Is Today's Social Technology Impacting Written Communications? A Single Case Examination of an Introduction to Agricultural Education Writing Assignment

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ABSTRACT

With increasing societal reliance upon social technology and technological advances, it is critical for communicators as well as educators to understand the impact that social technology use may have on the quality of written communications. While multiple researchers (Irlbeck & Akers, 2009; Morgan, 2010; Morgan, 2012; Sprecker & Rudd, 1997; and Terry et al., 1994) argue that changes in the quality of written communication skills are of little to no value in formal educational settings and decrease student ability to perform in the workplace, researchers like Doerfert and Miller (2006) argue that degree programs and skills must change to accommodate technological advances in communications.

Due to the potential impact of social technology use on the quality of students' written communication skill sets, the purpose of this study was to understand the impact of technology use, specifically text messaging and social media, upon the written communication skills of Introduction to Agricultural Education students. Data was collected from the second week of November 2014 to the end of November 2014. Negative relationships were indicated between the quality of written communication skills and six variables at a moderate or substantial level. Such findings should assist educators in implementing new practices and pedagogy beneficial to the development of high quality written communication skill sets.
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CHAPTER I
INTRODUCTION

The first semblance of agricultural communications courses were offered at Iowa State University in 1905 and identified as agricultural journalism courses (Duncan, 1957). Throughout the years more institutions began offering similar courses and degree programs drawing course inspiration from journalism/mass communications, industry and academia (Tucker, Whaley, & Cano, 2003). While agricultural communication programs continue to evolve and students begin to take more skills based courses (graphic design, video production, and technology), it is important that the foundation of agricultural communications programs, written communication skills, remain important (Ahrens, 2014).

Sprecker and Rudd (1998) found professionals believe that “agricultural communicators are not agriculturists primarily, but communicators who have a specialty” (p. 40). Given this primary role as communicators, it becomes pertinent that agricultural communication students possess not only high quality oral communication skill sets but more importantly high quality written communication skill sets. Unfortunately, Irlbeck and Akers (2009) found that agricultural communications graduates are entering the work force with less than satisfactory skill sets in writing. While employers may express need for increased quality of written communication skills among potential employees, students also seem to understand the importance of high quality written communication skills. Morgan (2012) conducted a study to determine the skills agricultural communications students should possess, and he found that students
emphasized the importance of written communication skills whether they went into a
career that demanded these skills or not.

While it seems both students and educators understand the importance of written
communication skills to students as a whole, and more specifically agricultural
communications students, Doerfert and Miller (2006) argue that agricultural
communications programs are becoming less focused on written communication skills
and more focused on evolving to meet the needs of the growing agricultural industry.
Bailey-Evans (1994) echoes this assertion in regards to advancements in agricultural
communications curriculum. “The aggressive changes in technology indicate a pressing
need to examine the curriculum in an effort to make it applicable to students and their
future employers” (Bailey-Evans, 1994, p. 1).

With decreased focus on the development of written communication skill sets
within the agricultural communications curriculum and increased focus on newly
introduced social technologies, it becomes critical for communicators as well as
educators to understand the impact social technology use may have on the quality of
written communication skill sets.

According to researchers who have studied the relationship between social
technology use and the quality of written communication skills, language continues to
deteriorate due to the increased use of electronic communication platforms (Leu, 2000;
Mohd, 2009). Furthering this claim, Purcell, Buchanan, and Friedrich (2013) conducted
a survey of 2,462 Advanced Placement (AP) and National Writing Project (NWP)
teachers, indicating 68% of teachers find that social technologies “make students more
likely…to take shortcuts and not put effort into their writing” (p. 3). However, 78% find
that social technologies “encourage student creativity and personal expression” (Purcell et al., 2013, p. 2).

While multiple researchers (Irlbeck & Akers, 2009; Morgan, 2010; Morgan, 2012; Sprecker & Rudd, 1997; and Terry et al., 1994) argue that changes in the quality of written communication skills are of little to no value in formal educational settings and decrease student ability to perform in an agricultural communications workplace, researchers like Doerfert and Miller (2006) argue that agricultural communications programs and skills must change to accommodate technological advances in communications.

Although it can be difficult to determine the impact that social technology will have in educational settings, one thing is certain: social technology is always changing. As technologies connected to literacy have continued to become more advanced, there is increasing concern in regard to how electronic communication platforms may affect written communication skills. With nearly 90% of American college students accessing Facebook (a leading social networking site), 75% participating in daily text-messaging conversations, 25% writing a web-log or blog, and 92% participating in daily e-mail conversations, it can be assumed that written communication skills may change over time (Duchene, 2007; Lenhart et al., 2008; Lenhart, 2012; Purcell, 2014). Therefore, it is extremely important to identify both the negative and positive effects that frequently used social technologies may have on the demonstration of written communication skills among today's college students.

There is little doubt that social technology use affects written communication skills in a variety of ways, but the way in which social technologies affect written
communications is still in question. Research conducted by Purcell et al. (2013) make evident the dynamic qualities of written communications in today's society.

Digital technologies are shaping student writing in myriad ways...social networking sites, cell phones, and texting, (are) generally facilitating teens' personal expression and creativity, broadening the audience for their written material, and encouraging teens to write more often in more formats than may have been the case in prior generations (p. 2).

Upon further examination of the relationship between social technology use and the quality of written communications skills, Jennifer Deleo (2008), with PC Magazine, claimed that "younger generations have forgotten how to spell and write complete sentences due to the increased use of text messaging on mobile phones" (p. 2). Further, the State Examination Commission of Dublin Ireland (2006), described teenagers that seem "unduly reliant on short sentences, simple tenses, and a limited vocabulary" and asserted that "the emergence of the mobile phone and rise of text messaging as a popular means of communication would appear to have impacted standards of writing" (p. 57). Similarly, Jennifer Woolven, a high school English teacher in Austin, Texas, noted difficulties when encouraging students to abandon the "tech talk" that has become common to written communications (Jayakumar, 2013).

While educators, as well as written communication experts, have noticed an increase in the negative effects that social technology use may have upon the quality of written communication skills, they have also determined that social technology use may have a positive impact on written communications. Contrary to previous claims, Woolven asserted that when students were faced with the idea of others reading their
work they became more thoughtful (Jayakumar, 2013). Joel Malley, a high school
English teacher from Buffalo, New York, validated these statements explaining that when
technology made written works shareable, student's paid more attention to the quality of
the message they were sharing (Jayakumar, 2013).

Although social technology use has been credited with affecting the quality of
written communications in both positive and negative ways, it is important that the
knowledge of the traditional rules of written communications are not lost in the process
of evolution. Buding and Heaps (2013) agreed that while shifts in written
communications styles may be positive, the past cannot be forgotten and the quality of
written communications must always be carefully considered.

Digital writing may create different cognitive processes. The new tools
may 'wire' our brains in new ways, having a significant impact on the
creation of ideas and the words and sentences we produce...but the rules of
writing are in flux. Informal" writing – text messaging, Facebook posts --
produces rapid changes in spelling, grammar and punctuation. More than
ever, writing is center stage as the fluid rules require ongoing examination,
analysis and debate (Buding & Heaps, 2013).

**Conceptual Framework**

How do we define the relationship between emerging social technologies and
written communication skills? Although there are several factors that play a key role in
formulating an answer to this question, the concept of transformative literacy must be
examined. Reinking (1998), defined transformative literacy as "a phenomenon leading to
a change in literacy as a result of human interaction with newly developed technologies” (p. x).

Although the definition of transformative literacy addresses the overall focus of changing written communication skills as caused by technology use, a deeper understanding of transformative literacy requires a brief introduction to the concept of determinism and more specifically the concept of technological determinism. Defined in *The Stanford Encyclopedia of Philosophy* (2008), determinism is "the idea that every event is necessitated by antecedent events and conditions together with the laws of nature" (para. 1). Expounding upon this idea, technological determinism is later defined in literature as "an approach that identifies technology, or technological advances, as the central causal element in processes of social change" (Croteau & Hoynes, 2003, p. 299). Croteau and Hoynes (2003) further explain technological determinism as technologies become more stable, user behavior will begin to be dictated by technological design aspects. It is where user behavior, specifically written communication skills, begin to be dictated by these technological advances that the terms “hard determinism” and “soft determinism” are introduced as key components in the concept of technological determinism. As such, users organize themselves to meet technological needs and the outcomes of this organization are a result of the presence or absence of free will (Winner, 1978). Given the variable of free will, it becomes important to understand the level of social acceptance of new technologies among youth and young adults. Utilizing the Unified Theory of Acceptance and Use of Technology, introduced by Venkatesh, Morris, Davis, and Davis (2003), it is possible to analyze the degree of social acceptance of new social technologies and identify the social and educational changes occurring among
youth and young adults. Considering that there are evident changes occurring in regard to the social and educational practices of students as a result of increased technological use, it is imperative to take into account the deterministic nature of literacy and analyze how it connects to transformative literacy as well as the transformations we see in terms of written communication skill sets of today's students.

**Need for the Study**

Although multiple researchers have conducted studies identifying how multimedia, e-mail, and other technologies have transformed literacy and literacy learning in school classrooms and other contexts (Abdullah, 2003; Blachowicz, Beyersdorfer, & Fisher, 2006; Haas, 2013), research has not been conducted focusing on transformative relationships between social technologies and written communication skills exclusively. Reinking (1998) again defined transformative literacy as "the phenomenon by which new technologies transform the nature of literacy, including reading as well as written communication skills" (p. x). With continued introduction of new social technologies every day, it is vital for educators to understand how these new technologies are affecting written communication skills of students in order to identify and create practices and pedagogy that will best serve development of formal written communication skills. Murphrey, Rutherford, Doerfert, Edgar, Edgar, and Leggette (2013) back this claim, describe, and push for the shift from “chalkboards to virtual environments” in agricultural communications (p. 23).

Communications education, and more specifically agricultural communications education, has evolved over time, shifting in an effort to
meet the needs of students through new approaches, new methods, and new technologies (Murphrey et al., 2013, p. 23).

It may also be important to determine the connection between social technology use and the quality of written communication skills in regards to workplace preparedness. According to Sprecker and Rudd (1998) and more recently NACE (2006), written communication skills are the most important skills for college graduates. However, Corner and Cole (2008) found that 72% of communications professionals found very few entry level employees to be adequately prepared for these writing roles. Similar research conducted by Irlbeck and Akers (2009) also found students to be inadequately prepared for written communication practices in the workplace. Due to these findings, determining the connection between technology use and the changing written communication skills of students is vital to detection of students who may be inadequately prepared for the workplace. Findings may also lead to the creation of curricula specifically focused on the development of formal written communication skills.

**Purpose and Research Questions**

The purpose of this single case study was to understand the impact of technology use, specifically text messaging and social media, upon the written communication skills of *Introduction to Agricultural Education* students. The following research questions were used to guide the study:

1. What are the demographic characteristics of students enrolled in *Introduction to Agricultural Education*?
2. What is the level of social technology use (text messaging, e-mail, & social media) of students enrolled in *Introduction to Agricultural Education*?

3. What is the quality of written communication skills demonstrated by students enrolled in *Introduction to Agricultural Education*?

4. What is the impact of social technologies (text messaging, e-mail, & social media) on the written communications skills of students enrolled in *Introduction to Agricultural Education* courses?

**Definitions**

**Determinism:** The idea that every event is necessitated by antecedent events and conditions together with the laws of nature (*The Stanford Encyclopedia of Philosophy*, 2008).

**Hard Determinism:** The view of determinism in which users organize themselves to meet the needs of technology and the outcome of this organization is beyond user control or there is no freedom to make a choice regarding the outcome (Winner, 1978).

**Literacy:** The minimal ability to read and write in a designated language, as well as a mindset or way of thinking about the use of reading and writing in everyday life (Venezky, 1995).

**Social Technology:** Any technology that facilitates social interactions and is enabled by a communications capability, such as the Internet or a mobile device. Examples are social software (e.g., wikis, blogs, social networks) and communication capabilities (e.g., Web conferencing) that are targeted at and enable social interactions (Gartner, 2013).
Soft Determinism: The view of determinism in which users organize themselves to meet the needs of technology and the outcome of this organization is within user control or there is freedom to make a choice regarding the outcome (Winner, 1978).

Technological Determinism: The approach that identifies technology, or technological advances, as the central causal element in processes of social change (Croteau and Hoynes, 2003).

Transformative Literacy: The phenomenon by which new technologies transform the nature of literacy, including reading, as well as written communication skills (Reinking, 1998).

Unified Theory of Acceptance and Use of Technology: Four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) that influence behavioral intention to use a technology and/or technology use (Venkatesh, Thong, & Xu, 2012).

Assumptions

For the purpose of this study, the following were assumed:

1. All students have completed English Composition course work in high school.

2. Participating students answered all survey questions truthfully.

3. Participating students paid special attention to the quality of written compositions in collected writing samples.

Limitations

1. Participants in this study were selected in accordance to those students who were currently enrolled in Introduction to Agricultural Education courses.

2. Student selection was limited to those who were willing to participate.
3. The measurement of student technology use was limited to the data collected through the use of a researcher-created technology use patterns questionnaire.

4. Findings from this study should not be generalized beyond populations who are similar in nature.

5. A small sample size may result in limited generalizability for this study.
CHAPTER II

LITERATURE REVIEW

This chapter is an overview of literature that can be found relevant to Reinking's transformative literacy theory, which can further be linked to the concepts of determinism and more specifically technological determinism. The following discussion will include a summary of determinism as well as technological determinism, the relationship between technological determinism and social acceptance of new technologies, and the increasing social change that leads to transformative literacy. Further literature will review the importance of writing as a skill, agricultural communications students as writers, the connection between writing and technology, technology use of students, and the technology use of sub-groups of students.

Determinism

The theory of determinism was founded upon the basic philosophical notion that "everything can, in principle, be explained...everything that is, has a sufficient reason for being and being as it is, and not otherwise" (Stanford Encyclopedia of Philosophy, 2008, p.1). Bonjour (1976) has further explained this theory of determinism in regard to the causality presented by antecedent events:

An event A is causally determined if and only if there is some set of actual antecedent events (usually any one of many alternative sets will do), and some set of (actual) causal laws, which together make it causally necessary that A occurs. Such a set of antecedent events constitutes a causally sufficient condition for the occurrence of A (p. 145).
It could be argued that these notions connected to the theory of determinism seem to pose a threat to human free will, a concept Winner (1978) termed hard determinism or the belief that free will is absent and event outcomes are uncontrollable. Laplace (1820) acknowledges these possible threats to free will as being preceded by the recognition of a powerful intelligence who is all-knowing of future events and outcomes.

We ought to regard the present state of the universe as the effect of its antecedent state and as the cause of the state that is to follow. An intelligence knowing all the forces acting in nature at a given instant, as well as the momentary positions of all things in the universe, would be able to comprehend in one single formula the motions of the largest bodies as well as the lightest atoms in the world, provided that its intellect were sufficiently powerful to subject all data to analysis; to it nothing would be uncertain, the future as well as the past would be present to its eyes. The perfection that the human mind has been able to give to astronomy affords but a feeble outline of such an intelligence (Laplace, 1820, p. 4).

On the other hand, Hume (1748) argues that humans are simply a part of the deterministic universe in which events are governed by physical laws and that free will can play a role in event outcomes. This concept aligns more closely with soft determinism and in many instances has even been termed compatibilism, referring to the compatibility between determinism and free will.

**Technological Determinism.** When considering the concept of technological determinism it is important to note there are significant connections to the arguments of both hard and
soft determinists. Defined broadly by Beard (1927), it became evident that with the introduction of new technologies came change.

Technology marches in seven-league boots from one ruthless, revolutionary conquest to another, tearing down old factories and industries, flinging up new processes with terrifying rapidity (Beard, 1927, p. 5).

More recently defined as "the approach that identifies technology, or technological advances, as the central causal element in processes of social change," both hard and soft technological determinists agree that technological advances have the potential to create noticeable changes in terms of societal structures and cultural values (Croteau & Hoynes, 2003, p. 299). Smith and Marx (1994) elaborate on this concept stating that technological changes are the basis for change in human social relations as well as societal and organizational structure, and in turn have the profound ability to cause change in human lives.

Many hard determinists like Winner (1978) and Ellul (1967) have argued that as new technologies are introduced, there is an absence of free will. Ideally efficient technologies will determine which societies thrive and which fall behind by a process of natural selection, taking into account societal structures and cultural values that contribute to further technological development. Conversely, soft determinists posit that there is an element of free will in regard to technological evolution. According to Ogburn (1922) as new technologies emerge, societies choose to change, introducing an element of cultural lag and the need for social acceptance of ever-changing technologies.
Social Acceptance of New Technologies

Evaluation of the social acceptance level of new technologies may lead to the premise that youth and young adults are the category to most quickly accept and adapt to newly introduced technologies. Venkatesh, Morris, Davis, and Davis (2003) explained this phenomenon as the Unified Theory of Acceptance and Use of Technology (UTAUT) and introduced four variables which might explain why youth and young adults desire to accept and use new technologies: perceived usefulness of technology, perceived ease of use, social influence, and facilitating conditions. Davis (1989) explained the perceived usefulness of technology as "the degree to which a person believes that using a particular system would enhance his or her job performance" (p. 320), and perceived ease of use as "the degree to which a person believes that using a particular system would be free of effort" (p. 320). Venkatesh et al. (2003) later expand Davis' initial theory including the variables social influence, "the degree to which an individual perceives that important others believe that he or she should choose the new system" (p. 451), and facilitating conditions, "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (p. 453). Along with these four variables, Venkatesh et al. (2003) also identified four situational variables that might be useful in predicting the acceptance of technology: gender, age, technological experience, and the voluntariness of use.
Figure 1. The Unified Theory of Acceptance and Use of Technology Model. Adapted from *User Acceptance of Information Technology: Toward a Unified View*, (Venkatesh, Morris, Davis, & Davis, 2003)

In compliance with the UTAUT model and development of new technologies, youth and young adults have started to recognize the ease and effortlessness these new technologies present while realizing the social pressure and everyday norms that make technology acceptance almost unavoidable. Duggan, Ellison, Lampe, Lenhart, and Madden (2015) indicated that social media usage has increased from 2012 to 2014 with Facebook seeing a 4 percent increase in users, and other social media outlets like LinkedIn, Pinterest, Instagram, and Twitter seeing 8 percent, 13 percent, 13 percent, and 7 percent increases respectively. Cellular phone, as well as smartphone ownership have also skyrocketed over the years with ownership increasing from 53% in 2000 to 90% in 2014 and from 35% in 2011 to 58% in 2014 respectively (Pew Research Internet Project, 2014). While it is important to focus on increased social media usage and cell phone ownership, it is also eminent to focus on the activities that youth and young adults
partake in while using their cell phones. According to Duggan (2013) 81% of Americans send or receive text-messages, 60% access the internet, 52% send or receive e-mail, and 50% download applications using a cellular device.

As technological advancements continue to be made and the availability of, and interaction with, technology continue to increase, one thing is certain: the social and educational environments of youth and young adults are changing. The "tech talk" (Jayakumar, 2013, para. 12) that has become so common to text-messaging and social media interactions is beginning to appear more commonly in formal educational settings and written communications. Kaminski, Switzer, and Gloeckner (2009) explained this phenomenon, asserting that the increased volume of technological advancements created awareness and desire for youth and young adults to act differently in these newly created environments and adapt to the strengths, limitations, and social norms of new technologies.

**Transformative Literacy**

With the continuing introduction of new technologies and increasing changes to social and educational norms, it becomes important to address the concept of transformative literacy. Reinking (1998) lays the groundwork for transformative literacy explaining that technology has transformed the nature of literacy throughout history. Literacy has been historically identified as a way to keep livestock records, enforce moral standards, seek religion, and keep governmental records; it’s meaning changing along with its standard usages (Boyarin, 1993; Diringer, 1968; Manguel, 1996; Matthews, 1996). As time has progressed, literacy has become more dynamic, characterized by rapid and revolutionary changes in information and communication technologies and in
turn rapid and revolutionary changes in written communications (Harrison & Stephen, 1996; Johnson, 1997; Negroponte, 1995).

It is evident that as technology rapidly advances and begins to play a larger role in the everyday lives of students, that written communication skills among these same students are changing drastically. Written communication skills have and will continue to transform as the technologies related to information and communications have changed and individuals begin to recognize the opportunity for the emergence of new written communication styles (Doerfert & Miller, 2006; Leu, 2000; Mohd, 2009; Purcell et al., 2013). Media ecologist McLuhan (2006) claims that "the use of literacy, specifically written communications, as a technology or uniformity between all levels of education, government, industry, and social life is threatened by the constant introduction of new forms of electronic communication" (p.114). McLuhan et al. (1980) laid the groundwork for this claim by asserting that "each medium has unique effects and a grammar of its own…the user is the content, shaped by the environment made by that medium" (p. xi). Supporting the claims made by McLuhan (2006) and McLuhan et al. (1980), multiple other language researchers posit that language continues to deteriorate due to the increased use of electronic communications (Leu, 2000; Mohd, 2009). While many researchers argue that changes in the quality of written communication skills are of little to no value in formal educational settings and decrease student ability to perform in an agricultural communications workplace (Irlbeck & Akers, 2009; Morgan, 2010; Morgan, 2012; Sprecker & Rudd, 1997; and Terry et al., 1994), researchers like Doerfert and Miller (2006) argued that agricultural communications programs and skills must change to accommodate technological advances in communications.
With technology becoming more relevant to the processes of learning and completing school work, instructors are noticing that the tools used to complete written works are also beginning to play a large role in the development of changes in writing practices (Purcell et al., 2013). While teens typically see their use of communication platforms as harmless and informal, Purcell et al. (2013) has pointed out student's tendencies to take shortcuts, use poor spelling or grammar, and be careless in their writing.

While students "generally do not believe that technology negatively influences the quality of their writing, they do acknowledge that the informal styles of writing, that mark the use of these text-based technologies for many teens, do occasionally filter into their school work" (Lenhart et al., 2008). Although many researchers and educators believe that the growing reliance on technology is to blame for the negative impact on written communication skills, students see it very differently. A Pew Internet and American Life 2008 survey supported student claims that two potential changes to their school curricula: teachers having them spend more time writing in class, and teachers using more computer-based tools (such as games, writing help programs or websites, or multimedia) to teach writing would positively impact their written communication skills (Lenhart et al., 2008). Other factors that teens identified to have a positive impact on written communication skills are positive feedback from a teacher, interesting curricula, and high expectations (Lenhart et al., 2008).

Although there is obviously agreement in regard to the connection between changing technology and the quality of written communication skills in existing literature, there are also some notable differences that emerge. Perhaps these variations in beliefs can be attributed to differing educational levels, writing expectations, and
familiarity with technology-based communication platforms. Furthermore, it is possible
differences exist due to the fact that students, as well as technology, change over time and
thus the characteristics of formal written communications will also change.

**The Importance of Written Communication Skills**

Although the change of written communication skill sets cannot be avoided, it is
pertinent that the learning of written communication skills remain an important aspect of
the agricultural communications curriculum and workplace preparation of students. A
2011 study conducted by the Association of Public and Land-grant Universities and the
University Industry Consortium aimed to determine the most important soft skills for new
graduates (Crawford, Lang, Fink, Dalton, & Fielitz, 2011). From seven soft skill clusters,
the communication skills cluster was ranked most important by students, faculty, alumni,
and employers. This communication skills cluster included oral communication skills but
more importantly written communication skills (Crawford et al., 2011). Multiple other
studies conducted to determine the job skills students should possess upon graduation
ranked the communication skills set within the top five skills important for success in the
workplace (Hansen & Hansen, 2007; NACE, 2006; Norwood & Henneberry, 2006).

**Agricultural Communications Students as Writers**

As the focus of agricultural communications curricula shifts toward technical
skills (graphic design, video production, and photography) to meet the social technology
needs of the agricultural industry, there may also be a shift away from traditional
instruction in written communications. A study conducted by Irlbeck and Akers (2009)
determined students are entering the workforce with less than satisfactory written
communication skill sets, but the study also determined students have beyond satisfactory skills in page layout, photo editing, radio production, and graphic design.

While, student skill sets related to social technologies prove to be important in making agricultural communications an "ever-evolving degree program" (Ahrens, 2014, p. 1) and preparing students for the changing agricultural industry, research has shown that agricultural communications curricula must also possess elements of written communication skills learning to ensure that agriculture students remain proficient writers going into the future.

**Writing and Social Technology**

Increasing introduction of new social technologies seems to lead to change in the written communication skill sets of students; however, it is difficult to determine whether the introduction of these technologies bring about positive or negative change. A study conducted by Conroy (2010) aimed to show that online learning and language instruction have a positive impact on the quality of written communication skills. He posits that Internet-based language learning tools could aid college students in academic writing practices because these students are enthusiastic and competent users of Internet-based tools and techniques (Conroy, 2010).

On the other hand, a survey of 2,462 Advanced Placement (AP) and National Writing Project (NWP) teachers, conducted by Purcell et al. (2013) along with the Pew Research Center, indicated that teachers are noticing “an increasingly ambiguous line between formal and informal writing and the tendency of some students to use informal
language and style in formal writing assignments” (para. 9) as a result of increased social technology use.

While digital tools and social technologies are increasing the forms and styles of writing and changing the quality of written communication skill sets as a whole, many educators still argue that the use of these tools can be beneficial in the classroom setting. Nine in ten teachers (92%) surveyed in the 2013 Pew Research Center survey indicated that formal writing is still of tremendous value and aimed to use digital tools and social technologies to impart written communication skills that students need (Purcell et al. 2013). Multiple other researchers agree with the concept of integrating social technologies into written communication instruction as it can further promote student performance and learning satisfaction (Chang & Chen, 2009; Liang & Tsai, 2010; Lu & Bol, 2007; Van Gennip, Segers, & Tillema, 2010).

Social Technology Use

With the changes that are being seen in written communication skill sets and the need for educators to integrate social technologies into classroom settings, it becomes important to understand the most commonly used technologies among today’s students. According to the Pew Research Center Internet and American Life Project Teen Fact Sheet (2012) approximately 80% of all students own a computer and 23% own a tablet. Mobile device ownership is also high with 90% of all students owning a cell phone and 58% owning a smartphone.

In regard to social media use, a large study of approximately 36,000 U.S. and Canadian college students conducted by Smith and Caruso (2010) indicated that over
90% of college students utilize online social media sites. Kietzmann, Hermkens, McCarthy, and Silvestre (2011) define social media in the following way:

“the employment of mobile and web-based technologies to create highly interactive platforms which individuals and communities share, co-create, discuss, and modify user-generated content” (Kietzmann et al., 2011, p. 241).

While Facebook remains the most popular social media site with 97% of college students registered (Smith & Caruso, 2010), other social media sites like Twitter, Instagram, Pinterest, and LinkedIn are gaining popularity with 23%, 26%, 28%, and 28% of college students using these sites regularly (Pew Social Networking Fact Sheet, 2014, para. 1).

The most popular form of text-based interaction among students is texting, with 75% of teens participating in text-messaging conversations daily (Lenhart, 2012).

Sixty-seven percent of cell owner find themselves checking their phone for messages...even when they don't notice their phone ringing or vibrating...44% of cell owners have slept with their phone next to their bed because they wanted to make sure they didn't miss any text messages or other updates during the night (Pew Mobile Technology Fact Sheet, 2012, para. 4).

Along with frequent text messaging conversations, many teens also send and receive messages daily via instant messaging systems (29%), social media platforms (23%), and e-mail (92%) (Pew Research Center Teen Fact Sheet, 2012; Purcell, 2014).
**Sub-groups of Social Technology Users**

Although it is evident that a majority of today's teens are using social technologies on a daily basis, it is also important for educators and practitioners to understand what sub-groups of students may be driving increases in social technology use.

A 2012 study conducted by the Pew Research Center for the Pew Internet and American Life Project indicated that female students lead cell phone and smart phone ownership at 78% and 38% respectively. This study also indicated that students aged 14 to 17 are the largest ownership group of cell phones and smart phones at 88% and 44% respectively. The largest groups of cell phone and smart phone owning students were also from a suburban community at 81% and 39% respectively.

In regard to social networking use, a 2014 study conducted by the Pew Research Center for the Pew Internet and American Life Project showed that females lead use on social networking sites at 76% of the total population. This study also showed that people aged 18 to 29 use social networking sites most frequently at 89%. The largest group of these social networking users also indicated some college for level of education at 78%.

These statistics help make the case that students at or close to college age are partaking in social technology use more frequently and therefore may be at higher risk for presenting decreased quality of written communication skill sets. Focus should be place on these sub-groups of technology users to emphasize the continuing importance of written communication skills and discourage the shift toward more informal written communication styles.
Chapter Summary

It has been determined that the quality of written communication skills have and will continue to play a key role in student achievement, career obtainment, and career success across the nation. While many factors may contribute to changes in the quality of written communication skills this review of literature seeks to identify the role played by social technology along with its connection to other factors.

With continued changes to social technology, as well as social and educational norms, it is essential that educators reevaluate the curriculum used in their classrooms and create practices and pedagogy that will best serve development of formal written communication skill sets. Although Duggan et al. (2014) have noted continued increase in social media and cell-phone related activities, activities with which Purcell et al. (2013) has noted “an increasingly ambiguous line between formal and informal writing” (para. 9), researchers like Doerfert and Miller (2006) argue that agricultural communications programs and skills must change to accommodate technological advances in communications. Consequently, it is necessary to recognize the transformative nature of literacy and have the ability to identify current and upcoming changes in the quality of written communications.
CHAPTER III

METHODOLOGY

Introduction

Chapter I introduced the concept of the agricultural communications program and the argument that writing should still play an important role in agricultural communications programs today despite shifts toward increased social technology use. It included background information on the creation of the agricultural communications program, the shift from written skills instruction to technical skills instruction in agricultural communications programs, and the changes that are evidenced in student workplace preparedness and written communication skills as a result of social technology use. To assist in increasing students' workplace preparedness and quality of written communication skills, more information is needed on how increased social technology use may be affecting written communication skill sets. Chapter II included literature on the importance of written communication skills, agricultural communications students as writers, the connection between writing and technology, social technology use, and subgroups use of social technology. Using the conceptual framework of determinism, technological determinism, the Unified Theory of Acceptance and Use of Technology (UTAUT), and transformative literacy, this quantitative case study sought to understand the influence of social technology use on the changing written communication skill sets of students.

Purpose and Research Questions

The purpose of this single case study was to understand the impact of technology use, specifically text messaging and social media, upon the written communication skills
of Introduction to Agricultural Education students. In order to address the study's purpose, the researcher used a quantitative approach.

According to Hall (2011) research questions "often relate back to theories, review of literature, previous experiences, or the need for data to make workplace decisions" (p. 55). The quantitative nature of research questions further allows them to be categorized into one of three categories: (1) descriptive, (2) comparative, and (3) relationship (Onwuegbuzie & Leech, 2006). Onwuegbuzie and Leech further define these three types of research questions. Descriptive research questions are typically asked in a "What is" or "What are" format and provide numerical responses to the variables studied. Comparative research questions report differences in results of variables for two or more groups. Finally, relationship research questions address the trends between two or more variables in a group of variables (Onwuegbuzie & Leech, 2006). The following research questions were used to guide the quantitative data collection process:

1. What are the demographic characteristics of students enrolled in Introduction to Agricultural Education?

2. What is the level of social technology use (text messaging, e-mail, & social media) of students enrolled in Introduction to Agricultural Education?

3. What is the quality of written communication skills demonstrated by students enrolled in Introduction to Agricultural Education?

4. What is the impact of social technologies (text messaging, e-mail, & social media) on the written communications skills of students enrolled in Introduction to Agricultural Education courses?
Research Design

A descriptive correlational case study approach was used to explore how the use of social technologies (text messaging, e-mail, and social media) impacts the quality of written communication skill sets of students. The case study approach can be defined in numerous ways. Ary, Jacobs, and Sorenson (2010) described case studies as “an examination of a single individual, group, or institution” (p. 637). Bromley (1990) also described case studies as “an attempt to systematically investigate an event or a set of related events with the specific aim of describing and explaining this phenomenon” (p. 317). Case studies are an appropriate methodology to consider when the researcher aims to understand characteristics of phenomena, individuals, communities, or institutions (Berg, 2009).

Ary et al. (2010) defined correlational research as “research that attempts to determine the extent and the direction of the relationship between two or more variables” (p. 639). Taking into account the descriptive aspects of correlational research, Ary et al. (2010) further expanded the definition of correlational research to include descriptive aspects and the “use of instruments such as questionnaires and interviews to gather information from groups of individuals” (p. 28).

This study attempted to combine the elements of case study research and descriptive correlational research to examine a group of Introduction to Agricultural Education students and determine the relationship between social technology use and the quality of written communication skills using a questionnaire.

Students enrolled in Introduction to Agricultural Education (AGED 2300) courses, taught by instructors that agreed to participate in the study, served as the unit of
analysis. Therefore, the *Introduction to Agricultural Education* course served as the primary focus of the study.

**Population and Sample**

According to Ary et al. (2010) case studies are designed to “provide an in-depth description of a single unit” (p. 454). The unit of analysis for this study consisted of the *Introduction to Agricultural Education* courses (AGED 2300) offered at Texas Tech University. Students enrolled in *Introduction to Agricultural Education* (AGED 2300) courses, taught by instructors that agreed to participate in the study, served as the data points of this study in two instances, when analyzing social technology use and when analyzing the quality of written communication skills. From this point on the data points will be referred to as *n*. To ensure that the instructor was provided with adequate information, an instructor recruitment letter was delivered to the instructor (see Appendix B).

The participating instructor was asked to aid in the recruitment of students for the study by allowing the co-investigator to read the student recruitment letter (see Appendix C) and distribute student consent forms (see Appendix D). Students who did not return a completed student consent form were omitted in the recruitment process, resulting in 38 participating students (*n* = 38). Once returned, the co-investigator sent a student participation e-mail (see Appendix E) asking each student to (1) complete a technology use survey and (2) submit a computer-generated, pre-determined class writing assignment. Student completion of these two tasks determined the final set of data points for the study (*n* = 18). (see Table 1).
Table 1

*Responding Sample by Participation Process (n = 18)*

<table>
<thead>
<tr>
<th>Participation Process</th>
<th>Responding Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted student consent form</td>
<td>38</td>
</tr>
<tr>
<td>Completed the technology use survey</td>
<td>21</td>
</tr>
<tr>
<td>Submitted the computer-generated, pre-determined class writing assignment</td>
<td>18 a</td>
</tr>
</tbody>
</table>

*Note.* a = Final responding sample

**Instrumentation**

For the purpose of this study, a researcher-created instrument was used (see Appendix F). This instrument was developed based upon a 2008 Pew Research Center Internet and American Life Research Survey in an attempt to address all areas of current communication technology use by today’s college students. Questions not applicable to social technology use were omitted and other questions modified to represent the most common social technologies available in 2014. The instrument was divided into two sections. Section one dealt with participant’s use of technology on a daily and weekly basis and sought to determine the frequency of participants’ use. This section was comprised of nine multiple choice questions, four open-ended response questions, and 18 scale level questions in which participants were asked to rank the frequency of their technology use or activities on a scale ranging from 1 to 8 (with 1 being less often and 8 being multiple times per hour).

Section two was comprised of six demographic questions to determine participants’ gender, age, classification, community type (urban or rural), and registration status with Honors Programs, Student Disability Services, or both. The researcher also
used a writing sample analysis tool (see Appendix G) based upon 10 departures from edited standard written English. These departures included sentence fragment, run-on sentence or comma splice, misused semicolon, error in verb form or tense, error in subject/verb agreement, error in pronoun agreement or form, spelling mistakes, capitalization mistakes, homophone mistakes, and sentences lacking sentence sense. Developed by Walvoord and Anderson (1998) the original purpose of the instrument was to provide educators with an effective means of grading student writing assignments. In order to focus on the quality of students’ written communication skill sets, the researcher did not alter the original analysis tool.

**Validity and Reliability**

According to Haynes, Richard, and Kubany (1995) “content validity is the degree to which elements of an assessment instrument are relevant to and representative of, the targeted construct for a particular assessment purpose” (p. 239). Further, Secolsky (1987) defines face validity as “the sustainability of the content of a test or item(s) for an intended purpose as perceived by test takers, users, and/or the general public” (p. 82).

In order to ensure the validity of the survey instrument a panel of experts in agricultural education and agricultural communications reviewed the instrument for both face and content validity. Input from these individuals reinforced the selection of the items for the survey. Pilot tests are typically conducted to ensure reliability in regard to the measurement of mental attributes, attributes that typically lead to higher levels of measurement imprecision than physical attributes (Willmott & Nuttall, 1975). Considering that the survey instrument used in this study was geared towards physical attribute measurement, a pilot study was not required to measure reliability.
To address Brown, Bull, and Pendlebury’s (1997) assertion the “major threat to reliability is the lack of consistency of an individual marker” (p. 235), the rater’s consistency in the distribution of writing sample analysis scores was estimated to determine the intra-rater reliability. Rousson, Gasser, and Siefert (2002) define intra-rater reliability as “presenting repeatedly the same observations to one rater” (p. 3431). An intra-rater reliability of 99% was determined. This was deemed acceptable due to Brown, Glaswell, and Harland’s (2004) statement that intra-rater reliabilities higher than 70% are sufficient.

**Data Collection**

Data collection began the second week of November 2014 and continued until the end of November 2014. Participating students were read a request for student participation letter following lecture on November 10, 2014 and given a student consent form. The researcher collected all consent forms, signed or blank, in order to ensure that student participation was confidential. Students who opted to participate and provided a functional e-mail address were e-mailed a link to the researcher generated technology use questionnaire distributed via Qualtrics. Following the completion of questionnaires, students were asked to submit a computer-generated, pre-determined class writing assignment to the researcher via e-mail, to allow for the purpose of analyzing individuals’ written communication skills. \( n = 18 \). The selected writing assignment was approximately two pages in length and representative of students’ formal written communication skill sets. The assigned paper addressed the criteria previously set forth by the course instructor for a speaker reflection writing assignment. The assignments were submitted to the instructor prior to data collection and a numerical grade assigned.
Data Analysis Procedure

Writing samples were analyzed using the writing sample analysis tool developed by Walvoord and Anderson (1998). The researcher based student scores on the 10 departures from edited standard written English. An initial score of 100 points was possible for the writing sample; the researcher subtracted one point from the initial score for each departure from edited standard written English. All final data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0 for Windows. Descriptive statistics were reported for measures of central tendency. Frequencies, percentages, and modes as well as means, standard deviations, and ranges were reported for the data associated with the second and third objectives. An independent samples t-test was also run for objective three to determine the difference in written communication skills between students who were enrolled in the Honors Program and students who were not. The alpha level was set at 0.05 a priori. In order to interpret the data associated with objective four the researcher utilized point-biserial, Spearman-rank order, and Pearson product moment correlations to determine the impact of technologies (text messaging, e-mail, & social media) on the written communications skills of students. The magnitude of correlations was determined by Davis’ (1971) descriptors. The scale used to interpret the magnitude of correlations was as follows: negligible (-0.09 to 0.09), low (-0.29 to 0.29), moderate (-0.49 to 0.49), substantial (-0.69 to 0.69), very high (-0.99 to 0.99), and perfect (-1 and 1) (Davis, 1971).

Chapter Summary

This study utilized a descriptive correlational case study design. The "Introduction to Agricultural Education" course served as the focus of the study and
individual students served as the unit of analysis. Data were collected on students’ perceived use of technology as well as demonstrated quality of written communication skills. The researcher reported descriptive statistics. Frequencies and percentages as well as means, standard deviations, and ranges were reported for the items associated with the second and third objectives. For the final objective, the researcher utilized point-biserial, Spearman-rank order, and Pearson product moment correlations in order to calculate and describe the correlations between technology use and writing sample scores. The magnitude of correlations was determined by Davis’ (1971) descriptors.
CHAPTER IV

FINDINGS

Purpose

The purpose of this study was to understand the impact of increased technology use, specifically text messaging and other computer mediated communications upon the written communication skills of Introduction to Agricultural Education students.

Population

According to Ary et al. (2010) case studies are designed to “provide an in-depth description of a single unit” (p. 454). The unit of analysis for this study consisted of the Introduction to Agricultural Education courses (AGED 2300) offered at Texas Tech University. Of the instructors teaching Introduction to Agricultural Education courses, one \(N = 1\) agreed to participate.

Students enrolled in Introduction to Agricultural Education (AGED 2300) courses, taught by instructors that agreed to participate in the study, served as the data points of this study in two instances, when analyzing social technology use and when analyzing the quality of written communication skills. The participating instructor was asked to aid in the recruitment of students to participate; 38 students \(n = 38\) returned completed student consent forms. Of the 38 students who returned student consent forms, 18 students \(n = 18\) completed the technology use survey and submitted the pre-determined writing assignment.

Question One

The first question of this study consisted of describing demographic variables of participating students. Observed variables included gender, year of birth, academic
classification, and hometown community type (see Table 2). Of the 18 students who
were surveyed, 15 (83.3%) were female and three (16.7%) were male. Six (33.3%) of the
participants were 19 years of age. Other ages reported included 24 (1, 5.6%), 23 (1,
5.6%), 22 (1, 5.6%), 21 (4, 22.2%), and 20 (5, 27.8%). Students classified as Freshmen
accounted for 50% ($n = 9$) of respondents, while Sophomores comprised 16.7% ($n = 3$)
and Juniors comprised 33.3% ($n = 6$). Sixteen (88.9%) of the students surveyed
identified their hometown as a rural community, while 2 (11.1%) identified their
hometown as an urban community.
Table 2

Demographic Characteristics of Students (n = 18)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n)</th>
<th>Freq. Percent (%)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>83.3</td>
<td></td>
</tr>
<tr>
<td>Year of Birth</td>
<td></td>
<td></td>
<td>1996</td>
</tr>
<tr>
<td>1991</td>
<td>1</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>1</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>1</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>4</td>
<td>22.2</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>5</td>
<td>27.8</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>6</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>Academic Classification</td>
<td></td>
<td></td>
<td>Freshman</td>
</tr>
<tr>
<td>Freshman</td>
<td>9</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>3</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td>6</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>Community Type</td>
<td></td>
<td></td>
<td>Rural</td>
</tr>
<tr>
<td>Rural</td>
<td>16</td>
<td>88.9</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>2</td>
<td>11.1</td>
<td></td>
</tr>
</tbody>
</table>

Students were also described based upon their enrollment and/or registration status with the Honors Program and Student Disability Services (see Table 3). Three (16.7%) of the participants indicated enrollment in the Honors Program while 15 (83.3%)
of the participants were not enrolled. Students who were not registered with Student Disability Services accounted for 100.0% \((n = 18)\) of respondents.

### Table 3

*Student Participation in Specialized Education Programs \((n = 18)\)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency ((n))</th>
<th>Freq. Percent (%)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled in the Honors Program</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>83.3</td>
<td></td>
</tr>
<tr>
<td>Registered with Student Disability Services</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Question Two**

Data concerning student levels of technological presence were collected through the utilization of nine technology specific items. Eighteen students (100.0%) reported ownership of a desktop and/or laptop computer as well as ownership of a smartphone (see Figure 2). Of the 18 students who were surveyed, 10 (55.6%) indicated they did not own a tablet.
All respondents (18, 100.0%) had daily access to Internet and sent or received e-mail (see Figure 3).

Figure 2. Technology Presence of Students: Devices Owned

Figure 3. Technology Presence of Students: Internet and Email
Facebook users accounted for 100.0% \((n = 18)\) of the respondents (see Figure 4). Fifteen (83.3%) students had a Twitter account and three (6.7%) students did not utilize Twitter. From the pool of 18 respondents, 17 (94.4%) of students identified themselves as Instagram users. The majority of students did not have a LinkedIn account (12, 66.7%) while the remaining students (6, 33.3%) reported that they do utilize LinkedIn.

Data concerning the frequency of student technology use were collected through the employment of 18 items pertaining to daily, weekly, and less frequent usage patterns of technologically based platforms and social media forums (see Table 4). Eleven (61.1%) students reported a level of several times a day for frequency of computer use, followed by multiple times per hour \((f = 3, 16.7\%)\), at least once per hour \((f = 3, 16.7\%)\), and at least once a day \((f = 1, 5.6\%)\). When asked about their smartphone use for text-based activities, the majority of students indicated multiple times per hour \((f = 14, 77.8\%)\) while the remaining students indicated at least once per hour \((f = 2, 11.1\%)\) and several
times a day ($f = 2, 11.1\%$). Twelve (66.7\%) students reported a level of less often (less than every few weeks) concerning tablet use for text-based activities, followed by multiple times per hour and every few weeks, each with two (11.1\%) students, and at least once per hour and 1 to 2 days per week, each with one (5.6\%) student.

The fourth item, use a cell phone for texting, was reported by 13 (72.2\%) students at a level of multiple times per hour, three (16.7\%) students at a level of at least once per hour, and one (5.6\%) student each for several times a day and about once a day. Cell phone use for applications was reported at a level of multiple times per hour by seven (38.9\%) students followed by several times a day ($f = 5, 27.8\%$), at least once per hour ($f = 3, 16.7\%$), less often ($f = 2, 11.1\%$), and about once a day ($f = 1, 5.6\%$). Levels of several times a day, about once a day, and multiple times per hour for using cell phones to make phone calls were reported by nine (50.0\%) students, six (33.3\%) students, and three (16.7\%) students respectively. Eight (44.4\%) students reported a level of multiple times per hour concerning cell phone use for social media activities, followed by several times a day reported by five (27.8\%) students, at least once per hour reported by three (16.7\%) students, and about once a day and 3 to 5 days per week each reported by one (5.6\%) student.

When asked about their internet use via a cell phone, eight (44.4\%) students indicated a level of multiple times per hour while the remaining students indicated levels of several times a day ($f = 7, 38.9\%$) and at least once per hour ($f = 3, 16.7\%$). The ninth item, Facebook access, was reported by five (27.8\%) students at multiple times per hour and about once a day, three (16.7\%) students at levels of at least once per hour and 1 to 2 days per week, and two (11.1\%) students at several times a day. Six (33.3\%) students
reported a level of less often for Twitter access, followed by about once a day \( (f = 4, 22.2\%) \), and every few weeks \( (f = 3, 16.7\%) \). Levels of multiple times per hour, at least once per hour, several times a day, 3 to 5 days per week, and 1 to 2 days per week were each indicated by one (5.6\%) student. Instagram access was reported by six (33.3\%) students at a level of several times a day, followed by about once a day \( (f = 5, 27.8\%) \), multiple times per hour \( (f = 4, 22.2\%) \), at least once per hour \( (f = 2, 11.1\%) \), and less often \( (f = 1, 5.6\%) \).

LinkedIn access proved to be less popular indicated by 14 (77.8\%) students at less often, followed by 1 to 2 days per week and every few weeks each indicated by two (11.1\%) students. Levels every few weeks and less often were indicated by eight (44.4\%) students and seven (38.9\%) students respectively for LinkedIn access. Two (11.1\%) students indicated a level of 1 to 2 days per week and one (5.6\%) student indicated a level of multiple times per hour for this item.

Asked about posting bulletins or group messages to social media websites, the majority of students \( (f = 9, 50.0\%) \) reported a level of less often, followed by levels of every few weeks \( (f = 4, 22.2\%) \), and 1 to 2 days per week \( (f = 2, 11.1\%) \). Levels of multiple times per hour, at least once per hour, and several times a day were each reported by one (5.6\%) student.

Six (33.3\%) students indicated a level of less often for sending private messages via social media, followed by every few weeks \( (f = 6, 33.3\%) \), at least once per hour \( (f = 2, 11.1\%) \), and multiple times per hour \( (f = 2, 11.1\%) \). Levels of several times a day and 1 to 2 days per week were each indicated by one (5.6\%) student. Item sixteen, send instant messages and/or text messages via social media, was reported by four (22.2\%)
students at levels of several times a day, every few weeks, and less often. Three (16.7%) students reported a level of multiple times per hour for this item, followed by levels of at least once per hour, about once a day, and 1 to 2 days per week, each reported by one (5.6%) student.

Commenting on blog posts proved to be less popular with 13 (72.2%) students reporting a level of less often, while the remaining students reported levels of every few weeks ($f = 2, 11.1$%), 1 to 2 days per week ($f = 2, 11.1$%), and multiple times per hour ($f = 1, 5.6$%). When asked about posting comments on pictures and/or statuses via social media, levels of 1 to 2 days per week and every few weeks were reported by five (27.8%) students each. Three (16.7%) students reported a level of less often, followed by levels of 3 to 5 days per week ($f = 2, 11.1$%), at least once per hour ($f = 2, 11.1$%), and multiple times per hour ($f = 1, 5.6$%).
Table 4

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Note: Percentages are calculated based on the sample size (n = 18).
Table 4. Continued

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*Note.* Use Coding: 1 = Less often, 2 = Every few weeks, 3 = 1-2 days per week, 4 = 3-5 days per week, 5 = About once a day, 6 = Several times a day, 7 = At least once per hour, 8 = Multiple times per hour.
Data concerning student texting and email activity were collected through the use of four items indicating the frequency of and involvement in texting and email conversations (see Figure 5). Seventeen students (94.4%) indicated that they have 0 to 5 email conversations daily, while one student (5.6%) indicated that they have 6 to 10 email conversations daily. All students (100.0%) reported that they exchange 0 to 5 emails per conversation.

![Bar chart showing email activity](image)

*Figure 5. Student Email Activity*

When asked about the number of daily text message conversations, 18 students (100.0%) indicated 0 to 10 daily conversations (see Figure 6). Five students each (29.4%) reported that they exchange 0 to 10 or 21 to 30 text messages per conversation, followed by 11 to 20 texts per conversation (3, 17.6%), 41 to 50 texts per conversation (3, 17.7%), and 31 to 40 texts per conversation (1, 5.9%).
Data concerning the written communications skills of students were collected through the use of a writing sample analysis tool focusing on ten departures from edited standard written English (see Table 5). The majority of students (10, 55.5%) scored between 90 and 100 points on their writing sample, followed by seven students (38.9%) scoring between 80 and 89, and one student (5.6%) who scored between 60 and 69. The mean score for quality of written communications skills of students was relatively high (89.22, $SD = 6.85$)
Table 5

*Quality of Written Communication Skills of Students (n = 18)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Freq. Percent (%)</th>
<th>Mean</th>
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<td>89.22</td>
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<td>6.85</td>
<td>68.00-97.00</td>
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</table>

When using an independent samples t-test to compare the mean writing sample scores of students enrolled in the Honors Program (88.67, SD = 7.37) with those who are not enrolled with the honors program (89.33, SD = 7.00), there is no significant difference in the quality of written communication skills demonstrated (see Table 6). The t-value for the model was -0.15 and was not significant (p < 0.05).

Table 6

*t-test Results Comparing Students Who Are Enrolled In The Honors Program and Students Who Are Not On Writing Sample Score (n = 18)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>T</th>
<th>P</th>
</tr>
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<td>Enrolled in Honors Program</td>
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<td>7.37</td>
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<tr>
<td>Not Enrolled in Honors Program</td>
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<td>7.00</td>
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Question Four

The point-biserial coefficient ($r_{pb}$) was used to describe the influence of technology presence on the written communications skills of students (see Table 7). A moderate positive correlation is noted between tablet ownership and written communication skills ($r_{pb} = 0.33$), followed by low positive correlations between Instagram profile ownership and written communications skills ($r_{pb} = 0.21$) as well as LinkedIn profile ownership and written communications skills ($r_{pb} = 0.20$). There is a moderate negative correlation indicated between Twitter profile ownership and written communications skills ($r_{pb} = -0.40$). Correlations could not be calculated between written communications skills and the following variables because all students indicated yes as their ownership status: Computer Owned, Smartphone Owned, Daily Internet Access, Send or Receive Email, and Facebook Profile.

Table 7

<table>
<thead>
<tr>
<th>Variable</th>
<th>Writing Sample Score ($r_{pb}$)</th>
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<td>Tablet Owned</td>
<td>0.33</td>
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<td>Twitter Profile</td>
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<tr>
<td>Instagram Profile</td>
<td>0.21</td>
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<tr>
<td>LinkedIn Profile</td>
<td>0.20</td>
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</table>

Note. Answer Coding: 1 = Yes, 2 = No

A Spearman rank-order correlation ($r_s$) was used to describe the influence of technology use on the written communication skills of students (see Table 8). A negligible negative correlation was noted between computer use and written
communications skills ($r_s = -0.08$). A low negative correlation was noted between written communication skills and smartphone use for text based activities ($r_s = -0.21$) and a moderate negative correlation between written communication skills and tablet use for text based activities ($r_s = -0.44$) as shown in Table 6.

Table 8

*Influence of Technology Use on the Written Communication Skills of Students: Device Usage* (n = 18)

<table>
<thead>
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<th>Variable</th>
<th>Writing Sample Score ($r_s$)</th>
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<tr>
<td>Smartphone Used for Text-Based Activities</td>
<td>-0.21</td>
</tr>
<tr>
<td>Tablet Used for Text-Based Activities</td>
<td>-0.44</td>
</tr>
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</table>

*Note.* Use Coding: 1 = Less often, 2 = Every few weeks, 3 = 1-2 days per week, 4 = 3-5 days per week, 5 = About once a day, 6 = Several times a day, 7 = At least once per hour, 8 = Multiple times per hour

There was a low positive correlation between cell phone use for phone calls and written communications skills ($r_s = 0.17$) as well as cell phone use for applications and written communications skills ($r_s = 0.16$) (see Table 9). A negligible positive correlation was indicated between cell phone use for internet and written communications skills ($r_s = 0.03$).

Low negative correlations were indicated between written communication skills and the following: Instagram access ($r_s = -0.12$), cell phone use for social media activities ($r_s = -0.16$), Twitter access ($r_s = -0.21$), cell phone use for texting ($r_s = -0.22$), social media use for instant and/or text messages ($r_s = -0.24$), Facebook access ($r_s = -0.27$), social media use for private messages ($r_s = -0.29$), and LinkedIn access ($r_s = -0.29$).
Table 9

_Influence of Technology Use on the Written Communications Skills of Students-Cell Phone Activities (n = 18)_

<table>
<thead>
<tr>
<th>Variable</th>
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<td>Cell Phone Used-Texting</td>
<td>-0.22</td>
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</table>

_Note._ Use Coding: 1 = Less often, 2 = Every few weeks, 3 = 1-2 days per week, 4 = 3-5 days per week, 5 = About once a day, 6 = Several times a day, 7 = At least once per hour, 8 = Multiple times per hour

Low negative correlations were indicated between written communication skills and the following: Instagram access ($r_s = -0.12$), Twitter access ($r_s = -0.21$), social media use for instant and/or text messages ($r_s = -0.24$), Facebook access ($r_s = -0.27$), social media use for private messages ($r_s = -0.29$), and LinkedIn access ($r_s = -0.29$) (see Table 10).

There was a moderate negative correlation between social media use to post messages to a friend’s wall and written communication skills ($r_s = -0.30$), followed by moderate negative correlations between written communication skills and the following: social media use to send bulletin and/or group messages ($r_s = -0.31$) and social media use to comment on a picture and/or a status ($r_s = -0.42$). A substantial negative correlation was noted between social media use to comment on a blog post and written communication skills ($r_s = -0.50$).
Table 10

Influence of Technology Use on the Written Communications Skills of Students-Social Media Activities (n = 18)

<table>
<thead>
<tr>
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<tr>
<td>Social Media-Twitter Accessed</td>
<td>-0.21</td>
</tr>
<tr>
<td>Social Media-Send Instant Message or Text Message</td>
<td>-0.24</td>
</tr>
<tr>
<td>Social Media-Facebook Accessed</td>
<td>-0.27</td>
</tr>
<tr>
<td>Social Media-Send Private Messages</td>
<td>-0.29</td>
</tr>
<tr>
<td>Social Media-LinkedIn Accessed</td>
<td>-0.29</td>
</tr>
<tr>
<td>Social Media-Post Messages to a Friend’s Wall</td>
<td>-0.30</td>
</tr>
<tr>
<td>Social Media-Send Bulletin or Group Message</td>
<td>-0.31</td>
</tr>
<tr>
<td>Social Media-Comment on a Picture or Status</td>
<td>-0.42</td>
</tr>
<tr>
<td>Social Media-Comment on a Blog Post</td>
<td>-0.50</td>
</tr>
</tbody>
</table>

*Note. Use Coding: 1 = Less often, 2 = Every few weeks, 3 = 1-2 days per week, 4 = 3-5 days per week, 5 = About once a day, 6 = Several times a day, 7 = At least once per hour, 8 = Multiple times per hour*

Pearson product-moment correlations (\(r\)) were used to describe the influence of text message and/or email activity on the written communication skills of students (see Table 11). A negligible negative correlation was identified between the number of daily email conversations and written communication skills (\(r = -0.08\)). There was a low negative correlation reported between the number of text messages exchanged per text
conversation and written communication skills \((r = -0.22)\). Correlations were unable to be determined between written communication skills and the variables emails exchanged per email conversation and number of daily text message conversations. These correlations could not be determined because all respondents indicated that they exchanged 0 to 5 emails per conversation and partook in 0 to 10 daily text message conversations.

Table 11

*Pearson Product-Moment Correlations Between Text and/or Email Activity and Written Communication Skills of Students (n = 18)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>(R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Email Conversations</td>
<td>-0.08</td>
</tr>
<tr>
<td>Emails Exchanged Per Conversation(^a)</td>
<td>-</td>
</tr>
<tr>
<td>Daily Text Message Conversations(^a)</td>
<td>-</td>
</tr>
<tr>
<td>Text Messages Exchanged Per Conversation</td>
<td>-0.22</td>
</tr>
</tbody>
</table>

*Note.* Email Coding: 0-5 conversations or emails = 1, 6-10 conversations or emails = 2; Text Message Coding: 0-10 conversations or texts = 1, 11-20 conversations or texts = 2; 21-30 conversations or texts = 3, 31-40 conversations or texts = 4, 41-50 conversations or texts = 5

*Note.* \(^a\) = Could not be determined because one of the variables is constant.

**Chapter Summary**

This chapter serves as an overview of the findings. This study utilized a correlational study design in which the quality of written communication skills demonstrated by the students enrolled in *Introduction to Agricultural Education* served as the focus of the study. The majority of the 18 student respondents were female (15, 83.3%). Six of the participants (33.3%) were 19 years of age, followed by 20 years of age (5, 27.8%). Freshman accounted for 50.0% (9) of respondents, while Juniors
comprised 33.3% (6) of the students who participated. Three students (16.7%) indicated enrollment in the Honors Program.

Student technology presence, frequency of use, and text and/or email activity was measured through the employment of 31 technology specific items. As a result of data collection, students indicated significant technology presence utilizing desktop and/or laptop computers, smartphones, Internet, email, and social media sites on a regular basis. Students exhibited a strong technological presence, demonstrating elevated frequency use patterns, level five or higher, in situations related to nine of the questionnaire items, and participated in 0 to 10 email and/or text message conversations on a daily basis.

Data concerning the quality of student’s written communication skills were collected through the use of a writing sample analysis tool focusing on ten departures from edited standard written English. The majority of students demonstrated high levels of quality in their written communication skill sets scoring 80 points or higher.

The magnitude of correlations was described using by Davis’ (1971) descriptors. A moderate, positive correlation was observed in one of the items, tablet ownership, while a moderate, negative correlation was observed between the quality of written communication skills and five items: Twitter profile ownership, social media use to post messages to a friend’s wall, social media use to send bulletin and/or group messages, social media use to comment on a picture and/or a status, and tablet use for text based activities. One substantial negative correlation was noted between social media use to comment on a blog post and written communication skills. Correlations could not be calculated between written communications skills and seven technology presence,
frequency of use, and text and/or email activity variables because all students answered identically.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Purpose

The purpose of this study was to understand the impact of increased technology use, specifically text messaging and other computer mediated communications upon the written communication skills of Introduction to Agricultural Education students.

Research Questions

The following research questions were used to guide the study:

1. What are the demographic characteristics of students enrolled in Introduction to Agricultural Education?

2. What is the level of social technology use (text messaging, e-mail, & social media) of students enrolled in Introduction to Agricultural Education?

3. What is the quality of written communication skills demonstrated by students enrolled in Introduction to Agricultural Education?

4. What is the impact of social technologies (text messaging, e-mail, & social media) on the written communications skills of students enrolled in Introduction to Agricultural Education courses?

Limitations

Participants in this study were selected in accordance to those students who were currently enrolled in Introduction to Agricultural Education courses. Student selection was limited to those who were willing to participate. The measurement of student technology use was limited to the data collected through the use of a researcher-created
technology use patterns survey. Findings from this study should not be generalized beyond populations who are similar in nature.

**Design of the Study**

The study utilized a descriptive correlational case study design. The case study approach can be defined in numerous ways. Ary, Jacobs, and Sorenson (2010) described case studies as “an examination of a single individual, group, or institution” (p. 637). Bromley (1990) also described case studies as “an attempt to systematically investigate an event or a set of related events with the specific aim of describing and explaining this phenomenon” (p. 317). Case studies are an appropriate methodology to consider when the researcher aims to understand characteristics of phenomena, individuals, communities, or institutions (Berg, 2009).

Correlational research is defined by … Ary et al. (2010) also defined correlational research as “research that attempts to determine the extent and the direction of the relationship between two or more variables” (p. 639). Taking into account the descriptive aspects of correlational research, Ary et al. (2010) further expanded the definition of correlational research to include descriptive aspects and the “use of instruments such as questionnaires and interviews to gather information from groups of individuals” (p. 28).

This study attempted to combine the elements of case study research and descriptive correlational research to examine a group of *Introduction to Agricultural Education* students and determine the relationship between social technology use and the quality of written communication skills using a questionnaire.
Students enrolled in *Introduction to Agricultural Education* (AGED 2300) courses, taught by instructors that agreed to participate in the study, served as the unit of analysis. Therefore, the *Introduction to Agricultural Education* course served as the primary focus of the study.

**Population and Sample**

The unit of analysis for this study consisted of the *Introduction to Agricultural Education* courses (AGED 2300) offered at Texas Tech University. Students who did not return a completed student consent form were omitted in the recruitment process, resulting in 38 participating students (*n* = 38). Once returned, the co-investigator sent a student participation e-mail (see Appendix E) asking each student to (1) complete a technology use survey and (2) submit a computer-generated, pre-determined class writing assignment. Student completion of these two tasks determined the final set of data points for the study (*n* = 18).

**Instrumentation**

For the purpose of this study, a researcher-created instrument was used. This instrument was developed based upon a 2008 Pew Research Center Internet and American Life Research Survey in an attempt to address all areas of current communication technology use by today’s college students. Questions not applicable to social technology use were omitted and other questions modified to represent the most common social technologies available in 2014. The instrument was divided into two sections and comprised of approximately 25 questions. The researcher also used a writing sample analysis tool based upon ten departures from edited standard written English. These departures included sentence fragment, run-on sentence or comma splice,
misused semicolon, error in verb form or tense, error in subject/verb agreement, error in pronoun agreement or form, spelling mistakes, capitalization mistakes, homophone mistakes, and sentences lacking sentence sense. Developed by Walvoord & Anderson (1998) the original purpose of the instrument was to provide educators with an effective means of grading student writing assignments. In order to focus on the quality of students’ written communication skill sets, the researcher did not alter the original analysis tool.

Data Collection

Data collection began the second week of November 2014 and continued until the end of November 2014. Participating students were read a request for student participation letter following lecture on November 10, 2014 and given a student consent form. The researcher collected all consent forms, signed or blank, before distribution of the survey instrument took place in order to ensure that student participation was confidential. Students who opted to participate and provided a functional e-mail address were e-mailed a link to the researcher generated technology use questionnaire distributed via Qualtrics. Following the completion of questionnaires, students were asked to submit a computer-generated, pre-determined class writing assignment to the researcher via e-mail to allow for the purpose of analyzing individuals’ written communication skills. The selected writing assignment was approximately two pages in length and representative of students’ formal written communication skill sets. The assigned paper addressed the criteria previously set forth by the course instructor for a speaker reflection writing assignment. The assignments were submitted to the instructor prior to data collection and a numerical grade assigned.
Data Analysis

Writing samples were analyzed using the writing sample analysis tool developed by Walvoord & Anderson (1998). The researcher based student scores on the ten departures from edited standard written English. An initial score of 100 points was possible for the writing sample; the researcher subtracted one point from the initial score for each departure from edited standard written English. All final data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0 for Windows. Descriptive statistics were reported for measures of central tendency. Frequencies, percentages, and modes as well as means, standard deviations, and ranges were reported for the data associated with the second and third objectives. An independent samples t-test was also run for objective three to determine the difference in written communication skills between students who were enrolled in the Honors Program and students who were not. The alpha level was set at 0.05 *a priori*. In order to interpret the data associated with objective four the researcher utilized point-biserial, Spearman-rank order, and Pearson product moment correlations to determine the impact of technologies (text messaging, e-mail, & social media) on the written communications skills of students. The magnitude of correlations was determined by Davis’ (1971) descriptors.

Findings

**Question One.** The purpose of objective one was to describe students enrolled in *Introduction to Agricultural Education*. Of the 15 students who were surveyed, 15 (83.3%) were female and 3 (16.7%) were male. Six (33.3%) of the participants were 19 years of age. Other birth ages reported included 24 (1, 5.6%), 23 (1, 5.6%), 22 (1, 5.6%), 21 (4, 22.2%), and 20 (5, 27.8%). Students classified as Freshmen accounted for 50% (n
= 9) of respondents, while Sophomores comprised 16.7% (n = 3) and Juniors comprised 33.3% (n = 6). Approximately 16 (88.9%) of students surveyed identified their hometown as a rural community, while 2 (11.1%) identified their hometown as an urban community. Three (16.7%) of the participants indicated enrollment in the Honors Program while 15 (83.3) of the participants were not enrolled. Students who were not registered with Student Disability Services accounted for 100.0% (n = 18) of respondents.

**Question Two.** Determine the technology use (text messaging, e-mail, & social media) of students enrolled in *Introduction to Agricultural Education* was the purpose of the second objective. Data concerning student levels of technological presence were collected through the utilization of 9 technology specific questions to which respondents could answer either yes or no. The frequency of student technology use was determined through the collection of data centered on 18 items pertaining to daily, weekly, and less frequent usage patterns of technologically based platforms and social media forums. Questions were designed on a likert-type scale that ranged from “less often” (1) to “multiple times per hour” (8). Data concerning student texting and email activity were collected through the use of 4 items indicating the frequency of and involvement in texting and email conversations. These questions were designed to be free-response type questions.

As a result of data collection the majority of students indicated that they owned a desktop and/or laptop (18, 100.0%), owned a smartphone (18, 100.0%), had daily Internet access (18, 100.0%), sent and/or received email (18, 100.0%), and utilized the social media websites Facebook (18, 100.0%), Twitter (15, 83.3%), and Instagram (17, 94.4%).
Further, many students indicated that they did not own a tablet (10, 55.6%) or access the social media website LinkedIn (12, 66.7%).

When considering the 18 items pertaining to daily, weekly, and less frequent usage patterns of technologically based platforms and social media forums, the majority of students indicated a frequency of multiple times per hour for five items, several times a day for three items, every few weeks for one item, and less often for five items. Students declared multiple majorities related to the frequency of use or access for the following items: social media-Facebook access (multiple times per hour, about once per day), social media-send private messages (every few weeks, less often), social media-send instant messages and/or text messages (every few weeks, less often), and social media-comment on a picture and/or status (1 to 2 days per week, every few weeks).

Through the collection of data concerning student texting and email activity students indicated that on a daily basis they were involved in an average of 0 to 10 email conversations (1.06) ($SD = 0.24$) and exchanged 0 to 5 emails per conversation (1.00) ($SD = 0.00$). Students also reported an average of 0 to 10 daily text message conversations (1.00) ($SD = 0.00$). The mean score for number of text messages exchanged per conversation was between 21 and 40 text messages (2.94) ($SD = 9.00$).

**Question Three.** The purpose of objective three was to determine the quality of written communication skills demonstrated by students enrolled in *Introduction to Agricultural Education*. Data concerning the quality of student’s written communication skills were collected through the use of a writing sample analysis tool focusing on ten departures from edited standard written English. The majority of students (10, 55.5%) scored between 90 and 100 points on their writing sample, followed by 7 students
(38.9%) scoring between 80 and 89, and 1 student (5.6%) who scored between 60 and 69. The mean score for quality of written communications skills of students was relatively high (89.22) (SD = 6.85).

**Question Four.** Determine the impact of technologies (text messaging, e-mail, & social media) on written communications skills was the purpose of the fourth objective.

The magnitude of correlations was determined by Davis’ (1971) descriptors. A moderate, positive correlation was observed in one of the items, tablet ownership, while a moderate, negative correlation was observed between the quality of written communication skills and the following five items: Twitter profile ownership, social media use to post messages to a friend’s wall, social media use to send bulletin and/or group messages, social media use to comment on a picture and/or a status, and tablet use for text based activities.

One substantial negative correlation was noted between social media use to comment on a blog post and written communication skills. Correlations could not be calculated between written communications skills and the following variables because all students answered identically: Computer Owned, Smartphone Owned, Daily Internet Access, Send or Receive Email, Facebook Profile, Emails Exchanged per Conversation, and Daily Text Message Conversations.

**Conclusions and Implications**

**Conclusions: Question One.** Looking at the data it can be concluded that the average *Introduction to Agricultural Education* student is a female in a lower-classification from a rural community who is not registered with either the Honors Program and/or Student Disability Services.
Conclusions: Question Two. From the technology presence, frequency of use, and texting and/or email activity data it can be concluded that the students exhibited a strong technological presence, demonstrated elevated frequency use patterns, level 5 or higher, in situations related to 9 of the questionnaire items, and participated in 0 to 10 email and/or text message conversations on a daily basis.

Participant responses show that current technology presence is geared toward devices like desktop computers, laptop computers, and smartphones as well as to applications like email, Facebook, Twitter, and Instagram, findings that are consistent with previously conducted research (Duggan, 2013; Duggan et. al, 2015; Pew Research Center Teen Fact Sheet, 2012; Pew Research Internet Project, 2013; Pew Social Networking Fact Sheet, 2014; Purcell, 2014; Smith & Caruso, 2010). Tablet ownership and LinkedIn profile ownership are indicated as less popular in regards to technology presence, findings that again prove to be consistent with previous research (Pew Research Center Teen Fact Sheet, 2012). These findings allow the researcher to conclude that students prefer computers or small hand-held devices and show increasing presence in regards to social applications.

Students demonstrated elevated frequency use patterns of about once per day or more frequently in situations related to 9 of the questionnaire items: computer use, smartphone use for text based activities, cell phone use for texting, cell phone use for applications, cell phone use for calls, cell phone use for social media activities, cell phone use for internet, Facebook access, and Instagram access. From this data it can be concluded, students access technology as well as take part in text based activities most frequently via computers and smartphones. It can also be concluded that students utilize
the social media platforms Facebook and Instagram more frequently than other social media outlets. These conclusions support previous research conducted (Duggan, 2013; Duggan et al., 2015; Pew Research Center Teen Fact Sheet, 2012; Pew Research Internet Project, 2013; Pew Social Networking Fact Sheet, 2014; Purcell, 2014; Smith & Caruso, 2010).

Student responses indicated that email activity is limited to 0 to 10 conversations per day with 0 to 5 emails per conversation, while texting activity is more frequent with 0 to 10 conversations per day with approximately 20 to 40 texts per conversation. Due to these results it can be concluded that students prefer texting over email as a means of written communication, data consistent with Lenhart’s (2012) research findings that 75% of teens take part in text message conversations daily.

Implications: Question Two. Considering student technology presence, frequency of use, and texting and/or email activity, it is important to note and take advantage of the increasing use of cellular devices as a means of participating in text based activities as suggested in previous research as a way to promote student performance (Chang & Chen, 2009; Liang & Tsai, 2010; Lu & Bol, 2007; Van Gennip, Segers, & Tillema, 2010). It is evident that Facebook, Instagram, and Twitter also play a large role in student’s technology repertoire and should be utilized in classroom settings as outlets to increase the quality of students’ written communication skill sets. With texting growing as the preferred means of written communication among students it may also be beneficial to emphasize the use of email in classroom settings as a means to encourage more professional written communication skills.
Conclusions: Question Three. Considering written sample analysis data it can be concluded that the students demonstrated high levels of quality in their written communication skill sets with approximately 94% of students scoring above 80 points. These findings are consistent with Conroy (2010) but refute the claims made by Purcell et al. (2013).

Conclusions: Question Four. When exploring the relationships between technology and the quality of written communication skills, it can be concluded that technology presence and the frequency of technology use have an impact on the quality of students’ written communication skill sets.

A moderate positive correlation was noted between tablet ownership and the quality of written communication skills, allowing the researcher to conclude that students are using tablets for educational and/or professional text based activities. These findings may connect to research displayed in the Pew Research Center Internet and American Life Project Teen Fact Sheet (2012) indicating that only 23% of teens own a tablet.

Moderate negative correlations were identified between written communication skills and the following five variables: Twitter profile ownership, social media use to post messages to a friend’s wall, social media use to send bulletin and/or group messages, social media use to comment on a picture and/or a status, and tablet use for text based activities. One substantial negative correlation was observed between social media use to comment on a blog and the quality of written communication skills.

It can be concluded from this data that increasing participation in the aforementioned activities leads students to be more lax in the observance of rules common to formal written communications, and in turn, allows for emergence of less
formal written communications, data consistent with assertions made by Purcell et al. (2013) indicating that the quality of students’ written communication skill sets change with increased use of social technologies.

**Implications: Question Four.** When considering the relationships between technologies (text messaging, e-mail, & social media) and written communication skill sets, it is imperative to understand the role social media activities play in the emergence of informal written communications. It may be advantageous to utilize these social media activities in educational and/or professional settings to stress the importance of more formal written communications. The positive relationship between tablet ownership and written communication skills sets indicates that tablet use may also be beneficial to the quality of written communications skills.

**Expectations**

According to findings from Irlbeck and Akers (2009) and Corner and Cole (2008), the researcher expected the written communication skills demonstrated by students to be poor due to lack of classroom instruction and workplace preparation. However, findings indicated that students’ demonstrate a high quality of written communication skills.

Throughout this case study, it was expected that the quality of written communication skills would decrease significantly with increased use of social technologies, similar to results achieved in previous research studies (Deleo, 2008; Jayakumar, 2013; Lenhart et al., 2008; Leu, 2000; Mohd, 2009; Purcell at al., 2013; State Examination Commission of Dublin Ireland, 2006). However, the findings indicated that the participating students demonstrated high quality of formal written communication
skills, despite their increased use of social technologies, and may be adequately prepared for workplace settings. These findings are inconsistent with researchers like Irlbeck and Akers (2009) but consistent with multiple other researchers (Chang & Chen, 2009; Liang & Tsai, 2010; Lu & Bol, 2007; Van Gennip, Segers, & Tillema, 2010).

The research indicated that devices such as tablets and social media sites such as Instagram and LinkedIn have a positive effect on the quality of written communication skills of students, findings unexpected from the use of social technologies.

It was also expected for students enrolled in the Honors Program to demonstrate a higher quality of written communication skills than those students who were not enrolled in the Honors Program. However, the findings showed that students enrolled in the Honors Program performed at the same level as those who are not enrolled in the Honors Program, findings that may indicate social technology use can have positive impacts on the quality of written communication skills (Buding & Heaps, 2013).

**Recommendations for Practitioners**

With continued introduction of new technologies every day, it is vital for educators to understand how these new technologies are affecting written communication skills of students. Teachers should be aware of the specific attributes of written communication skills with which students struggle. Utilizing this knowledge, educators will demonstrate increased efficiency in identification and creation of practices and pedagogy that will best serve the development of formal written communication skill sets.

According to Sprecker and Rudd (1998) written communication skills are the most important skills for college graduates to have; however, Corner and Cole (2008)
found that 72% of communications professionals found very few entry level employees to be adequately prepared for these writing roles. Determining the connection between technology use and the changing written communication skills of students will prove vital to detection of students who may be inadequately prepared for the workplace. Identification of ill-prepared students will allow educators and industry leaders the opportunity to create curricula and/or specialized training programs specifically focused on the development of formal written communication skills.

**Recommendations for Research**

It is recommended that this study be replicated with a larger population to account for the limited generalizability resulting from a study of this magnitude. Methods of collecting the pre-determined class writing assignment concurrently with the computer generated technology use survey should be explored. The employment of this recommendation would increase the efficiency of pairing the computer generated technology use survey with the writing sample for analysis purposes.

The use of more a more inclusive writing sample analysis tool should be explored as the tool used was limited to ten departures from edited standard written English and allowed several written communication errors to go unaccounted for. This tool should include a more in depth analysis of grammar and punctuation and account for the conciseness of writing samples analyzed.

The quality of classroom instruction related to written communications should also be explored to ensure that students are receiving adequate opportunities to practice and improve proper grammar, spelling, and punctuation habits.
As indicated by Duggan et al. (2015) students presence on social technologies is always increasing and new technologies are constantly being introduced. Further studies should be conducted to examine the change in types of technology students are using that may in turn affect written communication skills. Important outlets to consider are as follows: blogs, instant messaging applications, and photo/video rich applications.

It may be important to conduct further research on how changing use of devices affects the quality of written communication skill sets. Perhaps differing physical design of devices and differing device efficiencies with social technology activities could impact the quality of written communication skill sets as students adapt writing styles to fit the device being used.

According to Duggan et al. (2015) and findings from this study, teens are using multiple social technology tools to communicate on a daily basis. Students are accessing social media sites, accessing social applications, and partaking in text-based activities from multiple devices at any time. While the use of devices may prove to be important to impacting written communication skill sets, the content being accessed has the potential to play an even larger role. In accordance with unexpected findings in this case study, further research should be conducted to determine the content students are partaking in when using social technologies. Although increased use of social technologies is typically associated with decreasing quality of formal written communication skills, it may be possible for students who utilize educationally related content to improve their written communication skill sets.

It is also recommended that treatments related to written communication skills instruction be applied to separate sections of *Introduction to Agricultural Education.*
Possibilities include but are not limited to: utilizing social media sites for classroom instruction; offering online modules related to common grammar, spelling, and punctuation rules; presenting grammar, spelling, and punctuation rules orally via face-to-face instruction; and implementing stricter grammar, spelling, and punctuation rules for class assignment purposes. These treatments will help future researchers to determine the effect of these treatments on the quality of students’ written communication skills in conjunction with technology use.
REFERENCES


October 9, 2014

Jonathan Ulmer  
Ag Ed & Communications  
Mail Stop: 2131

Regarding: 504622 The Use of Technology in Today’s Society: Assessing Impact on Written Communication Skills of Students

Dr. Jonathan Ulmer:

The Texas Tech University Protection of Human Subjects Committee has approved your proposal referenced above. The approval is effective from October 17, 2014 to September 30, 2015. This expiration date must appear on all of your consent documents.

We will remind you of the pending expiration approximately eight weeks before September 30, 2015 and to update information about the project. If you request an extension, the proposal on file and the information you provide will be routed for continuing review.

Sincerely,

Rosemary Cogan, Ph.D., ABPP  
Protection of Human Subjects Committee
APPENDIX B

INSTRUCTOR RECRUITMENT SCRIPT

Dr. Professor,

As you know technology plays a large part in our everyday lives. With several hours focused daily on computer mediated communications including both text messaging and social media sites, it can be assumed that our communications are impacted. Therefore, I would like to complete a study to learn about the way that technology use in our everyday lives has affected the quality of our written communication skills.

To gain a better understanding of how technology may have impacted communication, your participation is needed in this study. I would like to ask for your permission to involve your students in a 10 minute questionnaire. Their responses to the survey will help identify the level of computer mediated communication activity that students partake on a daily basis. I would also like to ask for your involvement in the collection of a writing sample for analysis of written communication skills among college students. The writing sample will be taken from a pre-determined class writing assignment and your consent to collect a writing sample from the students will help to identify how technology may or may not affect written communication skills of college students. If you choose to participate in this study would you please allow us five minutes either at the beginning or end of lecture to explain the study and methodology to your students and ask for their participation?
Hello, I am Ashley Daggs and I am completing my Master’s at Texas Tech University, my advisor Dr. Jonathan Ulmer is assisting me throughout my thesis study and your instructor, has agreed to let me speak to you today regarding participation in my this study. As you know technology plays a large part in our everyday lives. With several hours focused daily on computer mediated communications including both text messaging and social media sites, it can be assumed that our communications are impacted. The purpose of this study is to learn about the way that technology use in our everyday lives has affected the quality of our written communication skills.

To gain a better understanding of how technology may have impacted communication, your participation is needed in this study. I am asking for your help in the collection of a writing sample for analysis of written communication skills among college students. The writing sample will be taken from {a pre-determined class assignment}. If you choose to participate in this study, you will sign the consent form that has been distributed and provide me with a functional e-mail address. I would appreciate your help with a 10 minute questionnaire. Your responses to the survey will help identify the level of computer mediated communication activity that you partake in on a daily basis. After I receive your consent form, I will e-mail you a link to the survey instrument and ask you to respond to the e-mail by attaching the pre-determined class writing assignment.

Your identity will not be collected for the research, this is to insure confidentiality. Your responses to this questionnaire will not be associated to your name. Your data will never be reported by individual; rather it will only be displayed as group data. Feel free to skip any question or withdraw from the questionnaire at any time.

For any questions pertaining to this study please contact Ashley Daggs at (254) 368-2847 or via email at ashley.daggs@ttu.edu. My advisor, Dr. Jon Ulmer can also be contacted at jon.ulmer@ttu.edu. Texas Tech University also has a board that protects the rights of people who participate in research. To contact the Human Research Protection Program (HRPP) please call (806) 742-2064 or contact HRPP via email at hrpp@ttu.edu.
APPENDIX D

STUDENT CONSENT FORM

Please help us with our research project and share your thoughts.

What is this project studying?
This study is called “The Use of Technology is Today’s Society: Assessing the Impact on Written Communication Skills of Students.” This study will help us learn how student’s technology use might impact their written communication skills. What we learn may help people, and we hope to publish this study widely to make it as beneficial as possible.

What would I do if I choose to participate?
In this study you will be asked for your e-mail address. You will then be e-mailed a link to a short online survey we would like you to complete, and asked to reply by attaching a pre-determined class writing assignment. Some survey questions will be about you. Some questions will be about how you utilize technology in your everyday life.

Can I quit if I become uncomfortable?
You are always welcome to quit if you become uncomfortable. Your participation is completely voluntary. Dr. Ulmer and the Institutional Review Board have reviewed the questions and feel that you can answer them comfortably. However, you may skip any question that makes you feel uncomfortable. You may also stop answering questions at any time. Participating is completely your choice; however, we do appreciate any help you may be able to provide.

How long will participation take?
We are asking for 10 minutes of your time.

How are you protecting privacy?
The questionnaires will not request any personal information to protect your privacy.

How will I benefit from participating?
Besides providing the project with valuable information, you will have the opportunity to win one of two $25 VISA gift card for volunteering your time.

I have some questions about this study, who can I ask?
For any questions pertaining to this study please contact Ashley Daggs at (254) 368-2847 or via email at ashley.daggs@ttu.edu. My advisor, Dr. Jon Ulmer can also be contacted at jon.ulmer@ttu.edu.

Texas Tech University also has a board that protects the rights of people who participate in research. To contact the Human Research Protection Program (HRPP) please call (806) 742-2064 or contact HRPP via email at hrpp@ttu.edu.
APPENDIX E

STUDENT PARTICIPATION EMAIL

Hello,
Attached below you will find the link to the survey instrument you agreed to complete for my research study. I ask that you take ten minutes of your time to complete this survey and provide us with valuable information about technology use in today's society. I ask that you also reply to this e-mail by attaching a copy of your [pre-determined class writing assignment]. Thank you in advance for your participation in this study. I look forward to hearing from you!
Link to Survey Instrument: [link to Qualtrics survey]
Sincerely,
Ashley Daggs
APPENDIX F

TECHNOLOGY USE IN TODAY’S SOCIETY QUESTIONNAIRE

1. What is your name?

2. Do you own a desktop or laptop computer?
   1. YES
   2. NO (Skip to question ?)

3. Overall how often do you use the computer (desktop or laptop)?
   1. Multiple times per hour
   2. At least once per hour
   3. Several times a day
   4. About once a day
   5. 3-5 Days a week
   6. 1-2 Days a week
   7. Every few weeks
   8. Less often

4. Do you own a smartphone?
   1. YES
   2. NO

5. Overall how often do you use your smartphone for text based activities (texting, social media, etc.)?
   1. Multiple times per hour
   2. At least once per hour
   3. Several times a day
   4. About once a day
   5. 3-5 Days a week
   6. 1-2 Days a week
   7. Every few weeks
   8. Less often

6. Do you own a tablet?
   1. YES
   2. NO

7. Overall how often do you use your tablet for text based activities (texting, social media, etc.)?
   1. Multiple times per hour
   2. At least once per hour
   3. Several times a day
   4. About once a day
   5. 3-5 Days a week
   6. 1-2 Days a week
   7. Every few weeks
   8. Less often
8. Do you have internet access on a daily basis?
   1. YES
   2. NO

9. Do you send or receive e-mail?
   1. YES
   2. NO

10. How many e-mails conversations would you estimate that you have daily?

11. How many e-mails would you estimate you exchange per conversation?

12. How often do you use your phone for the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Multiple times per hour</th>
<th>At least once per hour</th>
<th>Several times a day</th>
<th>About once a day</th>
<th>3-5 days per week</th>
<th>1-2 days per week</th>
<th>Every few weeks</th>
<th>Less often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Texting</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Applications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Phone Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>d. Social Media</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Internet</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

13. How many text message conversations would you estimate that you have daily?

14. How many text messages would you estimate that you exchange per conversation?

15. Do you have a profile on a social networking website?

<table>
<thead>
<tr>
<th>Social Networking Website</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twitter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instagram</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LinkedIn</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
16. How often do you access social media websites?

<table>
<thead>
<tr>
<th>Website</th>
<th>Multiple times per hour</th>
<th>At least once per hour</th>
<th>Several times a day</th>
<th>About once a day</th>
<th>3-5 days per week</th>
<th>1-2 days per week</th>
<th>Every few weeks</th>
<th>Less often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Facebook</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Twitter</td>
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<td></td>
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<tr>
<td>c. Instagram</td>
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<td></td>
</tr>
<tr>
<td>d. LinkedIn</td>
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<td></td>
</tr>
</tbody>
</table>

17. Overall how often do you partake in each of the following activities via social media websites?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Multiple times per hour</th>
<th>At least once per hour</th>
<th>Several times a day</th>
<th>About once a day</th>
<th>3-5 days per week</th>
<th>1-2 days per week</th>
<th>Every few weeks</th>
<th>Less often</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Post messages to a friends’ page or wall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Send a bulletin or group message to all friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Send private messages to friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Send IM’s or text messages to friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Post comment’s to a friends’ blog</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
18. What is your gender?

19. What is your year of birth?

20. What is your classification (freshman, sophomore, junior, senior)?

21. Did you grow up in a rural or urban community?

22. Are you in the honors program?

23. Are you currently registered with Student Disability Services?
### APPENDIX G

**WRITING SAMPLE ANALYSIS TOOL¹**

<table>
<thead>
<tr>
<th>Departures from Edited Standard Written English</th>
<th>Total Number of Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sentence Fragment</td>
<td></td>
</tr>
<tr>
<td>2. Run-On Sentence or Comma Splice</td>
<td></td>
</tr>
<tr>
<td>3. Misused Semicolon</td>
<td></td>
</tr>
<tr>
<td>4. Error in Verb Form or Tense (Shifts in Verb Tenses)</td>
<td></td>
</tr>
<tr>
<td>5. Error in Subject/Verb Agreement</td>
<td></td>
</tr>
<tr>
<td>6. Error in Pronoun Agreement or Pronoun Form</td>
<td></td>
</tr>
<tr>
<td>7. Spelling Mistakes (Typos Count)</td>
<td></td>
</tr>
<tr>
<td>8. Capitalization Mistakes</td>
<td></td>
</tr>
<tr>
<td>9. Homophone Mistakes (e.g. there, they’re)</td>
<td></td>
</tr>
<tr>
<td>10. Sentences Lacking Sentence Sense (Word Omission, Scrambled, or Incomprehensible)</td>
<td></td>
</tr>
</tbody>
</table>

| Total Number of Errors in Sample |                        |