Evaluating Mobile Device Usage in the Army

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Abstract
As the U.S. Army transitions its training strategy into the new Army Learning Model, mobile devices will play an increasing role in Soldier training. The extent to which Soldiers are already familiar with mobile devices, use them, and incorporate them into their professional lives will, in part, determine the ease of this transition. This paper reports findings from the U.S. Army Research Institute for the Behavioral and Social Sciences’ 2011 Spring Sample Survey of Military Personnel (SSMP). Results show that while most Soldiers own a mobile device of some sort, many young Soldiers do not own smartphones. Those that do own smartphones use them regularly for a variety of tasks, including phone calls, texting, and email and less frequently for other tasks including sending pictures, watching videos, and social networking. Finally, our results suggest that most Soldiers would use an Army-issued smartphone for a number of tasks, including reviewing field manuals and training. These findings have important implications for how the Army should implement mobile devices for training.

1. INTRODUCTION
The advent of mobile computing technology has changed the way we live our lives. Thanks to smartphones and other mobile devices, we have the ability to be connected to informational and social media anytime and anywhere [Naismith, Lonsdale, Vavoula, & Sharple, 2004]. Mobile learning, or m-learning, refers to the use of mobile devices together with network connectivity to facilitate, support, enhance and extend the reach of teaching and learning [Brown, 2010]. Recent research suggests m-learning has the potential to provide distinct advantages over traditional forms of instruction. M-learning technologies can afford learners the ability to access aggregate, create, and share information in a variety of media across space and time [van 't Hooft, 2008]. Tucker [2010] identified eight potential advantages of m-learning including connectability, portability/wearability, instant accessibility, flexibility, economic viability, social interactivity, context sensitivity and individuality. In addition, Armatas, Holt, and Rice [2005] outlined the educational benefits that can be created by using mobile technologies to enhance students’ learning experience. According to Armatas et al. [2005], mobile devices enable instructors to deliver unique multimedia materials and interactive tasks. They promote active participation in learning, allow for searches of the online environment for content, and break communication bottlenecks by enabling direct instructor/student contact. Most importantly, mobile devices provide students with an environment in which to participate in the learning process, and the tools to work with that knowledge.

Recently, the U. S. Army’s Training and Doctrine Command (TRADOC) described plans to modernize Army training in The Army Learning Concept for 2015 [TRADOC, 2011]. As part of this strategic vision, the Army plans to implement mobile technology as a training platform to enable anytime, anywhere learning. Implementing m-learning in the Army brings a number of challenges, and among them is determining the extent to which Soldiers are already familiar with mobile devices and their use. The goal of this paper is to address this challenge by providing demographic information about current Soldier use of mobile technologies in their daily lives. If Soldiers are already familiar with operating mobile devices such as smartphones and tablet computers, learning on these platforms should be easier than if Soldiers are faced with learning not only the training material, but how to operate the learning platform itself.

Current trends in mobile device usage could suggest that most young people own a smartphone or other handheld device, and so it may seem safe to assume that Soldiers would be universally familiar with mobile technologies [Adkins, 2008]. A similar assumption was made with regards to Soldiers regularly playing video games [Orvis, Moore, Belanich, Murphy & Horn,
The military increased the amount of videogame-based training based on the premise that the majority of Soldiers play video games regularly (Bourge & McGonigle, 2006; Herz & Macedonia, 2002). However, research by Orvis, Horn and Belanich (2009) found that only approximately 40% of U.S. Military Academy cadets reported moderate to heavy videogame play. Additionally, research by Orvis et al. (2010) found that fewer than 43% of over 10,000 Soldiers surveyed play videogames at least weekly. The goal of this research was to prevent any similar misconceptions about Soldier mobile device use.

The purpose of the current research was to determine the extent to which active duty Soldiers use mobile devices in their daily lives. To this end, we included items in an annual Army survey about which type of mobile devices Soldiers use, how frequently they use them for various activities and whether Soldiers saw utility in a smartphone provided by the Army. Further, we examined differences among Soldiers by age. In this paper, we describe the survey methodology used to gather these data. We then discuss the practical implications of our findings for future m-Learning training initiatives in the military.

2. METHOD

2.1. Participants and Procedure

Data for this research were drawn from the 2011 Spring Sample Survey of Military Personnel (SSMP). The SSMP is a biennial survey administered by the U.S. Army Research Institute’s (ARI) Personnel Survey Office to collect information on a wide range of issues important to the Army, active component Soldiers, and their dependent family members. The SSMP is sent to a representative sample of all permanent party, Active Army personnel excluding all PV1s. The Spring 2011 SSMP was conducted as an online Web survey from 24 May through 1 August 2011 among officers (second lieutenant-colonel, warrant officer 1-chief warrant officer 5) and senior-level enlisted Soldiers (staff sergeant command sergeant major). Due to low response rates to Web surveys among junior-level enlisted Soldiers (private E2- sergeant), a traditional paper and pencil questionnaire was used at 33 continental United States installations, including Hawaii and Alaska. The paper and pencil survey was not targeted to Soldiers who had recently returned from a war theater, nor was it targeted to Soldiers who were preparing to be deployed soon to a war theater. Completed responses were received from 15972 Active Army Soldiers (7,350 officers and 8,622 enlisted Soldiers). Of these respondents 86.4% were men. Approximately 3% were under 20 years old, 16% were 20-24 years old, 18% were 25-29 years old, 16% were 30-34 years old, 16% were 35-39 years old, 15% were 40-44 years old and 15% were 45 years old or older.

2.2. Measures

The 2011 survey included 84 items assessing a wide range of topics (e.g., career development, deployments, motivation for joining the Army, satisfaction with Army life, demographics, human relations experiences, family matters and personal background). To address Soldier usage of mobile devices, three items were included in the survey. First, Soldiers were asked to indicate which mobile devices, if any, they owned. Options included popular brands of mobile devices including smartphones, e-readers, mp3 players, and tablet computers. Next, Soldiers were asked to indicate how frequently they used mobile devices for certain tasks by responding “Many times a day,” “Almost every day,” “Once a week or so,” or “Never.” These tasks were: Text messaging, Internet browsing, Sending and receiving email, Navigation, Making phone calls, Watching videos or movies, Social networking and Sharing pictures or videos. Lastly, Soldiers were asked “Which of the following would you likely do, if it were provided by the Army on a smartphone?” Respondents were asked to mark all of the choices that applied. The eight choices included: Official phone and email, Access to online training, Personal organization (e.g., scheduling, tasks), Social networking, Text messaging, Battle tracking, Access to technical and field manuals, and Other uses.
3. RESULTS

3.1. Mobile device ownership
We examined four categories of mobile devices: smartphones, mp3 players, tablet computers, and E-readers. The percentage of Soldiers who reported owning either a smartphone or another type of mobile device is shown in Figure 2. Overall, 79% of all Soldiers who responded to the survey reported owning at least one mobile device while 29% of these reported owning two mobile devices. Almost 94% of Soldiers under 20 years old reported owning a mobile device, more than any other age group. Nearly half of all Soldiers (46.9%) reported owning a smartphone. Interestingly, the number of Soldiers reporting owning a smartphone generally increased with age, with more 45-49-year-old Soldiers owning a smartphone than any other group. This finding is somewhat surprising, as current trends in mobile device usage indicate that smartphones are largely used by younger Americans. Usage of other mobile devices, such as e-readers or tablet computers, was largely reported by younger Soldiers. Figure 3 shows the number of Soldiers of those who reported owning a mobile device that own a smartphone versus another type of mobile device.

![Figure 1. Percentage of Soldiers who reported owning mobile devices within each age group](image1.png)

![Figure 2. Percentage of Soldiers who reported owning smartphones and other mobile devices by age](image2.png)

3.2. Mobile Device Usage
We asked Soldiers how often they used their mobile devices for making phone calls, text messaging, internet browsing, sending and receiving email, navigation, social networking, watching videos or movies and sharing pictures or videos. Soldiers who report owning mobile devices appear to use them habitually. When examining the extent to which Soldiers perform certain tasks at least weekly, 96% of Soldiers who own a mobile device reported using it to make phone calls, 95% reported using their mobile device to send for text messaging, 91% reported using their mobile device for internet browsing and 87% reported using their mobile device to send and receive emails. Less common, but still frequently used, were navigation, social networking, watching videos or movies and sharing pictures or videos at 76%, 70%, 64% and 60% respectively.

3.3. Potential Army-issued smartphone
We structured the potential activities Soldiers would do if given an Army-issued smartphone into eight options: Official phone and email, Access to online training, Personal organization (e.g., scheduling, tasks), Social networking, Text messaging, Battle tracking, Access to technical and field manual, and Other uses. Eighty eight percent of Soldiers responded that if provided an Army-issued smartphone, they would use it for official phone and email.
Additionally, more than half of the Soldiers claimed they would use their smartphone for personal organizing, text messaging, accessing technical field manuals and accessing online training at, 74%, 70%, 67% and 56%. Less common were battle tracking and social networking, at 41% and 32% respectively. More than half of the Soldiers claimed they would accept their smartphone as a platform for reviewing technical manuals or online training at 66.9% and 55.6% respectively. In contrast, only 31.9% of Soldiers stated they would be less likely to use their Army-issued smartphone for social networking.

4. DISCUSSION AND CONCLUSION

As the Army transitions into the training model prescribed by the Army Learning Concept for 2015 and other documents, m-learning will become increasingly integrated into Army training. For this to be successful, Soldiers must be familiar with mobile devices and their capabilities. The findings of our research suggest that, consistent with private sector trends, Soldiers are generally familiar with mobile devices and their usage, and many use them in their daily lives. These findings imply that as m-learning is incorporated into Army training, instructors can expect Soldiers to come to the table with some fundamental mobile skills. Contrary to popular assumptions about the “digital generation,” many younger Soldiers do not report owning a smartphone. Rather, our data show that smartphone ownership generally increases with age, while younger Soldiers more frequently report owning other mobile devices, such as tablet computers and e-readers. The data presented here do not enable us to make any conclusive inferences about why younger Soldiers tend to own these other devices, but speculation is possible. E-readers in particular are popular with younger Soldiers. These are typically the least expensive of mobile devices, and typically do not require a monthly service contract. E-readers and tablet computers may provide more options for entertainment and maintaining communication during deployments. Further research could easily address these questions.

Of Soldiers that own mobile devices, most of them use them regularly for communication purposes, including phone calls and text messaging. That said, many Soldiers frequently use mobile devices for other purposes, such as navigation or social networking. Finally, our data suggest that if issued an Army smartphone, most Soldiers would be comfortable incorporating it into their work environment. Taken together, our findings indicate that while overall, most Soldiers are familiar with mobile devices and their usage, the extent to which certain devices such as smartphones are widely used is related to the age of the Soldier. The Army must take these findings into consideration when implementing Army-wide mobile training if it is to be successful.

REFERENCES


