs that when you show people you have to say that the photos just don’t do the place justice.” One of the Would You Rather prompts is “Would you rather... have beautiful photographs of a place you thought looked mediocre... or have a gorgeous place that you can never take adequate photos of?” In the same email chain, Susan twice used the wording that the photographs “proved” that she and her nieces made it to their destination, and one of the Scrapbook prompts uses the same language: “Proof You Were There.”

Susan’s Hike Club activity also ties together many of the activities in the probe kit. For her Hike Club, she developed her own set of fifteen questions to discuss with her family members who’d previously hiked the same trail. Some of the questions asked about technology such as app usage, cell phones, and GPS. The Hike Club instructions made no mention of technology, so she drew on themes from the rest of the activities to shape her Hike Club experience.

## **Participants Revisited**

Near the beginning of this chapter, brief bios of all eight participants were included. These updated bios include all of the original information (that being their answers to the Demographics Survey) and also their more telling and insightful responses to various activities.

Alice  
Age: 50  
Gender: Female  
Relationship status: Married  
Ethnicity: Caucasian (Irish American; 1st generation)  
Job field: academia; AP faculty

Hiking frequency: weekly

Typical hike length: 2-7 hrs

Comfort with and use of technology: I am quite comfortable w/ technology - I was an early adopter of internet, learning html in the mid 90's, I am founder and president of a SAAS academic application. I have intentionally organized my life to reduce the constant bombardment of technology - I live in a rural area and we have decided not to have internet at home. I use technology daily at work for many hours.

Would rather...: have her phone map app stay silent so she can discover when she's strayed off the trail on her own.

Would rather...: contribute to a scientific endeavor while hiking by passively collecting data with an app.

Would rather...: "take a picture of a beautiful scene" than "draw/sketch a beautiful scene" because "I would like to choose 'sketch' but since I can not draw I would choose 'take a picture.'"

Natural scenery she sees everyday, so she finds it ordinary instead of beautiful:



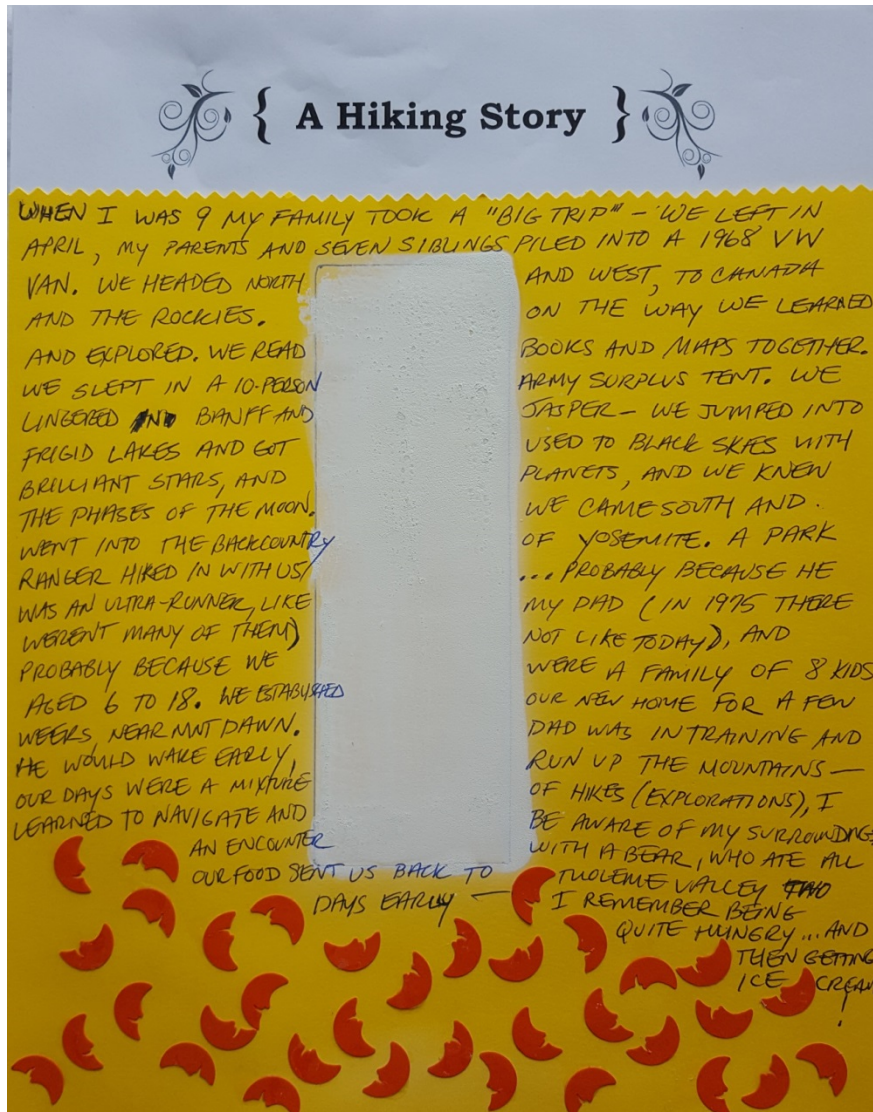
A map that makes her favorite hike look really impressive:



Someone she sees as not paying attention to the nature around them:



A Hiking Story:



**Image 4.8: A Hiking Story scrapbook page from Alice.**

James  
 Age: 13  
 Gender: ♂ Male  
 Relationship status: Single  
 Ethnicity: White  
 Job field: in middle school  
 Hiking frequency: 1 or 2 times every 2 months  
 Typical hike length: large virity  
 Comfort with and use of technology: moderetly comfortable with technology used everyday (almost) reearch, videos, games,

Would rather...: contribute to a conservation effort by pulling invasive weeds while hiking.

Would rather...: “be on a trail allowing Domestic animals” than “be away from Domestic animals.”

Would rather...: “hike on top of a mountain” than “walk through a valley.”

Would rather...: “be on a hard hike with great views” than “be on an easier hike with less views.”

Would rather...: “be with a large group of hikers” than “be with one or two hikers.”

Natural scenery he sees everyday, so he finds it ordinary instead of beautiful:



Something he brings on hikes for a worst case scenario:



A product for hiking he'd love to save up for:



The worst app he thinks anyone can be using on the trail:



Technology Use of Other Hikers:



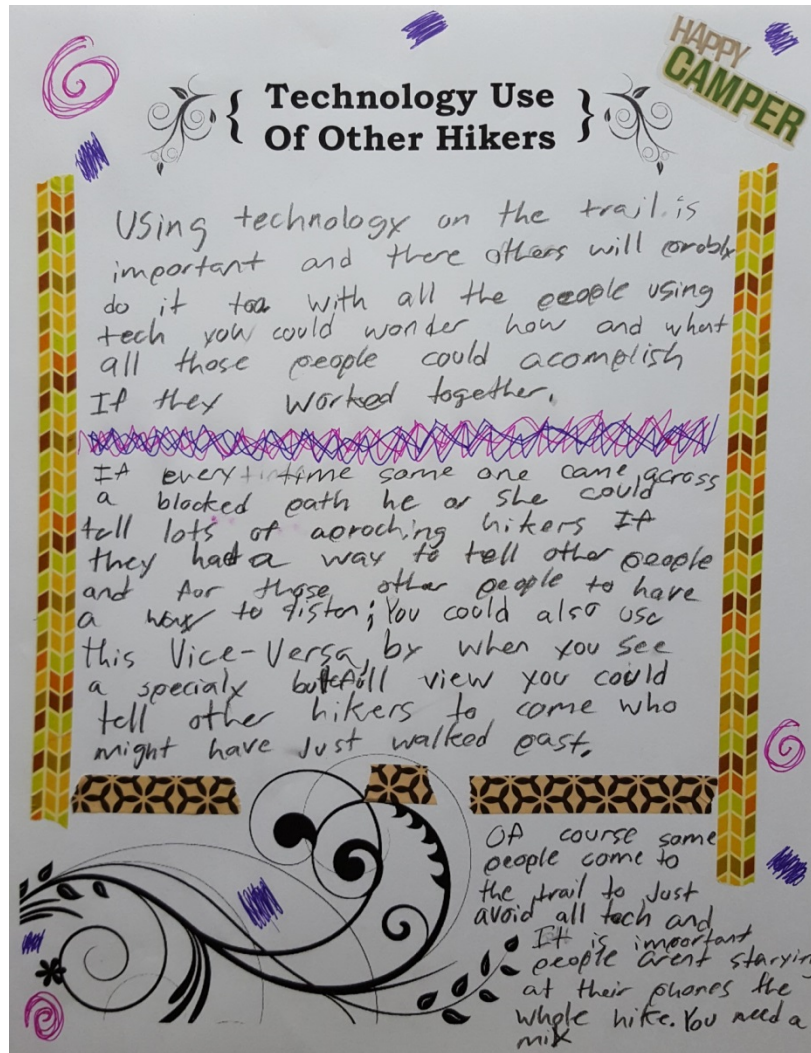


Image 4.9: Technology Use of Other Hikers scrapbook page by James.

Mary

Age: 54

Gender: female

Relationship status: not married but in a relationship

Ethnicity: American

Job field: Sales Management

Hiking frequency: once a month

Typical hike length: 3 miles

Comfort with and use of technology: I am comfortable with the basic use of technology and use it on a daily basis at work and at home. I use my phone for e-mail, as a camera, and for google searches in addition to using it as a phone to call + text. I use the internet at work for many things such as looking at our competition, inspiration for product ideas, market analysis, etc. I am not comfortable with the use of technology beyond the basics and often have to ask my children for help!

Would rather...: be told about someone else's favorite hike and wind up loving it herself because "this way I can find new places I want to go."

Would rather...: hike on an isolated trail with decent scenery and nobody else in sight because "part of hiking is 'getting away from it all.'"

Would rather...: have her phone map app ping her a notification if she starts straying from the trail because "I would want to know before I've gone too far."

Natural scenery she sees everyday, so she finds it ordinary instead of beautiful:



Someone hiking who she wouldn't expect to see doing so:



An impressive number or figure related to your hike:

"The mountain is largely composed of highly metamorphosed 400-million-year-old schist and quartzite rock primarily associated with the Devonian Littleton Formation, a stratum that extends south into Massachusetts and north into the White Mountains."

A photo which is either more or less beautiful than the real place it was taken at:



An advertisement for a trail which is effective on her:





Someone she sees as not paying attention to the nature around them:



Hike Club Highlights:

“My hike club is made up of mostly neighbors and we meet about once a month to discuss a hike over yummy refreshments. We rotate houses and take turns picking which hike everyone will take.”

“It is a multi-use hike and bike trail and would be most beautiful in the Fall with all of the colors.”

“We talk about whether we would recommend it to others. We decided to ask the president of our neighborhood association if we could post little reviews of our hikes on the neighborhood website so people can pick which hikes might be good for them and their families.”

Indoor Hike Highlights:

“One of the reasons why I hike is for the exercise and although my indoor hikes were not as rigorous as most outdoor hikes, I definitely feel that indoor hiking accomplishes the goal of getting exercise. Especially when stairs are involved such as in my house and the hotel!”

“While you can look at things and people and see things you wouldn’t normally notice if you were shopping as opposed to indoor hiking, it is just not the same as being outdoors and looking at the natural scenery around you.”

“Whether I’m hiking alone or with friends and family, hiking brings me a certain peacefulness or calmness.”

“Surprisingly when I took a little rest during the hike inside my own house I did find it rather peaceful. I took it in a guest room where I never spend any time so I think the newness and quietness of this room were peaceful.”

“Other than knowing I had exercised, there was no feeling of accomplishment on my indoor hikes.”

Why She Hikes:

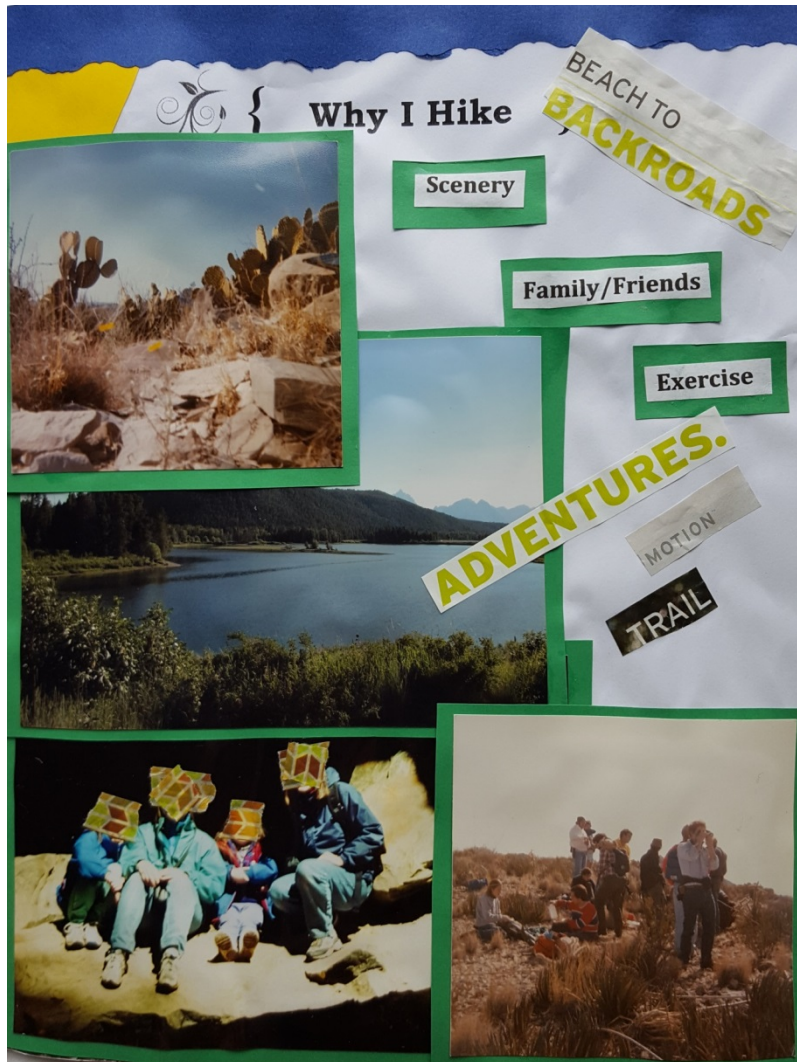


Image 4.10: Why I Hike scrapbook page by Mary.

Michael  
Age: 29

Gender: Male

Relationship status: Single

Ethnicity: Caucasian

Job field: Computer Science

Hiking frequency: In an ideal world, weekly. In reality, monthly.

Typical hike length: 3-5 hours

Comfort with and use of technology: I prefer technology over most people. It's ingrained into my life to a significant degree, and I use it for basically everything. Except GPS. For whatever reason, I prefer driving on my own and potentially getting lost to having a disembodied robot voice telling me where to turn. (Surprisingly fitting with #5 "would you rather.")

Would rather...: hike on an isolated trail with decent scenery and nobody else in sight.

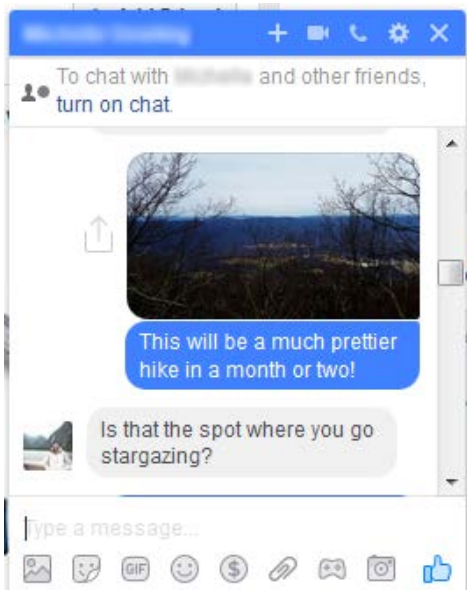
Would rather...: have his phone map app stay silent so he can discover when he's strayed off the trail on his own.

Would rather...: contribute to a scientific endeavor while hiking by passively collecting data with an app.

Natural scenery he sees everyday, so he finds it ordinary instead of beautiful:



A time he told a friend about his hike:



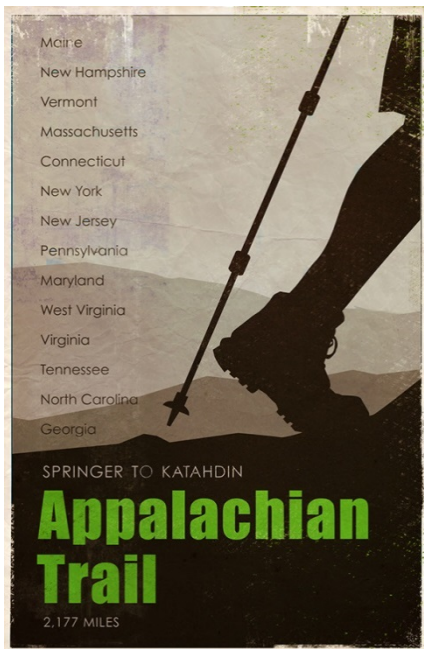
An impressive number of figure related to his favorite hike:



A photo which is either more or less beautiful than the real place it was taken at:



An advertisement for a trail which is effective on him:



A time he connected with a fellow hiker through technology:



Someone he sees as not paying attention to the nature around them:



Sally

Age: 19

Gender: Female

Relationship status: Single

Ethnicity: White

Job field: Student, (research as part-time job)

Hiking frequency: once/week during school year, otherwise almost every day (I went on a 10-week 1,000+ mile hike last summer)

Typical hike length: 8 miles

Comfort with and use of technology: I am comfortable with smartphones/internet. I use a smartphone to record GPS when I'm running, to text, call, and check the news. I use my laptop for schoolwork and streaming music.

Would rather...: be told about someone else's favorite hike and wind up loving it herself.  
 Would rather...: be present in a photo of a stranger which goes viral and gets millions of views.

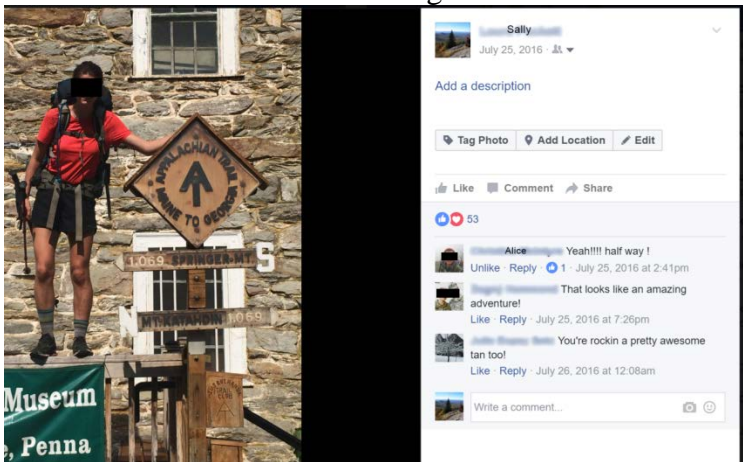
Would rather...: "write about the place" than "take a picture of a place."



Natural scenery she sees everyday, so she finds it ordinary instead of beautiful:



Someone on social media reacting to her hike:



Something she brings on hikes for a worst case scenario:



A gadget marketed for hiking which is way more expensive than it's worth:



**MSR**  
Tent Stake Hammer

**\$29.95**

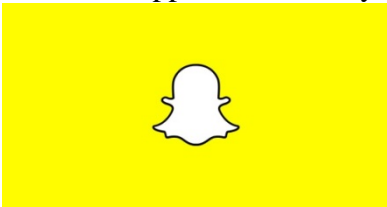
An impressive number or figure related to her hike:

<b>Offset</b>	<b>Milestone</b>
0.0	<i>Springer Mountain, GA</i>
78.2	<i>North Carolina-Georgia Line</i>
166.4	<i>Fontana Dam, NC</i>
273.4	<i>Hot Springs, NC</i>
465.3	<i>Virginia-Tennessee Line</i>
469.0	<i>Damascus, VA</i>
861.9	<i>Rockfish Gap, VA</i>
1006.3	<i>West Virginia-Virginia Line</i>
1023.0	<i>ATC Side Trail, WV</i>
1023.7	<i>Maryland-West Virginia Line</i>
1064.6	<i>Pennsylvania-Maryland Line</i>
1102.4	<i>Pine Grove Furnace SP, PA</i>

An advertisement for a trail which is effective on her:



The worst app she thinks anyone can be using on the trail:



A selfie taken while hiking that was worthwhile:



Scrapbook Page:



**Image 4.11: A Hiking Story scrapbook page from Sally.**

Susan

Age: 60

Gender: Female

Relationship status: Married

Ethnicity: American (English, Hungarian, German)

Job field: Environmental Consulting

Hiking frequency: 1-2 times per week - 1-2 miles on beach; sometimes (@ 1/month) longer hikes @ 5 miles. Used to hike more when I lived in NH - would hike in woods or climb mountains. On vacations I take longer hikes 8-15 miles. Also take kayak paddles usually @ 8-12 miles; longer on vacation.

Typical hike length:

Comfort with and use of technology: I am not comfortable with general use of technology such as smart phones and internet. I use my phone for calls, texting, photos, clock, and sometimes driving directions - nothing else. I use the internet for work often and rarely use it for fun as I'm on the computer for work all day and don't like to use it for free time.

Would rather...: get trail recommendations from a site where many hikers all rate trails “but I probably wouldn’t use either. I like to do the hike without preconceived notions and decide for myself how much I like the hike.”

Would rather...: be present in a photo of a stranger which goes viral and gets millions of views because “I wouldn't post a photo so nothing to go viral. I'm not on facebook, twitter, or any other public Electronic site and I only look at U-tubes if someone sends me one. I'd rather not be in a photo that goes viral, but, I guess I wouldn't care if I was in a photo of a stranger that went viral as long as I wasn't in a compromising position and didn't look stupid!”

Would rather...: have an app for relaxation that plays sounds of nature but “I don't think I would ever sit still just to watch images of nature. The sounds would be OK if I was doing something else and just listening. I usually don't listen to music when I run as I like to listen to the sounds around me, but sometimes I will listen to a book on tape.”

Natural scenery she sees everyday, so she finds it ordinary instead of beautiful:

“I don't find this to ever be the case with me. I never tire of natural scenery that I thought was beautiful to begin with. I always am amazed to view over and over and natural scenery looks different to me all of the time, especially through the changing seasons.”

Someone hiking who she wouldn’t expect to see doing so:

“A miniature Chihuahua. Owner said they don't carry him at all and he will hike 8-9 miles with them. He had to run just to keep up with them. Also when I lived in Colorado we often saw women in the mountains with high heels or people with flip flops, shorts, and tank tops. No jackets, no water - crazy dangerous.”

A time she connected with a fellow hiker through technology:

“I can't remember a time I connected with a fellow hiker through technology, but I did connect with a Japanese hiker who spoke no English (I speak no Japanese) while we both were cooking up ramen noodles for lunch. I also connected with a man in Costa Rica over an umbrella and some snorkeling gear. We were the only people on a beach and he spoke only Spanish and I only spoke a little Spanish. We tried to communicate and he indicated that he had an umbrella to keep the sun off instead of the rain which I understood. We signed and demonstrated how to use our mask and snorkel and he saw the fish and corals in the water where he often swims for the first time. A definite connection.”

Someone she sees breaking park rules without realizing it:

“Dogs on the dunes of the Cape Cod National Parks. My husband I drove into a State Park campsite late at night in the NH mountains. Instead of setting up a tent, we moved the cooler outside onto a picnic table to make room in the van for our dog and we all slept in the van. We were awakened in early morning by some noise outside the van. Our dog Scanlon was intently looking out the window at a bear that had opened the cooler and was helping himself to some chocolate milk and pasta. He grabbed these goodies and moved off a little ways into some trees to enjoy the munchies. Not wanting this bear to still be hanging around when campers started to awaken, I jumped out of the car and grabbed the cooler and food and threw them in the car then jumped up and down and waved my arms. The bear meandered off. There was a sign on the picnic table where we had placed the cooler the night before which indicated that no food should be left outside

in the camp site and should be placed in the locking metal containers provided by the park. Oops!”

Things she searched for online before, during, or after a hike:

“I rarely search for any information about a hike before a hike, but occasionally have looked up information about the hike afterwards to find out more information about a place, historic use, historic buildings or person, or about the previous general history of the area.”

Hike Club Highlights:

“I also remembered that we took our shoes off at the lake and dangled our feet in the water and fish were nibbling our toes, so we threw some cereal in and nibbled on that.”

“On the rainy hike, my nieces liked the views and all the animals, especially the Pika and the Marmots. One niece also indicated that the lake was the most beautiful place she had have ever been.”

“I did bring extra thermal wear for them to wear, but once that cold lake water drenched us, it was cold.”

“Dad indicated he wouldn’t mind a geocache along the way and that it might help families keep children interested. I sort of agree that it could help families and might be a good safety feature, but would only pull it out in case of an emergency.”

Indoor Hike Highlights:

“I didn’t feel like this was hiking for the following reasons:

There is no beautiful scenery or animals.

It was too crowded with people,

you didn’t need to bring anything with you as there was water, drinks, and food

You didn’t need to bring clothing for changing weather”

“I saw people having races with the shopping carts and racing through the warehouse area by running and jumping on the warehouse carts for a ride. It looked like fun, but I’m sure against the rules.”

“I tried to treat this exercise as more of a hike so I did not tarry long at exhibits but instead tried get more of a sense of the aquarium as a whole and how it was laid out.”

“It was fun to see the excitement of children viewing some of the exhibits, but I found myself feeling sad at the captivity of life for some of the animals such as the penguins and otters. They were in fabricated natural settings, but the areas were too small and boring for the animals. “

“A grocery store essentially has a trail if you go up and down all of the aisles.”

Why She Hikes:

### **WHY I HIKE**

1. I like to be outdoors
2. To see plant and animal life
3. To spend time with my dog
4. To reduce stress
5. To inhale the odors (ie. plant growth, salt of the ocean, moss in the woods, blooming lilacs in a park, etc.) and take in the sounds (Spring peepers, swaying

- trees, hooting owls, call of the coyote or the loon, and even the urban sounds of the cranes in the boat yard, the sounding of a lighthouse, the street musician) in which I hike
6. To get exercise.
  7. To see new places. To see familiar places.
  8. To see beautiful scenery such as mountains, waterfalls, canyons, ocean views, glaciers, geologic wonders, plains teeming with buffalo or elk and other ecosystems with wildlife.
  9. To view sunsets or sunrises in beautiful places.
  10. To visit old places to see how they have changed through the years or seasons.
  11. To spend quality time with friends.
  12. To let my mind rest and wander
  13. To travel from 1 place to another by my own power and to spend the night in solitude.
  14. To get away from urban areas and people
  15. To get to the top of a mountain, to a mountain lake, to the end of a trail, etc.
  16. To challenge myself
  17. To get my nieces, nephews, and grandchildren outdoors so they can experience wilderness areas and challenges
  18. To be alone. To be where people and technology can't find me

Her Technology Use:

#### **TECHNOLOGY USE ME**

1. Technically advanced clothing such as gortex, down, breathable, light, and flexible fabrics, etc. to protect me from the weather & the trail and enable free movement and comfort.
2. Technically advanced boots/hiking shoes/footwear to keep my feet dry, sweat-free, warm, and to enable me to grip rugged terrain, move through snow (snow shoes, X-country skis), protect my feet from sharp subsurface rocks & shells (Texas for kayak paddles)
3. Technically advanced tent to stay up in the wind, protect me from snow & rain, light to carry, small to pack
4. Headlights and other small lite-weight lights
5. Technically advanced sleeping bags designed for type of weather and to be lite-weight and pack small
6. Several hiking packs depending on length of hike and terrain – packs specifically designed for hiking length and type of items that should be carried – designed to be supportive and light.
7. Water pump and filters for clean water
8. Water storage system that fits in back pack or on life jacket with tube to mouth to allow drinking without holding a bottle.
9. First aid kit
10. Cell phone if it's a short hike. If multi-day hike or paddle the battery will run down so I don't bring it.

11. Watch
12. I don't hike with a GPS or all weather radio, but, often hike with people who do.
13. Freeze-dried food that can be easily cooked with water
14. Dry bags for kayaking and pack rain cover to keep hiking clothes, tent, sleeping bag dry.
15. Lite-weight easy to use cooking system that is small for packing
16. Camera to take photos.
17. Maps if it's a continuing hike or in areas with unmarked or poorly marked trails sometimes made water-proof. Also to figure out trail itinerary if it's a multiple day hike, ski, or paddle.
18. Solar shower

Teresa

Age: 31

Gender: Female

Relationship status: Married

Ethnicity: white/Caucasian

Job field: academia (humanities/social sciences)

Hiking frequency: once or twice per month

Typical hike length: 2-4 hours

Comfort with and use of technology: Comfortable late adopter. I've had a smartphone for less than a year (though I had a tablet before that). I use the internet every day for work/research, communication, news, and entertainment.

Would rather...: tell a friend about her favorite hike and they wind up loving it but "this one was the most difficult choice for me. I'd be very happy with either one!"

Would rather...: have an app that will take a scenery screenshot from a video game and tell her real life places with a similar landscape because "I don't play video games and I wouldn't be terribly interested in either of these. But, if I come across a beautiful screenshot somewhere, option 2 would be interesting."

Would rather...: have her phone map app stay silent so she can discover when she's strayed off the trail on her own because "[the other] would annoy me really quickly, but it would be nice to have the option to look at the app and find out."

Would rather...: contribute to a scientific endeavor while hiking by passively collecting data with an app.

Would rather...: have an app for relaxation that plays sounds of nature but "only at home/work (not while actually outside)."

Will

Age: 22

Gender: M

Relationship status: single

Ethnicity: white

Job field: grad student



Hiking frequency: undergrad: multiple times her month; Texas A&M grad student: ~2x/semester and more over breaks  
Typical hike length: dayhike: 10-20 mi. (weekend) backpacking trip: 15-30 mi.  
Comfort with and use of technology: Very comfortable with smartphones since May 2016 when I got my first smartphone. Moderately tech savvy for typical college-aged millennial, sometimes more so. I use technology nearly 24/7 and look at a screen for the majority of the day. Use my personal computer for school assignments and notes, TA duties, writing my thesis, etc. Use my smartphone for communication, entertainment, navigation, camera, password manager, etc. Use my internet-abled TV for entertainment.

Would rather...: tell a friend about his favorite hike and they wind up loving it because “[it’s] very satisfying and I like to figure out my favorites myself over many years of exploring, constantly refined.”

Would rather...: hike on a crowded trail with gorgeous scenery because “I think we would all prefer something in the middle, but a big part of hiking (and life in general) is sharing the experience with somebody.”

Would rather...: “hike a less popular trail with your best friend(s), and perhaps less scenic” than “hike a popular trail alone, but meeting and hiking with people along the way” because “[I] want to have people to share it with who are hiking the same hike, and don’t come and go, never allowing enough time to really get to know them and spend quality time with them.”

Would rather...: “hike through legendary, life-list scenery with NO WAY to capture the moment (i.e. NO TECHNOLOGY)” than “hike through mediocre scenery, fully connected to the outside world with the highest technology available” because “this one is difficult. I would have a really hard time with NO TECH over LONG hikes, and may actually prefer the other option in that case.”

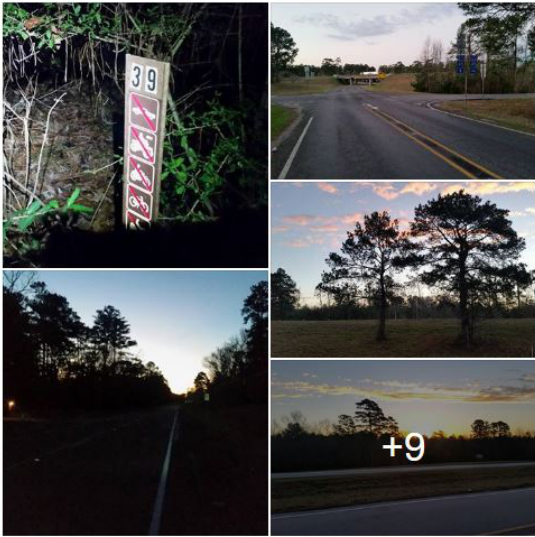
Natural scenery he sees everyday, so he finds it ordinary instead of beautiful:



Someone on social media reacting to his hike:

**Will** added 13 new photos to the album: LSHT  
Jan 2017 — at Sam Houston National Forest  
January 23 · 🌐

Didn't make it the entire way, but was blessed with sunshine and solitude on a well-marked and well-maintained trail. It became more about the journey than the destination. I'll be back to explore this trail more.



👍 Like    💬 Comment    ➦ Share

👤 Sally    👤 Person 1 and 9 others

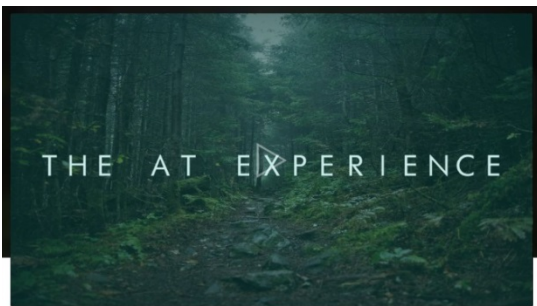
**Person 2** Hell yeah! Beautiful pictures! I feel like after hiking the whole friggin AT you can stop and start any hike whenever you please 😊  
Unlike · Reply · 1 · January 23 at 1:30pm

Write a comment... 📷 🗨️

Someone hiking who he wouldn't expect to see doing so:



An advertisement for a trail which is effective on him:



The worst app he thinks anyone can be using on the trail:



A selfie taken while hiking that was worthwhile:



Why He Hikes:



Image 4.12: Why I Hike scrapbook page by Will.

Proof He was There:

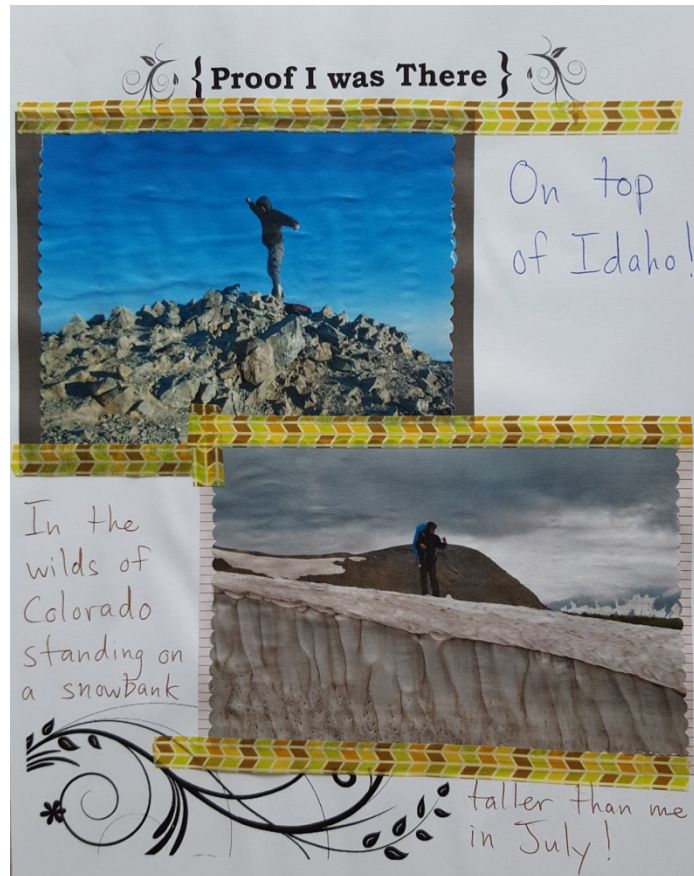


Image 4.13: Proof I Was There scrapbook page by Will.

## Contradictions and Themes

### Provocative Specific Incidences for a Single Participant

#### *Sally's Home*

On her first Scrapbook page, which followed the prompt “Why I Hike,” Sally wrote in large letters “Nature is my home.” The pictures on the page depict black and white scenes of nature, and she used colored pens to accent two of the pictures. The page has a strong aesthetic focus. She used the scrapbook paper with floral prints and natural colors. She even cut out the image of a chickadee from one scrapbook paper to paste onto these chosen papers.

However, almost every other picture included in her other responses focus on people, not nature. Her “A Hiking Story” Scrapbook page includes the scrapbook papers with maps and grids on them, and the images are from her thru hike of the Appalachian Trail, but the chosen photos have people in them. One of the photos is of her standing by the

signpost marking the halfway point of the AT, and another shows a person looking at a hilly expanse. However, these photos don't depict the trail itself, the gorgeous one-of-a-kind destinations on the trail, or finding a "home" in nature.

She also chose to answer the Scavenger Hunt prompt about a selfie taken on the trail, and the selfie in question features a group of eight people. Another Scavenger Hunt response shows how her AT halfway photograph was posted on Facebook for friends to respond to. Her responses to the Would You Rather questions were generally the less social options, such as wanting to like a hike mentioned by someone else and preferring to hike on an isolated trail. This seems at odds with the people-focused photographs included in her scrapbook and scavenger hunt.

In her Demographics Survey, Sally describes herself as being comfortable with technology and mentions using her smartphone in various ways while she goes running, such as GPS (though she answered in Would You Rather that she would prefer her phone to not ping her if she strays off a trail). However, she put down the Snapchat icon as the worst app someone could use while on the trail. Yet, many of the photographs in her responses are of herself. To be fair, it appears that many of the selfies were not taken by herself. The Scavenger Hunt selfie was definitely taken by someone else in the picture, and her photos from the AT might have been taken by someone nearby.

There are several possible interpretations of these contradictions. The lack of photographs of natural scenery could be a consequence of not taking many pictures while hiking in general, so she's left without many scenery shots to use in her Scrapbook. This could be supported by the fact that one of her AT selfies was posted on Facebook for friends to see. The photo might have been intended to update family and friends of her progress rather than fulfilling a desire to photograph her experiences. She also covered more Scrapbook surface area with the scrapbook papers than most participants did, meaning she has less photographs on her pages in general.

Another interpretation would be that the social aspect of the trail could be more important to her than her responses directly convey. This would be in line with other themes and contradictions in the probe responses as a whole. Many people hike both to connect with nature in isolation and also to be social with friends and family. Nature being her "home" could also be including her social sphere in her meaning of home. Many people consider their loved ones to be part of their meaning of home.

### ***James's Technology***

On his first Scrapbook page, which follows the theme "Why I Hike," James expresses a desire to get away from buildings, cars, and machines. He also mentions feeling independent from machines. However, his Scrapbook page about "Technology Use of Other Hikers" launches into a specific hypothetical technology that would be beneficial to all hikers. The proposed technology is a method of hikers warning each other in real

time when they come across blockages or problems on a trail. He also mentions that it could be used for the opposite with hikers telling each other when they find a beautiful view. The bottom of that very same Scrapbook page adds the caveat that people shouldn't stare at their phones for the whole hike and concludes with "You need a mix."

His interpretation of technology appears to be oriented towards the digital. In his Demographic Survey, James says he's moderately comfortable with technology and he uses it every day. He lists some of his typical uses such as videos and games. The proposed technology in his Scrapbook sounds like a phone app or a website, and he mentions looking at screens. When talking about a desire to escape from society, he specifically mentions machines and cars. And yet, his Scavenger Hunt response for something he'd like to save up for is an impressive hammock for camping. This is the only place he addresses nondigital technology in any way.

His proposed technology is very socially-oriented, so it's possible the contradiction of embracing and warning about technology lies in the "greater good" vibe. His Scavenger Hunt response to the worst app anyone could be using on the trail was the Taco Bell app, which (in addition to being unhealthy) isn't social at all. Since he warns against staring at screens for too long, it could be the "being present" aspect of hiking that he doesn't want technology to interfere with. His proposed technology would help hikers better respond to their environment and to each other while being present on the hike.

As a last note about his social view of hiking, he created his own Would You Rather question which asks whether someone would want to hike on a trail with or without domestic animals, which he said yes to. This could mean he has a pet he takes on hikes, or it could indicate that he's thinking about the prospect of coming across other hikers on the trail who have their own pets and likes that idea.

### ***Mary's Exercise***

Mary mentions "exercise" as one of the reasons why she hikes in both her Scrapbook and her Indoor Hike. It's also implied in her Hike Club response when she mentions how rigorous the trail was and also its potential multi-purpose uses such as being bike friendly. She thinks of exercise as being a potential use of trails in general. Exercise is the first bullet point listed on her Indoor Hike response for reasons that she values hiking.

However, she goes on to talk about the Indoor Hike being unsatisfying for other reasons, so exercise wasn't the most important criteria for a hike. There's also a distinct lack of exercise-oriented imagery in all of her responses. She offered two images in response to the Scavenger Hunt prompt about advertisements which motivated her, and both of the ads focused on the trail itself (although one woman is wearing athletic clothing in the picture). There were other Scavenger Hunt prompts where exercise could've easily come up, such as products to save up for, but it never did. Her own photographs in her

Scrapbook focus exclusively on the sights at the end of a trail and on people, presumably her friends and family.

One interpretation would be that exercise is a normal enough activity for her that she wouldn't take photos related to exercise, whereas being with friends and family and making it to the end of a trail are less common occurrences and she takes commemorative photographs. This would be supported by the fact that she reports hiking once a month, and most people who exercise do so more frequently than that, so hiking is probably not her only form of exercise. Exercise might be something she appreciates about hiking, but it's not her primary consideration. That's why her Indoor Hike didn't compare to an outdoor hike even though it satisfied her desire for exercise.

### ***Mary's Social Drive***

Throughout her responses, Mary expresses both the desire to hike alone and to hike with friends and family. Obviously, she can't do that simultaneously, and the desires appear to be contradictory. In her Indoor Hike response, she lists peacefulness and calm as a reason she goes hiking, and in the same sentence she says that hiking alone and hiking with family both fulfill this need. On the Would You Rather question about hiking alone, she wrote next to her choice of an isolated trail "part of hiking is 'getting away from it all.'"

However, people are an integral part of her responses across the board. More of her Scrapbook photos include people than don't, although a few of the photographs focus exclusively on beautiful scenery. Her Hike Club response is also extremely socially oriented, and interestingly, it talks about the club involving "neighbors" rather than "hikers" or "friends." She also mentions on her Indoor Hike that it resembles outdoor hiking due to other strangers being nearby and stopping to rest.

It could be that Mary associates trails and hiking with having strangers and other people around even if she would rather be alone, like she indicated in the Would You Rather question. She draws a similarity between indoor and outdoor hiking due to people being nearby, but she doesn't list it as a reason she enjoys hiking. She took her Indoor Hike and her Hike Club hikes alone, so she might enjoy isolation most but still finds being with friend and family peaceful.

The opposite is also possible: Mary prefers hiking with friends and family, so most of her photographs focus on that, but she still enjoys hiking alone as well. This is better supported by her strong family focus in many of her responses. She mentions families in both her Hike Club and Indoor Hike, such as noting strollers in the mall and mentioning whether a hike would be family friendly for neighbors. Her photographs in her Scrapbook also feature the same young people (teenagers or young adults) multiple times, and one photo that looks old shows young children, so these photos are likely of family members.



### ***Alice's Lack of Technology***

In her Demographic Survey, Alice says she's comfortable with technology and is an early adopter. She uses technology daily at work. However, she also says she limits her technology use. She lives in a rural area, and she intentionally doesn't have Internet at home.

On the Would You Rather question, she indicated she would rather not have a phone app tell her when she wanders off a trail. Her Scrapbook pages are visually oriented around a white blaze on the center of the pages, which mimic the blazes on trees that mark the Appalachian Trail. This is a very low tech method of navigating. On her "A Hiking Story" Scrapbook page, she tells the story of a lengthy family camping trip when she was young, and over the course of the trip she learned many low tech skills like navigating and stargazing. She mentions in another page her desire to know her bearings, which comes across as an awareness that doesn't rely on technology.

In Scavenger Hunt responses, she does provide two different selfies. This means at the very least, she brings a smartphone with her while hiking. She limits her technology use at home, so it's possible she considers hiking to be one of the places where she doesn't limit technology usage, but it seems at odds with the low tech emphasis of her wording in her Scrapbook. One unfinished Scrapbook page has a series of photographs of McAfee's Knob, a popular local hike destination, and it's unclear if she took these photographs herself or found them. There are occasionally sets of people in these photos, but the primary focus is on McAfee's Knob in different seasons and lighting. It's a clear use of technology to document a place she cares about.

### ***Will's Friends***

On his Scrapbook page themed around "A Hiking Story," Will arranges photographs and captions to tell the story of his thru hike of the Appalachian Trail. He has pictures of snow from the beginning of his trip, a picture with a group eating in a house, and some pictures of the scenery and wildlife before his final photo of himself at the summit where the trail ends. The photo of the group of hikers eating is captioned "made some friends..." so presumably he met these people on the trail and felt it was important enough to include in his Scrapbook. He also indicated his social inclination on one Would You Rather question that asks whether he would rather hike on a crowded trail with gorgeous scenery or an isolated one with decent scenery. He circled the crowded option and wrote that he feels most people would prefer something in the middle, but "a big part of hiking... is sharing the experience with somebody."

His caveat about preferring something in the middle comes to the fore with the Would You Rather question that he wrote himself. He asks if you would rather hike while meeting people along the way or hike with close friends, and he indicates the latter and elaborates that the former option doesn't give him quality time to get to know the other

people. That undesirable scenario sounds like the experience depicted in his Scrapbook page about making friends while hiking the AT. On his first Scrapbook page, he includes as part of “Why I Hike” a group photo and a caption about sharing the experience with friends.

The tension in his Would You Rather question is illuminating, and sets up a nice tension for design implications. Many other participants in this study demonstrated some tension between the desire to hike alone and to hike with friends and family, but Will’s scenario is more subtle. He wants to be social while hiking, but there’s a clear difference between meeting new people and making friends while hiking compared to hiking with closer friends from the get go.

Most people don’t have many friends who would be willing and able to thru hike the entire Appalachian Trail with them, so it could be that his thru hike by necessity involved meeting random people and making some friends along the way even though on shorter hikes he would prefer to be with closer friends. It’s even possible that his social experience on the AT shaped his desire to hike with better friends instead.

### ***Michael’s Technology Preference***

“I prefer technology over most people.” This is how Michael began his answer to the Demographics Survey question about comfort with and use of technology. The interpretation of this line is up in the air; does he like technology more than most people like technology, or does he like technology more than he likes people? The rest of his responses might provide clues for interpretation, but a contradiction arises over a specific use of technology: GPS-guided directions.

In the same response that started with the above quote, Michael describes technology as being “ingrained in my life to a significant degree,” but mentions GPS as an exception. He says he prefers driving on his own without “a disembodied robot voice telling me where to turn.” He notes at the end that this is in line with a Would You Rather question about whether you would want an app to ping you if you go off a trail while hiking, which he answered with the no ping option.

He has other responses related to technology in general. He’s a Computer Science major, so he’s probably comfortable with a lot of technology. He has more Scavenger Hunt responses that feature social media than most of the other responders do, and he uses Facebook and Reddit based on those screenshots. However, he also had answers following the typical anti-technology narrative about distracted hikers. His Scavenger Hunt response to someone not paying attention to nature was a stock photo (the watermark was clear) of a hiker engrossed in a cell phone. Even more interesting, the person in this photo is clearly wearing serious hiking gear rather than being coded as a city slicker or something similar. Although Michael embraces technology, he appears to have a few caveats

One other interpretation of his hesitation for the GPS-related technologies revolves around his word choice of “disembodied voice.” It could be an uncanny valley type of distaste with the delivery of instructions from a phone. Or, it could be a question of agency and being told what to do.

## **General Contradictions and Other Themes**

### ***Invisible Technology***

Of course, technology use and nonuse lie at the heart of Technology on the Trail’s interests. Despite the probes not focusing on hiking more than technology, the responses frequently provided insights about technology use of hikers. Many of the participants included mention of technology in prompts which weren’t inherently about technology, and sometimes what a participant didn’t say provided information as well. This section about technology will revolve around the theme of “invisible technology” due to the tendency of responses to gloss over technology involved in hiking because the technology is such an everyday part of their lives.

The most stark scenario is also the most frequent: a participant mentions hiking, but doesn’t mention bringing any digital technology with them. They then provide photos of the trip. Clearly, they had a phone or camera with them on the trip, but they never specifically mention the act of bringing or using it.

From the metadata of the photographs and from a brief mention in her Scrapbook, it’s possible to tell she had an actual digital camera with her. All other visible metadata on responses from other participants indicated smartphones took the photographs. In the Scrapbooks, it’s difficult to know the origins of a printed picture, but many of the photographs Mary used were on actual photograph paper. Some of them looked like old photos due to overexposure and general quality.

In addition to not mentioning their smartphones or digital cameras, many participants failed to mention any of their highly engineered but nondigital forms of technology they bring hiking. For example, it’s unlikely that either thru hiker completed their journey without high quality hiking gear, but neither mentioned what gear they did or didn’t bring. The question up for interpretation is whether this is a case of the above point, where participants generally don’t mention the technology they bring, or if this is a case of the participants not defining their analog gear as “technology.” The definition of technology was left completely up to the participants. Since most participants didn’t write down their definition of technology anywhere, only fragments of clues exist in the data. For example, James’s Scrapbook focuses on digital technology such as screens and apps even though his Scavenger Hunt includes a response that he’d like to save up for an advanced camping hammock. Since nothing similar to camping gear comes up in his Scrapbook, it stands to reason that James doesn’t define nondigital gear as technology.

One notable exception to this ambiguity is Susan, who goes so far as to list every digital and nondigital piece of technology that she brings on her typical hikes. This makes up part of her Scrapbook response to the technology prompt. Her definition of technology is clear. She lists clothing, gear, camping equipment, food and water, and much more. She includes her camera in this list. Some of the entries include caveats, such as noting she'll only bring a cell phone if it's a short hike and she rarely brings a GPS but her fellow hikers often do. In her Indoor Hike, Susan also mentions that indoor hiking doesn't qualify as true hiking by her definition because no gear or preparation of any sort is required, which is a unique response. When telling the story of hiking with her nieces in her Scrapbook, she starts by mentioning what equipment she packed to bring along and her reasoning for such.

While their own technology regularly went unmentioned, many participants had thoughts to offer about the technology use of other hikers. To be clear, some of the prompts in the Scavenger Hunt and Scrapbook specifically asked about how other hikers use technology, so much of this discussion was prompted. However, even for the prompts that were leading, such as the Scavenger Hunt prompt "someone who isn't paying attention to the nature around them," the participants still chose to interpret and respond to the prompt.

The most visible technology of other hikers appears to be smartphones. Everyone who chose to answer the aforementioned prompt about not paying attention to nature responded with a stock photo (definitely in two cases and most likely in the others) of someone looking at a cell phone while surrounded by natural scenery. Some participants went into more depth, such as Will's Scrapbook page that included mentions of Snapchat, Facebook, Instagram, and ended with "testing while hiking kills" and a stick figure about to unwittingly walk off a cliff while texting. Indeed, several participants (including Will) put down Snapchat as the worst app anyone could be using on the trail. Others, such as James, warned about overuse of screens despite an overall optimistic tone about technology in hiking.

Susan's examples of the technology use of others extends beyond smartphones. In her Scrapbook, she lists both her own technology use and the technology use of other people she hikes with. All of the gear she lists for other people are digital, such as weather radios and fit bits. Presumably, they're also wearing clothing similar to the advanced hiking gear she describes herself wearing. In a Scavenger Hunt response, she notes how irresponsible it is of some hikers to not be prepared with the proper nondigital gear such as shoes, coats, and food. So, Susan appears to notice the technology use of other hikers across the board in addition to acknowledging her own extensive usage of technology.

Susan also brings up a compelling complication with her distinction between technology that she uses and technology that others use: she often benefits from the technology that her fellow hikers bring on their trips together. While she rarely brings digital technology such as GPS units or phones, if her friends have them, she can use them when necessary. She has also been on the providing end of this relationship when she brought extra water bottles and lightweight thermal jackets for her nieces on their long hikes up a mountain.

With the strong focus on the social aspects of hiking in most of the prompt responses, the physical sharing of technology should hardly be a surprise. However, the typical narrative about hikers and technology (and to some extent, within Technology on the Trail discussions) focuses on being bothered by the technology of others, such as people texting or snapchatting on the trail. And while that negative view is present in several responses to these probes, this one bullet point about the benefit of sharing technology provides a completely different lens to go back and use while thinking about the technology that other hikers bring. Susan doesn't bring GPS with her, and she would gain nothing if she chose to bring it when her hiking friends already bring their own anyway. Some technology provides no benefit when multiples are brought on the same trip, yet most technologies are designed for single users. Even something like a smartphone can benefit the other hikers within a social group. Multiple participants included selfies or group shots of a group they hiked with that clearly had been taken by someone else. So, even if a hiker didn't bring a camera or smartphone, they could still potentially access photographs of their trip if their fellow hikers take photos and upload or otherwise pass the photos on.

At times, participants expressed a desire to not bring technology along yet have the option of using it in specific cases. Often, this would be in a worst case scenario. For example, the Would You Rather question about whether a map app should ping them if they wander off a trail gained the most justifications in the margins out of all the Would You Rather questions. Three of those justifications centered on only wanting the app for specific circumstances, such as being lost. In a Would You Rather question that he wrote, Will asked if someone would rather hike through legendary scenery with no technology or hike in mediocre scenery with technology, and although he chose the former, he added the caveat that when on extremely long hikes (such as his thru hike, presumably), it's difficult to have absolutely no technology. Some of Susan's responses indicated a similar preference for different technology based on the length or other circumstances of the hike.

To conclude the discussion of technology usage and invisible technology, it's important to note that direct discussion of technology in the responses tended to be divorced from discussion of love nature and being immersed in natural scenery. These nature and beauty oriented themes veins were frequent through all the responses, so the lack of technology in those ideas represents an emotional or perceptual divide between technology and nature. For example, nobody said anything similar to "I love looking through the lens of my camera to capture different views of a beautiful scene." The closest anyone came to such a sentiment was the desire to document an experience with photographs, but the idea of the digital technology that captured memories and the actual love of the scenery were separate. A good example of the separate is in Susan's Scrapbook, where her hiking story

begins with a cut and dry list of her preparations and technology she brought on the trip, and then never mentions any of that technology again as she proceeds to discuss how beautiful the scene was and how much it meant to her that her nieces completed the hike.

The invisibility of technology can be a goal for designers to strive for. The participants rarely think about their smartphones despite bringing them on their hike and using them to take pictures. However, considering the themes of viewing others negatively for using smartphones while hiking and the expressed desire to disconnect from technology, it's worth analyzing why the technology designed for hikers is so invisible and separated from the core of their emotional response about why they love hiking.

### ***The Social (and Asocial) Nature of Hiking***

Many of the specific contradictions above touched on the complexity of the social aspects of hiking, but mentions of friends and family were second in prevalence only to the beauty of nature. For a deeper look at specific social complexities, read the sections above about Sally, Mary, and Will. The following paragraphs are meant to reiterate a few crosscutting social themes that were significant.

Family was a central theme to the responses of several participants, particularly Susan, Mary, and Alice. Most of the topics discussed thus far about the probes were themes that also came out of the literature review and made it onto a list of codes to guide the analysis, including the popular topics like nature, beauty, and socialness in general. However, family was not on the original list of codes. Some of the papers in the literature review included families or touched on the idea, but nothing centered on family as a primary motivator for hiking.

Yet, in the probe responses, both spending time with family and sharing the experience of hiking with family were put forward as reasons in and of themselves to hike. Many of Mary's Scrapbook photos featured the same family members many times over, and Susan's hiking story revolved around sharing the same hike with different nieces on two different occasions separated by a few years. As a young girl, Susan herself had completed the hike with her nuclear family, and she mentioned the teasing pressure from family members for the nieces to accomplish the same feat. Alice also describes a family trip in her Scrapbook, and this extended camping trip introduced her to maps, stars, nature, hikes, and more. Many of these concepts are echoed as reasons she loves hiking elsewhere in her responses.

The family influence also cropped up in comments Susan's nieces made about said hiking trip. For her Hike Club activity, Susan interviewed her nieces, and they both echoed common sentiments about the distracting nature of technology and the barrier for

full immersion in the moment. One such statement reads, “I feel like you shouldn’t have a lot of technology while on a hike. It should be the time when you take in the nature around you without distractions. More technology would get in the way of experiencing the scenery around you.” One niece also mentions not wanting to know too much about a hike in advance so she can experience it without preconceived notions of the hike. That very particular sentiment is echoed in Susan’s own words elsewhere, and Susan also expresses opinions about the distracting nature of technology similar to her nieces. This brings the family resemblance and the influence of learning from family into the picture.

Participants frequently mentioned both hiking to be with friends and hiking to be alone, sometimes in the same breath. Mary’s contradiction is outlined in more detail in a section above, but in her Indoor Hike, she indicates in the same sentence that both hiking alone and hiking with friends and family bring her peace. Most of her other responses are socially oriented. In her list of reasons to hike, Susan also puts hiking to get her young relatives outdoors and hiking to be alone one after the other. James’s example also has a section above, but he expressed a desire to get away from buildings and cars specifically, yet his technology use Scrapbook page is socially oriented.

Six out of eight participants chose the Would You Rather option to hike on a decent isolated trail rather than a gorgeous crowded one. Will noted in the margin that he feels most people would want something in the middle. It seems the desire for some solitude and wanting to be with friends or family while hiking aren’t mutually exclusive.

### ***Hiking Goals and Exploring Trails***

The concept of exploration came up frequently for various participants. Sometimes participants would use the word “explore” specifically, but other times they talked about experiencing new things or discovering new places. The core theme tying the label “exploration” to these examples is going out in search of an undirected, novel experience. The undirected part comes to the fore due to the contrast with another prevalent theme: the goal-oriented nature of hiking.

For most participants, the activity “hiking” had a goal. Hikers follow a specific trail, and that trail has an end that can be reached to complete the hike. There were at least two thru hikers of the Appalachian Trail in the pool of participants, and thru hiking is the most extreme version of “completing” a trail as the motivating factor for the entire trip. However, even more casual hikers like Mary talked about a feeling of accomplishment from hiking.

Another manifestation of this “end” concept comes up in the photographs included in the responses. Most photos are taken at the conceptual end of the trail, such as the summit of

a mountain or the waterfall that marks the farthest point of a looped trail. Sally also included a photo of herself at the halfway mark of the AT on her thru hike. This was included in both her hiking story Scrapbook page and her Scavenger Hunt response to demonstrate a time people commented on said photo on Facebook.

Language used about hikes often included comments like “completing” a trail, and participants spoke of a feeling of accomplishment. Susan’s Scrapbook story also talked about the pressure of needing to complete the same trail that other family members had already accomplished.

Susan also directly addressed the concept of a “trail” in her Indoor Hike response. She noted that a trail did exist in Ikea and a trail could be imagined based on the layout of the aquarium and the grocery store, and the presence of these trails made the indoor hikes feel slightly more hike-like. And linking back to the concept of exploration, in these same indoor hikes, Susan described discovering new things and exploring the area with a mindset that was different from her everyday use of the spaces. So, despite having the goal of completing a trail, she retained an undirected exploration state of mind.

### ***“Fun” Not Included***

One intriguing if nitpicky theme from the probe responses is a distinct lack of the word “fun.” Very few participants explicitly mentioned that they hike for fun or for entertainment. “Getting away from it all” is one reason given for hiking, but that could easily be true without actually deriving joy from being away. Escapism isn’t necessarily having fun. Other reasons like exercise, experiencing nature, and spending time with family also aren’t necessarily enjoyable.

Two subjects are more common which could be interpreted as fun: a feeling of accomplishment and a feeling of peace or relaxation. Some participants mention both of these concepts, such as Mary in her Indoor Hike (where, in contrast to an outdoor hike, an indoor hike provided neither). Goals are discussed in a section above in relation to exploration, but for the purposes of this section, it’s probably fair to say that accomplishing a goal is a rewarding experience, which is similar to fun. Hikers feel satisfied when they reach the end of a trail or the top of a mountain. The feeling of peace and calm associated with hiking is often tied to experiencing the beauty of nature, which judging by the tone of the responses, the hikers clearly enjoy doing. Indirectly, that could be interpreted as fun.

Many participants also cite social reasons for hiking, such as being with friends, and generally people have fun with their friends. (Family could be a different story, but Susan and Alice definitely enjoyed their family hiking and camping experiences respectively.)



So the lack of the word “fun” clearly doesn’t mean that the participants don’t enjoy hiking or find it fun. However, it’s interesting that nobody directly put down fun as a motivating factor. Either the participants don’t actively think about hiking being fun, or they think it’s implied in the other reasons they listed.

### ***Immersion in Nature***

Finally, one of the the strongest recurring themes in the probes was the concept of being immersed in, surrounded by, and experiencing nature. Many participants referred to the beauty of nature and of natural scenery. Usually, this theme was also connected with a feeling of calm or relaxation as well as the desire to “be present” and in the moment. This is where the contrast of being “distracted” by smartphones was prevalent. Participants wanted to fully engage all their senses with the nature around them while they hiked.

Some participants also mentioned the notion of being at the mercy of nature. This is the only place the theme of control crept in, although control and agency were still infrequent in the probes as a whole. Alice’s Scrapbook explicitly mentioned being “at the mercy of nature,” and right next to that text, she described being “in tune with nature.” On the other side of the page, she mentioned getting lost and finding her way. James’s Scrapbook page talked about being in nature surrounded by animals and the elements, and this allowed him to feel wild and independent from machines. This is an intriguing dilemma for designers because technology typically aims to make a problem easier on humans. In the Would You Rather question about a map pinging them when they stray off a trail, most participants answered that they would rather it stay silent so they could discover they were lost on their own.

The danger of nature came up in a few other responses as well. Susan mentions how irresponsible it is to not be prepared with the proper gear for rough trail conditions such as the sudden onset of weather. Will’s Scrapbook page explicitly mentions texting killing and shows a stick figure about to walk off a cliff while on their cell phone. The need to be immersed in nature and to retain awareness of one’s surroundings could be about safety as much as it is about immersion in nature.

That said, the danger component of the responses was dwarfed by the general sense of being connected to and experiencing nature for its beauty and its relaxing properties. While practicality may be one reason that focusing on screens is seen as a negative behavior, the high value placed on being present in nature and on an exploration state of mind could lead immersion-breaking technology like smartphones to be seen as negative for purely philosophical reasons.

Overall, the connection to nature expressed by participants, such as “Nature is my home” written in Sally’s Scrapbook, evokes a relationship much closer than that of a tourist who hopes to snap a couple photos of pretty scenery. These hikers don’t visit nature, they immerse themselves in it.

## Chapter 5: Conclusion

Like many cultural probe studies, this study revealed a variety of meaningful and personal responses from the participating hikers. They took uncomfortable “indoor hikes,” pasted together their photographed memories into scrapbook pages, and justified themselves in a variety of “would you rather” scenarios. The six activities of the probe kit were designed to promote varying degrees of self-reflection, and some of the participants described the ways in which they adjusted their mindset while trying to enact the activities. For example, “hiking” indoors influenced two of the participants to notice details they would normally miss when walking through a building they frequent. However, none of the responses to the indoor hiking felt it could compare to hiking through nature.

The cultural probes here are used as a method of understanding participants. The responses provide insights and inspiration for future work that other methods of data collection wouldn't uncover. The data is not representative of all hikers, and neither is it a complete understanding of each participant. It would be antithetical to the use of probes to simply average the responses and draw conclusions about a typical hiker. The responses to this study come from real hikers and communicate genuine feelings about technology on the trail. It can't speak for everyone, but it doesn't have to. And likewise, technology doesn't have to speak for or appeal to everyone.

The responses show a wide variety of reasons for hiking. Some hikers do want to “get away from it all,” usually meaning society, other people, or technology. Several participants expressed distaste for crowded and noisy environments such as those in cities, and others appealed to a sense of freedom from reliance on technology.

But as much as hikers wanted to get away from strangers, they also wanted to spend time with friends and family. “Family” was a huge theme in the responses from a number of participants, and this is an area that begs for further study and support. Many of the participants share at least some of their hiking experiences on Facebook, a platform that is designed for neither meaningful family interaction nor the sharing of media about the outdoors. The talk of family also introduced a bigger time component than most technology would account for. Several participants talked about family tradition, such as retaking a hike years later with a new set of young family members.

Even more than family, connecting with nature and immersion in nature were pervading themes in all the responses. Many participants also indicated that digital screens such as smartphones break some aspect of that immersion in nature. This is an important problem for designers of digital technology for the outdoors to conceptualize and overcome. There exists a plethora of non-digital technology that hikers are willing to spend large sums of money on, such as lightweight, waterproof materials and nested cookery with enough

durability for meals on the trail, but many of the responses to this study showed little or no desire for digital technology.

## **Contributions**

### **Probes**

This study revealed a few themes that could be followed up with more research. Family played a significant role in many of the responses, yet very little outdoor HCI research focuses on family engagement. Particularly, family played a role over a long period of time for some of the participants, such as carrying out family traditions and learning to love the hobby through other family members. This theme could be a fruitful area for experimenting with new designs to support meaningful, long term interaction with potentially distant family members over this shared hobby. The other theme begging for better design research is immersion in nature. The idea of immersion and appreciating natural beauty expressed by most participants precludes focusing on digital technology, so the challenge is greater than simply designing apps for appreciating nature. Intentional and strategic nonuse could also be further explored by HCI research.

With the probe kit itself, several of the participants responded in a manner that suggested some of the individual six activities affected the responses to other activities. Most likely, it happened more often than we can directly observe in the data. This cross-pollination can be useful for cultural probe studies that include multiple probes or multiple activities. Instead of needing to tailor every activity to directly address the topic of interest, some activities (such as this study's Indoor Hike and Hike Club) can be indirectly related to the topic, and the participants will naturally associate the themes with each other due to the nature of completing the kit. To some degree, this also further promotes Gaver's call for odd and absurd prompts or components in a probe. Although the individual bullet point might be bizarre when viewed alone, it gains a more relevant context when inserted into the entire probe activity [Gaver et al.].

### **Activities**

For the probe kit, several activities were created from scratch, and the instructions for these activities are included in the appendix for anyone to adapt as they see fit. They could be adapted for other cultural probes, or they could easily be shifted into nonacademic contexts.

The Indoor Hike challenges takers to recreate the mindset of hiking but in an indoor context. This encouraged takers to clearly define why an indoor hike isn't a true hike. The indoor hikes in this study were taken individually, but it could be a group activity or

a hypothetical example to spur discussion. One participant brought up the value of exercise from the indoor hike, so adaptations could take advantage of that.

The Hike Club activity suggested a book club scenario where instead of books, the members talked about hikes they'd all taken separately. The act of hiking separately but coming together physically to appreciate the hike afterwards could be adapted to other contexts. It could also be used as a way of sharing hiking experiences when completing a hike together is logistically difficult. One participant mentioned learning new things about her nieces after completing the Hike Club activity despite the fact that they actually did complete the hike together. Adaptations could focus on the value of debriefing after a hike rather than talking while on the trail together.

The Scrapbooking activity worked well and drew many of the participants in. All of the participants used at least some of the scrapbooking supplies provided in the probe kit, and a complete list of the supplies is provided in the appendix. The washi tape and themed patterned paper were big hits.

The Would You Rather activity worked well as an icebreaker in this probe. Every participant completed it. Unfortunately, not every participant proceeded to complete other activities in the kit, so further adaptation of the activity or adding additional low commitment activities could help. Or, the Would You Rather activity could be used as an icebreaker for workshops and discussions.

The exact prompts from the Would You Rather, Scavenger Hunt, and Scrapbook activities are provided in the instructions sheets in the appendix. Others are free to use them verbatim or adapt them.

### **List of Miscellaneous One-Line Themes**

These themes are meant to be quick and accessible inspirations derived from these probe responses. The list is free to be interpreted and repurposed as desired.

- The tendency to take pictures at the end of a trail or on top of a mountain rather than along the way.
- Learning to love hiking from family and family traditions.
- Seeing your younger family members love hiking the same way you do is a rewarding experience.
- “Proving” you completed a hike.
- Nature is my home.
- Wanting to hike to “get away from it all” and be alone, but also hiking to be with friends and family.
- Escaping from technology and society isn't necessarily “fun.”
- Hiking is rarely described as “fun” despite hikers talking about how much they love hiking.

- The feeling of being immersed in and, to some extent, at the mercy of nature.
- Taking a broad, ecological view of the beauty of nature.
- Wanting to be able to take pictures to capture the memory of a place, but being okay with having no pictures if it means experiencing a more beautiful place.
- Being able to rely on yourself rather than on machines.
- It's good to have pictures of hikes to share, but Snapchat is the worst app anyone could use on the trail.
- I prefer technology over most people.
- All hiking is exercise, but not all exercise is hiking.
- Awareness of the reasons that other people might want to use a trail even if that's not your own way of using it.
- You don't think about bringing technology hiking, but you take pictures with your smartphone along the way.
- Meeting strangers on the trail is inevitable even if you would rather be alone.
- Using technology all day for work makes you not want to use it at home or on hikes.
- Learning that someone online lives near you because they hike similar trails to you that are nearby.
- Highly engineered hiking gear like ultralight materials and special clothing are a form of technology.
- On an extremely lengthy hike, having no technology might be unbearable.
- Talking about the beauty of nature and talking about technology rarely happen at the same time.
- Ending a camping trip early because a bear damaged some of the supplies and food stores.
- Digital mementos of a trip will never truly capture how it feels to be there.
- A hike can become a family tradition that spans generations.
- It wouldn't be a hike if preparation and equipment weren't required.
- Hikers can benefit from the technology that other hikers bring on their trip.
- Wanting a challenge, so you don't bring any technology that would make the trip too easy.

### **List of Frequent Themes in Responses**

These one-word themes include both the codes that guided the initial exploration of the probe responses as well as words that were added due to their prevalence in responses. Like the above list, all are welcome to use it as desired.

- Nature
- Wildlife
- Beauty
- Seasons
- Weather
- Community

- Family
- Friends
- Togetherness
- Isolation
- Solitude
- Reflection
- Peacefulness
- Relaxation
- Being Present
- Immersion in Nature
- Challenge
- Goals
- Control
- Navigation
- Exploration
- Discovery
- Novel Experiences
- Hobbies
- Exercise

## **Future Work**

### **Technology on the Trail**

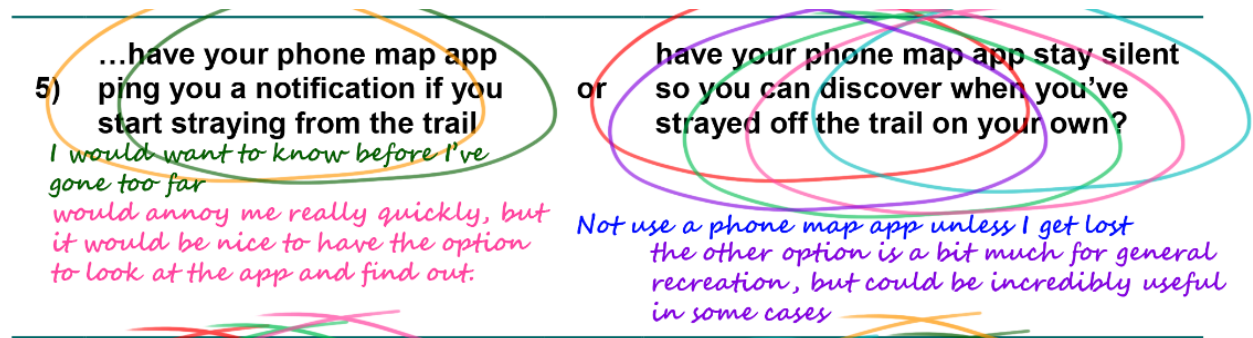
Technology on the Trail at Virginia Tech will continue past this study and this year, and more broadly, research about technology outdoors will become increasingly relevant as technology becomes increasingly mobile.

The strength of the cultural probe methodology is its ability to inspire new designs and ideas in a cocreative manner with the participants. Many interesting themes and insights can be gleaned from the responses of the hikers in this study, and the following sections detail some ideas that could be taken forward for further research or design work.

### **Class Activities**

A classroom full of eager undergraduate students who want to learn about designing technology is an ideal setting to release some of the creative inspiration from these probes, so a set of activities is described here that might unpack some of the nuance of the information from the probe responses.

### ***Short In-Class Design Exercise***



**Image 5.1: Selection of Would You Rather responses from participants.**

The Would You Rather question pictured above offers a seemingly simple but easily complicated prompt to engage students with. It works well as a one-off activity about value-sensitive design or as a preface to a longer Technology on the Trail related project. The envisioned scenario would be as an in-class exercise in which students raise their hand to collaboratively shape a class design. It could also be done in a series of breaking students into smaller groups and coming together to discuss their results after five minutes, then adding a new layer of complexity and repeating.

The prompt would be “Change the technology described in this Would You Rather question in a way such that these hikers would actually want to use it.”

This particular Would You Rather question was selected because the hypothetical app is a common and clearly useful technology. GPS systems which warn the user when they’re no longer on path are already used on the road, and adapting one to the trail is easy to understand. However, the majority of participants here have chosen not to have the app ping them. The first temptation is to keep the same design but have it be passive, silent, user-initiated, or some concession to not bother the hikers who dislike pings.

The first layer of complexity is the commentary provided by four of the participants. Three of them believe the technology should only be used in specific situations, which could prompt changes to the design of the app. The next layer of complexity is the general distaste among participants for looking at phone screens while hiking. Designs could take into account not using a digital screen. Another layer of complexity is the desire expressed by participants to be challenged by hiking and to handle navigation on their own. This sentiment is in direct conflict with using an app to guide them at all. The biggest philosophical dissonance to tackle is the tension between experiencing nature firsthand and “being present” rather than looking at technology and the need to be safe and to have a system that tells them what is and isn’t the trail. Other information that can be sprinkled in include that the green participant Mary often hikes with family, the blue participant Susan did not circle either option and rarely brings her smartphone hiking, the purple participant Will is a thru-hiker of the AT, and one participant Michael who chose the silent answer expressed a general distaste for any GPS guidance despite otherwise fully embracing technology.



The ultimate goal is to get students to understand that their design can't please everyone and that one design isn't perfect for every situation even for an individual who uses the design. The leader of the activity should balance letting the students build the design and challenge each other with poking holes or adding complications to their current design.

A slide deck along with comments for the instructor to follow this general activity idea are provided in the appendix.

### ***Physical Prototyping Activities***

In the spirit of the Scrapbooking activity in the probe, a craft-oriented prototyping activity could be adapted for class. With either a period of time in class or as homework, challenge the students to create a hypothetical design based on a theme or prompt, and then use the crafting supplies to create a polished advertisement for it. To up the difficulty, the students could also be forbidden from writing or drawing any piece of the advertisement by hand (to prevent it from looking like a wireframe instead of a polished piece). The abstraction of using an advertisement as the delivered material will get the student thinking about why their design would be appealing and who might use it. As evidence by the Scrapbook pages, having a limited amount of space to design with (roughly a piece of cardstock paper) also challenged them to be selective with their inclusions. The materials themselves (such as scrapbooking paper, magazines, stickers, and possibly any material printed from the Internet) also add inspiration to the final design.

Another activity that could get the students outside and thinking on their feet would be to hand them an overload of existing digital equipment (or a list of hypothetical ones if the tech is too hard to accumulate) and challenge them to create a design. Potential equipment could include smartphones with apps, smartwatches, GPSes, altimeters, heartrate monitors, fitness bands, and so on. This activity would likely wind up engaging with quantified self concepts. Various design challenges could be issued along with this overload of existing technology, such as the following three suggestions:

- Tell the students that it's impossible to truly capture what it feels like to be hiking, but they should come back with a design for some kind of technology that gets as close as possible.
- Tell them that while hiking, you want to just experience nature and you intentionally or unintentionally won't be paying attention to your technology. But when you're done hiking, you want the records that these pieces of technology would be able to provide. Come up with a better design to accomplish this.
- Tell them that you want the functionality of some or all of these pieces of technology, but without any digital screens because those detract from the experience of nature.

An evaluation criterion to pick at could be looking for a form of feedback to the user even when the technology doesn't have a digital screen. So, rather than being completely passive where the user can't even tell if the technology is working or not, there's some sort of feedback about the status of the system even if the user isn't actively manipulating a screen. Another point could be questioning how much value the data from the technology has in a social capacity - would friends and family care about that data at all? Can the user whip out their hiking data to show people like one might whip out photographs of children to share?

### ***Design Activity with Iterations***

This activity is intended to be longer than one class period, but could be scaled up or down based on how many iterations occur and how much complexity is added. It could be by individuals, in pairs, or in small groups. Large groups might make it too difficult for all students in the group to have their input heard and added to the design. This activity would also work well in class or as homework (although this would make group work more difficult).

Essentially, the students must brainstorm and settle on a design based on broad themes and inspirations pulled from the probe responses. The iterations will push students to deepen their design, address new complications, or consider weaknesses of their designs.

There should be a single motivating design inspiration that the students chose from a list provided based on the probes. The List of Miscellaneous One-Line Themes provided in the previous section is intended for such use. Specific stories pulled from the probes could also be used. For example, Susan tells the story of her repeated hikes with her nieces, including intriguing details such as her elderly father staying in the visitor's center for the later hikes due to his health. There are also Scrapbook pages themed around "A Hiking Story" that could be used as the motivating inspiration. Even some of the contradictions contained within the responses of individuals which are outlined in the previous chapter could be used as "stories" to motivate design.

In addition to the chosen motivating design inspiration, students should be given a list of one-word themes pulled from the probes (which is also provided in the previous section, but could easily be amended) (and a list of one-word themes related to design could also be substituted). They must choose X amount of these one-word themes to keep in mind while designing. Three sounds like a reasonable number considering some of them will be obvious choices based on what their motivating inspiration is.

The above choices should be enough for students to create an initial design. Once this is done, various options for next iterations exist.

Identifying weaknesses in the initial design could be the second stage of design. This could leverage the fact that some of the words in the one-word themes list conflict with each other by asking students to pick out which of the word(s) on the list is the biggest weakness of their design. Or, for a more interactive critique session, students could be reviewing the designs of other students and picking out several one-word themes which are weaknesses of that design. The end result of determining the weaker themes in the design is not necessarily a design change, however. A design which has no use for a “family” could still be a strong design for its intended use. The activity should instead get the students thinking about the different contexts in which their designs will and won’t be used.

For a course project, an actual prototyping phase could be included to flesh out and test the design.

## **Other Work**

Engaging a wider population of hikers, especially hikers from different subcommunities of hiking, will be vital to research efforts. Even just delivering a selection of these prompts and activities to a wider audience could provide new and inspiring insights. Adding more voices to the mix can only be positive. The activities could also be separated instead of included in a unit. Doing user studies with the longer, more involved activities rather than a cultural probe kit could yield a higher response rate. It’s impractical to find a hundred cultural probe participants just to ensure ten would complete the Indoor Hike, for example.

Identifying divisions between subcultures in hiking communities, or even just categorizing types of hikes (with the understanding that individual hikers engage in more than one type of hike), could be helpful for targeting the right audience with technology research. This study included discussions of thru hikes of the Appalachian Trail, hiking to go camping, and family hikes. Creating a better understanding of the umbrella term “hike” would benefit both designers and researchers.

The activities themselves could also be adapted to other contexts. The instruction sheets for this study were deemed appropriate for children thirteen years and older, but the Indoor Hike and Hike Club activities in particular were not written and designed well for children. They could be adapted for use with groups of children for either understanding their feelings about hiking or for educational settings. For example, a Boy Scout troop could go on an indoor hike while discussing why nature and being outside is important to them.

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# Appendix A: Activities



## Would You Rather...?

Like in the popular game, you can only choose one of the two offered choices for each question below. Circle the answer that sounds better to you. In case you want to share some of the questions with others, we've included a second copy of this worksheet. You can also have multiple people circle answers on the same sheet, but be sure we can tell who picked what. Also, feel free to write comments or justifications in the margins!

At the bottom of this page, there's space for you to write a few "would you rather..." questions of your own!

As an example, two of us researchers have answered the first question.

Would you rather...

- |   |    |   |
|---|----|---|
| 1) ...tell a friend about your favorite hike and they wind up loving it                                   | or | be told about someone else's favorite hike and wind up loving it yourself?  |
| 2) ...have an app that will take a landscape photo and tell you which video games contain similar scenery | or | have an app that will take a scenery screenshot from a video game and tell you real life places with a similar landscape? |
| 3) ...hike on an isolated trail with decent scenery and nobody else in sight                              | or | hike on a crowded trail with gorgeous scenery?  |
| 4) ...have beautiful photographs of a place you thought looked mediocre                                   | or | have a gorgeous place that you can never take adequate photos of?   |
| 5) ...have your phone map app ping you a notification if you start straying from the trail                | or | have your phone map app stay silent so you can discover when you've strayed off the trail on your own?                    |



## Scavenger Hunt

This is a challenge to capture examples that fit a list of specific prompts. There are 20 prompts here, but you should aim to answer 12-15 of them. We wrote these meaning for the answers to be photographs or images, but don't let that stop you from sharing excellent examples in other forms. Many of these prompts will be things you would find online, such as Facebook posts, so you can take a screenshot to answer them.

To take a screenshot of your computer screen:

- Windows: hit the button on your keyboard labeled PrtScn (usually near the upper righthand keys), open a program like Word or Paint, and hit the keys labeled Ctrl and V at the same time to paste the image of your screen. You can then save the file.
- Mac: hit the buttons labeled Cmd, Shift, and 3 at the same time. This should save an image on your desktop named "Screen shot" with a timestamp.

If you answer a prompt with a computer image or file, please put it on the flash drive in the numbered scavenger hunt folder. So, on the flash drive, click the Scavenger Hunt folder and then click the folder for whichever number you're answering, such as 3.

**Show us an example that fits the following prompts....**

1. Natural scenery that you see everyday, so you find it ordinary instead of beautiful.
2. Someone on social media reacting to your hike.
3. Something you bring on hikes for a worst case scenario.
4. A time when directions from another person were more useful than a computer's directions or maps.
5. A gadget marketed for hiking which is way more expensive than it's worth.
6. Someone hiking who you wouldn't expect to see doing so.
7. A time you told a friend about your hike.
8. A product for hiking that you'd love to save up for.
9. An impressive number or figure related to your hike.
10. A photo which is either more or less beautiful than the real place it was taken at.
11. An advertisement for a trail which is effective on you.
12. The worst app anyone can be using on the trail.
13. A time you connected with a fellow hiker through technology.
14. A useless map.
15. Someone who's breaking park rules without realizing it.
16. A selfie taken while hiking that was worthwhile.
17. A map that makes your favorite hike look really impressive.
18. Someone who isn't paying attention to the nature around them.
19. A time you talked with people "back home" while on a hike.
20. Things you searched for online before, during, or after a hike.





## Streaming Live from the Trail

In the near future, a range of new technologies allow people to experience “the trail” from the comfort of their own homes like never before. Wearing a screen that wraps around their face and quality headphones, people can have both surround sound and surround video, allowing them to look around the video in whatever direction they please. That is to say, viewers can look over their shoulder, look at the sky, or lean in to look closely at the ground, and the view on their screen matches just as if they were looking around “in real life.”

Many companies and individual users stream video like this, and a site hosts popular channels with live video relating to nature or the great outdoors. Anyone can put on their headset, pick a channel, and be immersed in the environment.

Based on this story, come up with some of the content for streams you believe would be popular among watchers.

You can use the attached template page to fill in the details of the streams. The layout is based on modern video-hosting sites such as Youtube and Twitch.tv. There's space to draw a small thumbnail image that would represent what the channel streams as well as lines to write a brief description and provide a few numbers, such as the number of viewers. Don't be afraid to embellish and add your own improvements or extra information to the layout!



## Welcome to Hike Club

Imagine a local book club that picks a book for all the members to read and then meets monthly to discuss the book. Now imagine that instead of reading books, this club is taking and discussing hikes.

The hypothetical local Hike Club members don't hike together. They pick one hike a month for everyone to complete on their own time. Some members might hike with their families, and others might go with non-member friends. When the club meets, what do they talk about? Why do the members keep coming back?

For this activity, you have two options: hold a Hike Club meeting with one or two willing friends, or imagine and tell us about what might happen at a typical Hike Club meeting.

### Option 1: Meeting with friends for Hike Club

Find a couple friends or family members willing to do a Hike Club meeting with you. You should agree on a local hike that all members must have taken at least once before the meeting, and ideally you didn't all hike it together.

Keep some sort of outcome to share with us, such as a summary, a slideshow, or meeting minutes. If you share any media with each other, such as stories, presentations, or photographs, we would love if you included a copy of those in the probe box you send back. Or, if you're comfortable with it, you could record the meeting on a laptop.

### Option 2: Imagining a typical Hike Club

Take the hypothetical scenario of the Hike Club and flesh it out. What kind of members join Hike Club? What kind of hikes do they take? What do they do during meetings? Would you fit in with this club?

Create some sort of outcome to share with us about your fictional club. This could be anything from a fictional email chain to a slideshow presentation from a fictional meeting. Other ideas are meeting minutes, club posters, a summary of discussion, some photographs, flash fiction, or a script for a skit.



## The Indoor Hike

People hike for many different reasons. Some want to enjoy nature, some like the exercise, and others wish to take a break from their daily routine. Hikes come in all shapes and sizes, anywhere from a solitary walk through nearby woods to a challenging mountain climb with friends. We take away a wide variety of benefits from our hiking experiences.

So, why does a hike have to take place outdoors?

Are nature and the great outdoors an integral part of what it means to “hike”? What if someone hikes primarily for exercise? If someone merely wants peace and relaxation, why can't that be achieved indoors? For those of us who live near and drive past woods and parks every day, why do we need to hike somewhere to appreciate this natural scenery?

The Indoor Hike is a challenge to see if you can adapt your experience of “hiking” to take place indoors. It's an odd activity meant to pull you out of your comfort zone and encourage you to reflect on what aspects of hiking are most important to you. If you come to the conclusion that it's impossible to hike indoors, that's an important realization too. But who knows - maybe you'll discover a new way to incorporate the benefits of hiking into a smaller indoor activity.

We're proposing you take three “indoor hikes” to explore whether you can adapt the experience of a hike to take place indoors. In order to make the activity feel more like a hike rather than walking around inside a building, we propose a few guidelines:

- Plan what you want to “pack” and take with you before you start, and resist the urge to pick up things that would have been “left at home” if you were hiking outside. For example, don't decide to open the fridge and make a sandwich halfway through your indoor hike. You wouldn't have a fridge nearby if you were hiking outdoors.
- It might help to make your surroundings seem less familiar than usual. For example, when hiking inside your own house, it might be useful to consider how you would hike in unfamiliar territory and imagine that your entire house is unfamiliar. Or, it might help to spend time in rooms you don't usually use.
- When in public indoor places, such as a mall, try not to do any routine shopping.



## Scrapbooking

For this activity, you'll be crafting your own scrapbook pages in the hardback scrapbook included in this probe. Feel free to use any crafting materials provided as well as anything you have in your home, materials that you print, drawings, photographs, pressed leaves, maps, and so on. Be as creative as you like, and don't worry if art isn't your strong suit.

Each of the first five pages has a theme or idea written on the page to guide you for that page. We also included a small example blurb about one of us that fits the theme (feel free to cover it up with your own pictures). There are extra blank pages at the end in case you're inspired to add more to your scrapbook.

**Scrapbook page themes:**

- Why are you hiking?
- Seeing others use technology while hiking
- People you think about on the trail
- Telling a hiking story
- Proof that you were there



## Appendix B: Supplies

<b>Store</b>	<b>Item</b>	<b>Per Box</b>	<b>Boxes</b>	<b>Total Needed</b>
Staples	Pencils	0.2	20	4
Staples	Colored Pens	1	20	20
Michaels	Kneaded Eraser	1	20	20
Staples	Highlighters	0.5	20	10
Michaels	Pattern Scissors	0.25	20	5
Michaels	Construction Paper	0.5	20	10
Michaels	Themed Paper	0.1	20	2
Michaels	Asst. Washi Tape	1	20	20
Michaels	Tacky Glue	1	20	20
Michales	Asst. Stickers	1	20	20
Michaels	Scrapbook	1	20	20
Best Buy	Flashdrive	1	20	20

## Appendix C: Class Activity Slides

### In-class Activity: Design a Hiking App

- This is a collaborative activity
  - Raise your hand to offer input to the design
  - I will be writing our design on the board
  - Don't be afraid to disagree with or challenge your classmates
- ~45 minute activity
  - First, we have a prompt pulled from the thesis work of a former student
  - Then, we'll change up our initial design based on knowledge of hikers

A slide to introduce the activity and set expectations for the class time. If you're going to grade based on participation, you can add that in too.

Design the app being discussed in this question.

Would you rather...

5) ...have your phone map app ping you a notification if you start straying from the trail

*I would want to know before I've gone too far*

*would annoy me really quickly, but it would be nice to have the option to look at the app and find out.*

or

have your phone map app stay silent so you can discover when you've strayed off the trail on your own?

*Not use a phone map app unless I get lost the other option is a bit much for general recreation, but could be incredibly useful in some cases*

A "Would you rather...?" question asked of hikers as part of a cultural probe study. Circles indicate their preferences, and the text comments below were optional comments included in the margins of the paper.

Initial focus: what does the app look like that prompted the question/the answers?  
How does it work?

This is an on-the-board activity. Leave the prompt open on the projector screen and use a marker or chalk to capture all the details that the students provide about the app. This might include some UI, but it should definitely include conceptual information like how and when to use it, audience, and how it works.

This stage should keep the focus on designing the hypothetical app that the question is addressing, *not* fixing problems with that app. If students suggest changes such as less intrusive pings that might satisfy all users, tell them to save that idea for the next step of this activity.

**Some questions to help the students get more specific about their collaborative design:**

Who is the target audience? And who actually uses this app?

How similar is this design to existing GPS-based systems like Maps?

What kind of notifications does it provide through the smartphone? Does it include visual or audio cues?

How does the app know what "the trail" is and how does it know if you've "strayed" from it?

When the user is looking at their screen while using this app, what do they see?

How often does the user have to look at the screen?

Is there anything up here right now that you disagree with based on this question?

## Change the app we just designed so that hikers would actually want to use it.

- 5 out of 7 of the hikers indicated they would not wish to use such an app. Their comments in the margins include
  - "would annoy me really quickly, but it would be nice to have the option to look at the app and find out."
  - "Not use a phone map app unless I get lost" (Note: this hiker did not circle either option.)
  - "the [notification pinging] option is a bit much for general recreation, but could be incredibly useful in some cases"
- What would make this app useful to hikers in general? What steps could be taken to avoid bothering or annoying users?

Now the design from the previous slide should be improved by the class. Again, work on the board while leaving this or the previous slide up. Erase or strikethrough old writing on the board as needed.

The goal is to initially have the students slightly change their design to be more palatable to the hikers who disliked the idea of the app. Don't be afraid to appeal to their general knowledge of hikers and hiking. As they work on the design, point out aspects that users would dislike or aspects that might make a certain group of hikers not use it. It would be beneficial if they bite off more than they can chew or if they attempt to please everyone instead of focusing on a target audience.

Many of the comments indicate thinking the app would be useful in very specific use cases. If the class wants to focus on one of the situational aspects of app usage, such as knowing that you're lost and needing help, it's alright to let them chase that idea. It might change how you address the direction of the next two slides, however. (And if they really do want to design an app about helping lost hikers, you might consider skipping the next slide and using the last environmental-based slide to challenge them instead.)



## Additional Layers of Complexity

- In the same study that contained these Would You Rather questions, the hikers expressed other sentiments that might help guide design.
  - Some participants expressed a desire to be challenged by hiking and to handle navigation on their own.
  - Many of the participants indicated general distaste for looking at phone screens while hiking.
  - Most of the participants wanted to "be present" and experience the trail in the moment without distractions such as apps.
- Background information about some of the responders
  - The dark green participant often hikes with her family. She is one of the two in favor of the app and wrote in the margin "I would want to know before I've gone too far."
  - The dark blue participant rarely brings her smartphone hiking and did not circle either option. She wrote "Not use a phone map app unless I get lost"
  - The purple participant is a thru-hiker of the AT. He wrote "the [notification pinging] option is a bit much for general recreation, but could be incredibly useful in some cases"

These bullet points should be animated to appear one at a time. Address each one in turn.

The goal now is to break down weaknesses in their design and point out contradictions. If it's too broad or complex, you can challenge them to narrow the scope. If it tries to please everyone, you can challenge them to really pick a target audience (and assess whether their design fits the target or not). It's okay to end up with something radically different than what you started with (and you might have to verbally reassure them that extreme changes are fine).

Don't let them take the easy way out, i.e. "well that group of people just won't use an app ever." If you really want to push them on this point, challenge them to scrap the current design and come up with something that would please said group of people.

## Additional Layers of Complexity

- Hikers don't exist in a bubble, so here are a few environmental factors to consider.
  - Many parks require that visitors stay on marked trails at all times because they have fragile plants and ecosystems.
  - If one hiker strays off the trail, people following them might think they're going the correct way and follow them.
  - People are more likely to step off the trail in general if they see others doing so.
  - There could be dangerous conditions off trail, or hikers could easily get lost in the wilderness.

This is an optional slide if you want to end by discussing the broader impacts of their design on society/the environment. Hikers might not *want* to be pinged if they stray off the trail, but these bullet points address reasons they potentially *should* be told the moment they stray off the trail.

These points may be less applicable if they ended with a radically different design, but they can be applied to the original design for sure.

If you do have extra time, you could also broadly challenge them to think of what kind of app would help with these bullet points here (possibly an app from the perspective of park management rather than hikers).