Tilton, *Cogent Social Sciences* (2016), 2: 1159831
http://dx.doi.org/10.1080/23311886.2016.1159831

cogent social sciences

MEDIA & COMMUNICATION STUDIES | RESEARCH ARTICLE

Tablet as researcher's kit: An analysis of how social scientists use tablet computers in the field

Shane Tilton[1]*

Received: 04 November 2015
Accepted: 26 February 2016
Published: 16 March 2016

*Corresponding author: Shane Tilton, Department of Communication & Media Studies, Ohio Northern University, 402 W. Lincoln, 137 Freed Center, Ada 45810, OH, USA
E-mail: s-tilton@onu.edu

Reviewing editor:
Claudia Alvares, Universidade Lusofona de Humanidades e Tecnologias, Portugal

Additional information is available at the end of the article

Abstract: Tablet computers (or just tablets) are often discussed in context with their relationship with books as an informational portal. For the most part, the analysis of tablets has dealt with frequent tablet activities, locations of use and contextual factors. It is fair also to note how the tablet has become a central nexus of production tools for the content creator. Tablets represent a platform both for distributing content to multiple audiences and providing the tools necessary to produce content on the fly. Tablets allow the user to capture thoughts on a screen that is slightly smaller than that of a traditional laptop (10 vs. 13 inches), while maintaining a level of portability and usability beyond what a traditional laptop can provide. This ability to quickly capture thoughts and ideas is extremely handy to academics in the field, specifically researchers, as they conduct research or present knowledge to the larger population. This study will look at how researchers are using tablets to replace older techniques for gathering data and publishing their work. The analysis of publishing will look at the differences between writing on a tablet and writing on an office computer or laptop. For example, the advantages and disadvantages of a touch screen device versus traditional user interfaces (keyboard and mouse) will be discussed by the researchers and shown via the everyday use of the tablet/office computer.

Subjects: Communication Research Methods; ICT; Sociology of Knowledge; Technologies of Research; Technology; Writing & Composition

Keywords: data collecting and analyzing; ethnography; mobile technology; meta-analysis and systematic review; form factor; archiving; documentarian

Shane Tilton

ABOUT THE AUTHOR

Shane Tilton is an assistant professor of Mulitmedia Journalism at Ohio Northern University. He has spoken more than 40 times at a variety of conferences and public forums dealing with issues regarding new media and its social impact. Tilton was the former chair of the Communication and the Future interest division (National Communication Association) and Two-Year/Small School interest division (Broadcast Education Association). In 2013, Tilton earned the Kenneth Harwood Outstanding Dissertation Award from the Broadcast Education Association for the best doctoral dissertation in field of broadcasting and electronic media. He has taught at the University of Kentucky, Ohio University & Muskingum University and has over a decade of teaching experience in higher education.

PUBLIC INTEREST STATEMENT

Tablets have moved from a specialized toy for the rich and technologically savvy to an everyday computing device. This perspective article describes how researchers use tablets, like iPads, through the course of their work and research. It was found that researchers use tablets as a way of archiving key documents and articles, as a way of documenting research in the field, and a replacement for a laptop or desktop. Exploration of how academics use tablets as part of their profession will help in future discussions of how tools like the tablet work with the everyday world of social research.

1. Introduction

Stephen Fry, the noted British author, actor, and technophile, wrote in 2010 for Time magazine, "One melancholy thought occurs as my fingers glide and flow over the surface of this astonishing object: Douglas Adams is not alive to see the closest thing to his Hitchhiker's Guide that humankind has yet devised." A simple piece of glass with a metallic backing that has access to the world's knowledge, created by many computer companies and popularized Apple, is the focus of Mr. Fry's quote. Tablets are not a new invention nor should they be seen as an evolution of computer technology. However, they should be seen as a revolution in mobile communication and computing.

1.1. Tablets in education

One of the areas in which this revolution can be observed is the field of education. According to the Pearson Foundation's survey (Pearson Foundation, 2012), 66% of the college students surveyed agreed that tablets help them study more efficiently and 64% agreed that tablets help them perform better in classes. The survey also noted that 1 in 4 college students had a tablet. The major rationale for ownership is the acknowledgment that 70% of students are reading digital textbooks, with 58% of the students preferring to read the books digitally. The students' use of tablets in the academy is documented in the former statistics. However, there is limited research regarding faculty members and researchers' use of tablets in the academic setting. The statistical and analytical aspects of studying overall tablet use in higher education only reveals a small portion of iPad's (and tablets in general) impact on the pedagogical practices in the classroom setting. Davis (2011) created a list of "high-impact learning activities" and limitations related to the use of tablets in the college classroom. The majority of the best practices noted by Davis were categorized as either documenting course-related artifacts (e.g. rocks in a geology course) or as a platform for transmitting basic mediated content from the course (e.g. watching videos outside of class). Indeed, the students' use of the tablet seemed to be varied, based on the area of study and the comfort level with the technology.

1.2. The tablet as kit

Beyond looking at the tablet as a mere extension of the computing lineage, the tablet can become a Swiss army knife for researchers. Those academics who conduct their research in a field setting are starting to look at these devices as constituting a "good enough" solution to the problem of having the tools necessary to both produce the required artifacts for quality study and present research in a manner acceptable to the academy. The role of the researcher in the field demands that different stages of the research cycle be contemplated at the same time (pre-production, production, & post-production of the research).

The kit metaphor works in this setting. A kit is a bag, box or container that holds the key tools, devices, and supplies needed for a given situation (Kohls, 2011). This concept of the kit evolved into the general trope, "What is in your bag?", featured on conference and popular websites (e.g. the Verge's "Whats in Your Bag articles" and the "CNN iReport SXSW Persona" feature). The common thread between these two points is the idea of being prepared for a given situation. Tablets seem to fulfill the role of helping the research prepare her/himself for multiple communication interactions and various forms of knowledge work.

Tablet computers (or just tablets) are often discussed in context with their relationship with books as an informational portal. For the most part, the analysis of tablets has dealt with frequent tablet activities, locations of use, and contextual factors (Müller, Gove, & Webb, 2012). It is fair to also note how the tablet has become a central nexus of production tools for the content creator. Tablets represent a platform both for distributing content to multiple audiences and providing the tools necessary to produce content on the fly (Hendricks, 2010).

1.3. Academics' use of tablets

For the most part, the previous analysis of tablets has dealt with frequent tablet activities, locations of use and contextual factors (Müller et al., 2012). This research was sufficient, given the nature of

tablets in the past. However, we are now faced with limited discussion/analysis about the tablet form factor as a researcher's tool outside the discussion of basic pedagogical techniques (Nelson, 2015). The tablet has been framed as an extension of classroom materials and discussion. The novelty of the tool has also been mentioned in previous literature with a focus on either the gamification of the classroom experience via the tablet interface (Browne, Anand, & Gosse, 2014) or as a tool to be an addition to the flipped classroom model (Hughes, 2012). Nevertheless, teaching constitutes only a third of the responsibilities of an academic, with research and service becoming increasingly prominent in the profession (Tilton, 2005). Indeed, these latter roles have been overlooked in the studies on tablets performed so far.

This article will look at how researchers are using tablets to replace older techniques for gathering data and publishing their work. The analysis of publishing will look at the differences between writing on a tablet and writing on an office computer or laptop. For example, the advantages and disadvantages of a touch screen device versus traditional user interfaces (keyboard and mouse) will be discussed by the researchers and shown via the everyday use of the tablet/office computer (Ogg, 2010). Gathering data through the tablet will be analyzed by a mixed-method approach which combines qualitative research, under the form of traditional ethnographic methods, and the instruments of quantitative inquiry. The purpose will be to look at how these instruments and methods are applied via the tablet. Both data collection and the presentation of knowledge are key elements for the dissemination of information by the researcher to the larger community. This research will look at how the tablet changes the way both of these functions are performed.

2. Davis' technology acceptance model

The theoretical framework for this work is based on Fred Davis' work on the acceptance of technology in a given system. Davis, Bagozzi, and Warshaw (1989) argue that there are two major external variables in the willingness of an individual to use a piece of technology, namely the overall perceived usefulness of the technology and the perceived ease of use of that same technology. The central argument is that the individual is willing to make the effort of learning to use a new technology if s/he believes that its use will have a "positive effect" on a given workflow or system. This willingness to make an effort corresponds to the person's "attitude toward using" a given technology. The attitude toward the technology and the perceived usefulness of the technology in a given situation leads to the behavior of actual technological use.

Davis' model (Figure 1) is a valuable template for understanding how academics may use a tablet as part of their routine. If the tablet fails the overall "perceived usability" check, it will not be used. If the tablet only has limited situational "perceived usefulness", the tablet will be deemed a "toy", "gadget", or waste.

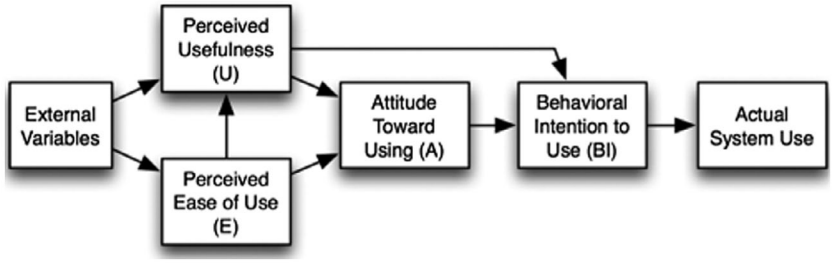

Figure 1. Davis' technology acceptance model.

3. Research question

After reviewing the previous literature and theoretical framework associated with this field of study, it was suggested that I look at the broader impact of tablets in the academy. Specifically, this research will discuss how academics in the social sciences use tablets as a constitutive part of their research.

For the purpose of this work, social science is defined as the study of issues that impact society or the relationship between individuals within a society (Gillespie, Howarth, & Cornish, 2012). The researcher is here defined as a person that generally conducts fieldwork, in contrast with laboratorial experiments or data-set analysis. This type of fieldwork denotes that individuals conduct research with co-participants, implying that the methods used were jointly discussed, there being a common level of knowledge between interviewer and interviewee.

The following research question hence drives this article: What are the key thematics that define how social scientists accept and use tablet computers as part of the research process? This question will be explored through three points of observation, namely student education processes, academic research and presentation of results, as regards the use of tablets.

4. Methods

The methodology for this work consisted in a cross-sectional analysisof a series of ethnographic studies and interviews with researchers discussing their use of tablets in their field of research, as well as a case study of the tablet form factor as potentially influencing tablet use as a research tool. Both the interviews and the "guided ethnographies" (Tilton, 2012) occurred face to face in public venues (e.g. coffee shops, hotel lobbies, restaurants), between June and August 2013. All of the interviewees gave informed consent as regards participation in interviews and the ethnographic process.

Guided ethnography is here understood as modified ethnography that focuses on case studies of concrete use rather than the hypothetical use of any given tool. The co-participant worked with the tablet in the field-like setting and was given instructions to simulate his or her normal tablet operations during the course of research. In many cases, the researcher would act as research participant in order to observe "normalized" tablet use.

4.1. Instruments

The interview instrument was created to allow for an informal, conversational style between the interviewer and the interviewee (Valenzuela & Shrivastava, 2002). There were three main prompts within the interviews, namely."Describe how you use a tablet or other mobile technologies when you conduct research in the field", "Describe how you use a tablet or other mobile technologies to conduct research away from the field" and "Describe how you use tablets or mobile technologies to present your research". There was a chance at the end of the interviews to discuss any other newer tools and techniques used by the researcher.

Guided ethnographies were simply a way of observing a social scientist conduct research in the field. I would begin the guided ethnography by having the researcher show me how he or she used a tablet on a regular basis to conduct research. The rationale for using guided ethnographies as opposed to other similar qualitative methods of research was that this method allowed for direct engagement between myself and the person being observed, rather than their own subjects of research. Indeed, in this manner I was able to preserve the privacy of the subjects of my fellow researchers in keeping with the parameters of the Institutional Review Board/ethics committee of Ohio Northern University. My observations were framed within the context of the use of mobile technologies (especially tablets) as a integral part of "normal" data gathering (Tilton, 2012).

Through the informal study of others' use of tablets it can be observed that the tablet takes on three forms of representation: the tablet represents a library of books that would normally take

several suitcases to pack; the tablet represents a modular laptop with or without a traditional keyboard; the tablet represents a production studio able to record audio and video of cultural artifacts and edit those artifacts at a moment's notice. The present case study will construct these representations as functional tools of everyday research and researchers, while the interviews/ethnographic studies will give prime examples of how social scientists use these different representations of tablets as researcher's kit. In addition, this article aims to show "the kit" of other researchers, that is, what they "pack" on a daily basis as they conduct research, teach and/or participate in conferences, allowing those academics a chance to discuss how technological changes have altered their ability to conduct and present research.

4.2. Research pool

This study bases itself on a pool of 26 researchers that deal with a variety of issues related to social science research. This was a convenience sample as the researchers responded to a call for interviewees from postings placed on several different academic associations' Facebook pages, my personal Twitter feed and fourteen different email groups/listservs that I had access to. The 26 researchers who responded had a wide range of experiences with social research, which for the purposes of this article will be describe as the ability to apply real, nominal, and/or operational definitions to social phenomenon (Babbie, 2008).

The age cohorts of this study's participants ranged from 29 to 61 years. There were 17 women and nine men in this study. The majority were white with the exceptions being one African-American man, one African-American woman, and one Hispanic woman. All came from the United States and all had a Doctorate in their given field of expertise, except for two females, who had Master's degrees.

5. Themes present in the research

After transcribing and analyzing over 20 hours of interviews and reading over more than a hundred pages of field notes, three themes emerged prominently from the data.

5.1. Tablets as archives of knowledge

One of the advantages of the tablet's form factor is its similarity with other more familiar common items. For example, the tablet reminded some of the co-participants of a book because of the former's size and means of interaction. Tablet users are more accustomed to holding the device in a similar manner to a book, while at the same time using the "internal functionality" of the tablet (Wagner, Huot, & Mackey, 2012).

The "tablet as book" metaphor works especially well with the study's co-participants. Several of them noted the ability to hold many of their favorite books and references within the tablet, with only three of the 26 co-participants using the e-book functionality of the tablet exclusively for research. These participants ranged from 42 to 49 years and were female. The main discussion point related to using the e-book functionality of the tablet exclusively for research concerned their level of comfort with tablets in the research process. One of the co-participants noted, "I normally conduct interviews [in the field] but I'm comfortable with just a digital recorder. I think using my [tablet] for anything else in research other than reading papers or an occasional book wouldn't work."

Kindle was often mentioned (16 out of 26 co-participants) as the common tool for accessing e-books on their tablets. One of the main reasons that was given for using Kindle as a primary e-book app was the ubiquity of the service. This was best summed up by a 31-year-old male co-participant: "regardless of what I am using at the time, if I want to read one of the [e-books] I bought on Amazon, I can use the Kindle app to read it. I travel. When I'm on the plane, I can just look at the books I downloaded and read them before going to a conference or vacation." Kindle acts as the digital bookshelf for research and the main catalog of access to new e-books for those co-participants that use the service. The bookshelf element is key to the archival aspect of the tablet. Access to a universally available bookshelf means that, in addition to having the text, there is the potential to add

parenthetical information by highlighting or noting elements within the text and potentially obtaining those notes when away from the tablet.

For those reading documents like Microsoft Word files and PDFs, there were other themes discussed by the co-participants. An overwhelming amount of co-participants (24 out of 26) used their tablets to read pdfs and .doc files (or some variation of this type of file) on their tablets: a fair amount of group members (16 out of 26) primarily read pdfs over Word documents, while six of the 26 read more documents than pdfs; the remaining two read both equally. The common reason that the co-participants gave for reading documents on the tablet was related to their primary occupation; those that read more Word documents were reading students' work and providing feedback via the tablet. The applications that are best suited to read these types of files are the ones that "mimic" the word processing programs from the computer. The co-participants that focused on this aspect of the tablets needed to be able to add comments, highlight excerpts from the documents, and work in a manner that matched their Office/office setting (both Microsoft Office and their normal work environment). Some of the apps used by this selected group included tApple Pages, Google Drive, Office2 HD, and Notable word processor.

Those that mostly read pdfs on their tablets were more focused on research rather than teaching and read pdfs to prepare for conferences, personal research projects while traveling or presenting research to other groups outside of the academy. Co-participants mention the need to highlight, annotate, and embed comments within the files. Some of the apps used by this selected group were Adobe Reader, iBooks, iAnnotate PDF, and Evernote. Indeed, Evernote was mentioned for documenting artifacts from the field. This will be further discussed in the next section of this article.

The last point raised by the co-participants within the realm of archiving knowledge concerned the fact that the latter could not be reduced to having access to documents and e-books. They spoke of accessing archival copies of webpages via the tablet. One of the main sources for looking at archived websites was archive.org. Maintained by the Internet Archive group, the "Internet Archive Wayback Machine" is a service designed to "pull up" old sites as they appeared in previous versions. As long as the service has captured a "snapshot" of the site, the Wayback Machine can reproduce the website back to the functionality of a former version requested by a given user. Five different co-participants mentioned this archive. There was a variety of reasons given for the using of this service by this group: checking the validity of sites listed in "References Cited" sections of articles and submissions, observing the changes to website over a given period of time for research and collecting online artifacts. Having a fixed record of the Internet was especially useful on the tablet. Most of the browsers on tablet (and, by extension, most of the browsers on computers) have the offline archive for the user. For example, the newer version of Safari at the time of writing this article has "Reading List," a bookmark function that allows the user to save a website for future reading offline. In addition, the Reading List is shared by all of the user's devices via Safari browsers on computers, tablets, and smartphones.

5.2. Tablets as tools for documentation

One of the key elements to conduct good research is the ability to have access to the proper tools and instruments within any given environment. It is important to note how the evolution of technology has increased the scope of the researcher's capability to collect data, analyze information, and format the results for wide distribution. While the easily recognizable aspect of this trend is the portability and computing power of the tools of the trade, it is also important to discuss their popular acceptance.

It is common sight to see tablet computers and mobile technologies in the wild. Predecessors to these modern tools created barriers that prevented normal interactions between social scientists and their subject/s of research. The visual reinforcement of recording devices would often make the subjects self-conscious about what they were saying. In addition, the use of field notes in the past meant that there was an attempt to establish a balance between making the information accessible

to the researcher while not making the focus of research uncomfortable by reminding them that all of their actions and words were being recorded. An interview or ethnographic study is aided by a device that can double as a documentation tool and as a readily accessible archive of previous research or field notes, or both. The fluid nature of these devices makes for clear artifacts within the context of social science research.

When interviewing co-participants for this article, we discussed the methods for capturing data during field research. Seven of the co-participants discussed using tools for capture text and audio during the taking of field notes. The main application ("apps") that was mentioned by the researchers was "SoundNote." SoundNote and other similar apps are designed to allow the researcher to record audio and type at the same time. The audio is "linked" to the text so when the audio is played back, the text that was typed during that moment is highlighted. This allows the researcher to connect with their notes using the timing of the recording as a reference point. The field notes can be coded but maintain the contextual information of the event within the recording (Emerson, 2011). Other apps that focus on documenting field experiences used by researchers contemplated the management of multiple channels of information at the same time, such as transcription and tagging artifacts.

One of the common issues referred to by those who conduct field research was the need to capture a visual record, an audio record, and field notes of the events in the field, often at the same time. This necessity was met in the past either by taking multiple recording devices when doing field research or accepting the fact that some material would not be captured. The laptop form factor began the process of combining audio, video, and textual documentation of artifacts. The tablet extended this process further with the smaller form factor and improvement of portable camera and microphone quality. Also, the addition of cellular chips, cameras, and microphones inside most of the tablets means that the researchers can stream and archive artifacts automatically with or without public Wi-Fi access. Most of the researchers that mentioned this as being part of their field process (9 out of 26) would tend to use the native camera app to capture pictures and video in the field.

The management of multiple channels of information extends beyond the confines of the arena of study. While in the field, some of the researchers mentioned the use of "Voice over Internet Protocols" or VoIP apps to talk back to others on campus or other parts of the world. Skype was the main application mentioned when discussing VoIP as a benefit to the tablet in the field. This external communication channel allows researchers to engage in collaborative study while being in the field. This immediate collaboration implies the ability to brainstorm and discuss issues related to the research process. One of the co-participants directly acknowledged this benefit of the device by stating: "I was having trouble asking questions in the field [regardinga particular subject]. I found it was easy to Skype a colleague and get some feedback from her." VoIP was also discussed by the co-participants as part of the second part of documentation, namely transcription of artifacts.

Transcription of artifacts was the second common theme among the documentation functions of the tablet. The improvement to voice recognition software with tablets (mainly Siri on Apple devices, S-Video on Samsung devices and Google Voice Recognition on most of the other Android tablets) gives a higher level of quality to translate voice to the correct textual representation of the vocalized word. The strength of voice recognition means that the transcription of interviews is achieved much faster with some level of accuracy. The dynamic nature of technology implies that even as this article is being submitted to press, there are already vast improvements in the tablet's ability to understand and document the spoken word textually. Three of the 26 co-participants used the voice recognition function of the tablet to transcribe artifacts from the field. All used a digital recorder and hooked it up to the tablet's audio port via a 1/8" 4-conductor audio cable. Five of the co-participants mentioned using voice recognition for their work. One of the male co-participants noted that "there are times that I find it much easier to talk to my tablet and use the transcription app to put down my words onto the screen. I do need to go slowly, but I find that the semi-"stream of consciousness"

flow that voice recognition gives me on my tablet a benefit. This helps me with my writer's block, and it helps me organize my thoughts on the screen."

The final element discussed by the co-participants was the tagging of artifacts from the tablet. Tagging of artifacts for the purpose of this article is the ability to add keywords to the datafile itself in the form of metadata, a computer-based code within most computer languages. This tagging allows for multiple levels of identification of individual artifacts within the files of a database. The translation of analog "real world" events into digital artifacts means that those studying real world events in the field can store such elements for future study and back up such files/events for protection. These artifact files can be sorted, analyzed and "re-mixed" to fit into the context of a given research study. The sorting and analysis of these files comes with the ability to have immediate access to a specific set of files defined by a common set of terms and tags. The most common tool used for this function of the tablet was "Evernote." The benefit common to this app consists in its being a cloud-based service, meaning that the researcher can access files independently of geographical locations. Also, the research can call up one tag and find all of the files with that tag. These tags can provide "common significance" to those collaborating on the same project. Common significance allows the tags to have some meaning to the members of the research team sharing a common folder on Evernote, while having no meaning to those outside the research team.

This accessibility from multiple systems means that the co-participants are comfortable in front of a PC as well as using the tablet. The point to note with this accessibility means that sometimes the tablet is using the standard form factor (a handheld flat screen with a touch screen interface for the user to input information into the tablet); however the more common form factor for the tablet is that of the ultrabook/laptop. Consideration of this form factor constitutes the final thematic of the present article, which focuses on the tablet as a proxy for the personal computer system.

5.3. Tablets as proxy for a computer system

The title of this work comes from the idea of a kit, a set of articles or equipment needed for a specific purpose. In this case, the specific purpose is that of conducting and presenting research. This kit is mostly composed of the tablet itself and represents a "portable computer" in the broadest sense. A person can type on it, write documents, and work on other computational functions of the device. It is indeed sufficient to conduct most of the basic functions of a computer. Depending on the type of tablet, the device may handle only one function at a time. This lack of functionality can cause a hassle to those who want to work on complex problems in the field. This hassle is normally weighted against the resources of a given researcher. A tablet can constitute an affordable solution to those that need an inexpensive computing device in the field.

The iPad, and by extension tablet computers, seem to be a logical transition from the laptop. Many of the co-participants mentioned that their previous go-to computing device was a laptop as part of their teaching or research gear. The common complaint with this setup was the heaviness and bulk of the laptop and various cords and adapters needed. A few of the co-participants (6 out of 26) mentioned using netbooks in the past, but not as part of their research gear. "I found that I could do some work on a netbook, but I didn't find it practical for everyday research. I couldn't use it to record interviews because the mics [SIC] on the netbook were less than reliable. In addition, the netbook's battery life was short. I could normally get around four to five hours of life out of it before it died."

Some of the co-participants mentioned using a Bluetooth keyboard with their tablet as a way of turning their tablet into a laptop. Two of the co-participants noted that they used a Windows tablet because of the ease of adding a keyboard to the tablet. It seems that the addition of a keyboard helped those that were trying to simulate the computing experience via the tablet.

On a personal level, as a researcher, I really don't notice a difference between writing on my iPad or writing on my office or home computer in terms of style. The one observable advantage in using the iPad is that I can touch the screen and directly fix any spelling or grammatical mistake. As such,

if students were to have this device early on, in high school for example, they may profit from both directly typing their homework during study halls and being able to archive their school documentation. Most importantly, the ability to collect and express one's thoughts on the go is an amazing expression of freedom, and this is facilitated by tablets.

The three representations of the tablet discussed in this article (the tablet as a library of books that would normally take several suitcases to pack, the tablet as a modular laptop with or without a traditional keyboard and the tablet as a production studio able to record audio and video of cultural artifacts and edit those artifacts at a moment's notice) merely constitute a small sample of the functionality of the tablet as a mobile computing device. It was noted that these types of devices (in conjunction with smartphones) are vital as a step to bridge the "digital divide" and afford access to online services and functions (Brown, Campbell, & Ling, 2011).

6. Discussion

Any discussion related to this work should be framed by the idea that this research was a solo project with no outside funding or support. The limitations and elements for future research listed in the next two sections are built upon this framework.

6.1. Limitations

Several limitations should be noted with regard to this analysis. The first limitation that may have impacted this research is the research pool itself. The nature of the research instrument required that the research pool consist in individuals to whom I could have direct access and interview face to face. The rationale for this approach was based on the greater "ease" with which co-participants would tell their stories through face-to-face communication. This, however, may imply that the views of the co-participants could have matched mine. There were enough shared experiences via academic conferences, commonly shared classes and other events that one could argue that, in this context, the use of tablets was reduced to nothing more than a "status marker" between colleagues (Kockelman, 2010). However, the examples and models given throughout this paper should also point to common experiences between the co-participants and the outside academy.

The second key limitation concerns the definition of a social science researcher. Focus on those who conduct qualitative, as opposed to more quantitative, forms of field research perhaps did not allow for a sufficiently detailed analysis of the use of tablets in a research environment. As a mainly qualitative researcher, I felt ill equipped to handle the meta-analysis of quantitative researchers using tablets and other mobile technologies within the context of their research. On the basis of the methodologies selected, and taking into account that I am not attempting to articulate any redefinition of social science research (Lindlof & Taylor, 2011), this narrow focus on the use of qualitative instruments appeared to be the most adequate for the purpose of the present study.

The final limitation consists in the lack of researchers outside the United States. The only rationale that can be offered for this situation is that a majority of the associations that received the call for co-participants may have had a majority of North Americans as members. The themes presented in the course of this research reflect a strictly United States perspective of the research problematic. The only defense that can be offered is that the 26 that were selected were the 26 that came forward. Beyond this defense, I would argue that there should be no fundamental cross-cultural differences as regards the thematics presented in this article. The reason for this hypothesis will be explained in the conclusion via a critical analysis of researchers' use of tablets and the mediated representation of these devices.

6.2. Future research

Beyond looking at the tablet as a mere extension of the computing lineage, the tablet can become a Swiss army knife for researchers. Academics who conduct research in a field setting are starting to look at these devices as responding to the necessity of the adequate tools both to produce artifacts for quality fieldwork study and to present research in a manner acceptable to the academy. The role

of the researcher in the field demands that s/he think about the different stages of the research cycle at the same time (pre-production, production, and post-production of research).

The kit metaphor works in this setting. A kit is a bag, box or container that holds the key tools, devices, and supplies needed for a given situation (Kohls, 2011). This concept of the kit evolved into the general trope "What's in your Bag?", featured on popular website The Verge (http://www.theverge.com/label/whats-in-your-bag) or "The Things you Carry", displayed on the CNN iReport on the South by Southwest conference (http://ireport.cnn.com/topics/567481). The common thread between these two examples is the idea of being prepared for any given situation through the gadgets one carries: tablets thus appear to fulfill this role by facilitating multiple communication interactions and various forms of knowledge work.

7. Conclusion

To conclude this discussion of the use of tablets in the academic setting, it is fair to compare this analysis with the view of tablets in the media. From the popular literature related to tablets, especially iPad, it seems that tablets are seen as devices for mostly passive consumption of mediated content. Those that own tablets are more likely to watch more videos than those without a tablet device. The common wisdom related to the use of tablets is that tablets are consumption devices which foster passive behaviors, due to their lack of a dedicated keyboard and their inability to run traditional programs from desktops and laptops. As such, tablets are considered to be commonly used for activities such as casual game play when sitting on an airplane, reading an e-book while by the pool, or watching a cooking show while in the kitchen. Some claim that tablets aren't laptop replacements for pedagogical purposes because they lack the ability to be productive tools in the classroom and, by extension, the academy. Such concerns, however, have not prevented other organizations from utilizing tablets in their field.

In the world of business, the top-down adoption of tablets has been popularized. The list of reasons include tablets being unique to the user, almost ideal in terms of screen size, portability, length of battery life, ease of use due to touchpad, accelerometer, gyroscope and a built-in GPS system (Pitt, Berthon, & Robson, 2011). The "unique to user" characteristic of the tablet goes beyond the customization of the device. Rather, it represents a potentially higher level of security as files can be locked onto a device and only viewed via an app. The almost ideal screen size means that most of the business users are accustomed to reading magazines and the form factor closely matches the size of a standard magazine. The very portable aspect means that the tablet is smaller and weighs less than a laptop. This aspect gives companies that use tablets in their workflow a series of solutions for most of the problems they would experience during the normal course of business. Other reasons listed imply that most businesses can create customs apps for their enterprises that meet their needs, placing these apps in relatively affordable devices for an employee to use. Because of the flexibility of tablets, businesses can craft tools to help maintain the fluid workflow of day-to-day operations through these devices.

In the field of medicine, tablet computers are being mentioned as a potential solution for one of the key problems that the medical field is experiencing in the United States: the shortage of doctors and trained medical personnel in smaller rural and less-populated areas. One of the discussed solutions to this shortage is implementing an approach where the paramedic training curriculum that community colleges already offer would be supplemented by training through a medical tablet designed for a wide range of medical emergencies. These tablets could be the same tablets bought off the shelf with the addition of diagnostic tools via the pin/USB connection on most tablets. Paramedic professions would receive.

> a compressed course of instruction, similar in duration to paramedic training, [which] should cover medical terminology; basic examination and treatment skills; and core competencies from the social and behavioral sciences, such as motivational interviewing, behavior modification, and mental health assessment. A Patient Care Technician (PCT) should know,

> for example, how to tactfully assess a patient's home environment and recommend changes patients can make to reduce their risk of illness and injury. (Kellermann, Saultz, Mehrotra, Jones, & Dalal, 2013)

With the changes in other fields and industries, one could argue that the perception of tablets in the academy is changing at the speed of any other communication technology introduced into higher education. Academics and researchers who have long been teaching and conducting research are traditionally not influenced by the changes in communication technology. Their pedagogical and research methods are habitually set based on years of experience. The vanguard of the academy, however, may take an interest in new instruments for improving their research methods. My hope is that the latter members of the academy may consider the flexibility of these tools as described by the co-participants in this article.

Tablets are computing devices that have been in existence almost as long as the concept of the computer, with the form factor becoming smaller and more portable so as to result in the devices we know today. While the popularity of such devices can be attributed to the success of the iPad, the current form factor was thought up as early as 1968. The reason why it is important to note this history in the conclusion of this work is because there is still a driving conception that tablets are "novel devices" and "just a fad." Tablets, as a portable form factor, may change over the next five to ten years, but there are lessons to be learned about how these devices work in the academy for the purpose of conducting research and distributing information to an interested public.

Funding
The author received no direct funding for this research.

Author details
Shane Tilton[1]
E-mail: s-tilton@onu.edu
ORCID ID: http://orcid.org/0000-0001-8954-444X
[1] Department of Communication & Media Studies, Ohio Northern University, Ada 45810, OH, USA.

Citation information
Cite this article as: Tablet as researcher's kit: An analysis of how social scientists use tablet computers in the field, Shane Tilton, *Cogent Social Sciences* (2016), 2: 1159831.

References

Babbie, E. (2008). *The practice of social research*. Belmont, CA: Cengage Learning.

Brown, K., Campbell, S., & Ling, R. (2011). Mobile phones bridging the digital divide for teens in the US? *Future Internet, 3*, 144–158. http://dx.doi.org/10.3390/fi3020144

Browne, K., Anand, C., & Gosse, E. (2014). Gamification and serious game approaches for adult literacy tablet software. *Entertainment Computing, 5*, 135–146. http://dx.doi.org/10.1016/j.entcom.2014.04.003

Davis, H. (2011). *The iPad in education: The professor's perspective*. Retrieved September 28, 2015, from https://web.archive.org/web/20150401000000*/http://www2.palomar.edu/pages/atrc/2011/07/04/the-ipad-in-education-the-professors-perspective/

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*, 982–1003. http://dx.doi.org/10.1287/mnsc.35.8.982

Emerson, R. M. (2011). *Writing ethnographic fieldnotes: 2nd revised edition*. Chicago, IL: University of Chicago Press. http://dx.doi.org/10.7208/chicago/9780226206868.001.0001

Gillespie, A., Howarth, C. S., & Cornish, F. (2012). Four problems for researchers using social categories. *Culture & Psychology, 18*, 391–402.

Hendricks, J. A. (2010). *The twenty-first-century media industry: Economic and managerial implications in the age of new media*. Lanham, MD: Lexington Books.

Hughes, H. (2012). Introduction to flipping the college classroom. *World Conference on Educational Multimedia, Hypermedia and Telecommunications, 2012*, 2434–2438.

Kellermann, A., Saultz, J., Mehrotra, A., Jones, S., & Dalal, S. (2013). Primary care technicians: A solution to the primary care workforce gap. *Health Affairs, 32*, 1893–1898. http://dx.doi.org/10.1377/hlthaff.2013.0481

Kockelman, P. (2010). *Language, culture, and mind*. Cambridge: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511711893

Kohls, L. (2011). *Survival kit for overseas living: For Americans planning to live and work abroad*. Boston, MA: Nicholas Brealey Publishing.

Lindlof, T. R., & Taylor, B. C. (2011). *Qualitative communication research methods*. Thousand Oaks, CA: Sage.

Müller, H., Gove, J., & Webb, J. (2012). *Understanding tablet use*. New York, NY: ACM. http://dx.doi.org/10.1145/2371574

Nelson, M. K. (2015). *Teaching educators how to integrate tablet PCs into their classrooms*. Retrieved November 1, 2015, from http://scholarspace.manoa.hawaii.edu/handle/10125/35950

Ogg, E. (2010). *What makes a tablet a tablet?* (FAQ). Retrieved August 12, 2013, from http://news.cnet.com/8301-31021_3-20006077-260.html?tag=newsLeadStoriesArea.1.

Pearson Foundation. (2012). *Pearson foundation survey on students and tablets 2012*. Retrieved September 28, 2015, from http://web.archive.org/web/*/http://online.annamaria.edu/sites/amc/files/PF_Tablet_Survey_Summary_2012.pdf

Pitt, L., Berthon, P., & Robson, K. (2011). Deciding when to use tablets for business applications. *MIS Quarterly Executive, 10*, 133–139.

Tilton, S. (2005). *Teacher, researcher and public servant: The role of modern faculty*. Retrieved September 28, 2015 from https://www.academia.edu/6205658/Teacher_Researcher_and_Public_Servant_The_Role_of_Modern_Faculty

Tilton, S. (2012). *First year students in a foreign fabric: A triangulation study on facebook as a method of coping/adjustment*. Athens, OH: Ohio University.

Valenzuela, D., & Shrivastava, P. (2002). *Interview as a method for qualitative research*. Retrieved August 16, 2013, from http://www.public.asu.edu/~kroel/www500/Interview%20Fri.pdf

Wagner, J., Huot, S., & Mackey, W. E. (2012). Bitouch and bipad: Designing bimanual interaction for hand-held tablets. In *Conference on Human Factors in Computing systems - Proceedings* (pp. 2317–2326).