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Educators' Perceptions of Twitter for Educational Technology Professional Development: A Uses and Gratifications Expectancy Model

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EDUCATORS' PERCEPTIONS OF TWITTER FOR EDUCATIONAL TECHNOLOGY

PROFESSIONAL DEVELOPMENT: A USES AND GRATIFICATIONS EXPECTANCY

MODEL

A Dissertation

Submitted to the School of Education

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In partial fulfillment of the requirements for

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By

Douglas C. Strahler

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Instructional Technology and Leadership

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MODEL

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ABSTRACT

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December 2014

Dissertation supervised by Dr. David D. Carbonara

Throughout the years, the practice of professional development amongst educators has

evolved to adapt to the needs of a changing society and a shift to online professional

development (OPD) opportunities has become popular for meeting the needs of educators. As a

result, social media platforms, like Twitter, have grown in popularity as outlets for OPD;

however, little research has been conducted to evaluate why educators are seeking professional

development opportunities through social media platforms.

This exploratory study proposed to examine how educators' uses and gratifications

expectancy of Twitter for professional development influences their perceived e-learning

experience. In addition, it sought to investigate the demographics of participants who were

seeking educational technology knowledge through Twitter. Based on a review of literature, a

uses and gratifications approach was the proposed theoretical model for evaluating how and why educators' perceived e-learning experience was affected by four uses and gratification expectancy constructs.

The participants included any educators who utilized the #edtechchat hashtags on Twitter, which is devoted to the sharing of educational technology knowledge, as well as weekly, organized Twitter chats on topics related to educational technology. The data was collected through a Web-based survey based on an adapted version of Mondi, Woods, and Rafi (2008) Uses and Gratification Expectancy Questionnaire, where the researchers examined how and why students' uses and gratification expectancy (UGE) for e-learning resources influenced their perceived e-learning experience.

The data was analyzed through Pearson correlation coefficient and a stepwise multiple regression to discover which UGE constructs predicted educators' perceived e-learning experience. All four UGE constructs showed significant effects on perceived e-learning experience; however, the stepwise regression results showed cognitive uses and gratifications expectancy to be the only significant predictor of perceived e-learning experience. The findings of this research supports previous research into uses and gratifications of Internet-based tools and may help Twitter chat moderators plan their efforts for coordinating effective professional development experiences.

DEDICATION

      While I am grateful for all of the support I have received during this journey, I would like to dedicate this dissertation to my parents, Thomas and Cindy Strahler. It probably seems like yesterday they were watching me get on the bus for my first day of school and now, years later, they are watching me complete my Ed.D. They have both sacrificed so much to support me in all of my academic endeavors and I can never thank them enough for all of their encouragement and support.

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CHAPTER I

INTRODUCTION

Throughout the years, the practice of professional development has evolved to adapt to the needs of a changing society. A major reason for educational change was brought upon by the public perception of a failing school system and the lack of quality teachers. School reform issues continue to be at the forefront of the debate surrounding public schools in the United States. One of the results from the call for educational reform is the growing need for professional development opportunities to better prepare educators with the goal of increasing student achievement.

This chapter will provide an overview on how educators are turning to Web 2.0 and social media tools as an outlet for professional development and e-learning. The first part of this chapter will establish a background into the evolution of professional development (PD) throughout history, while taking into account the role technology has played in the need for further PD and how it has facilitated the PD process. This will lead into the use of Web 2.0 and social media tools as a form of online professional development (OPD) and examining this experience through a uses and gratifications expectancy (UGE) approach on how educators' use of Twitter for professional development influences their perceived e-learning experience.

After the review of literature has been established, this chapter will highlight the problem to be addressed in this study, the significance of this study for the field of professional development, the purpose for conducting this research, and the specific research questions and hypotheses to be tested. Finally, this chapter will address the specific considerations and limitations to this study.

Research Background

The creation of No Child Left Behind (NCLB), and the continuing cultural and societal changes have created the need for educational reform and developments in professional learning amongst educators (Haas, 1957; Darling-Hammond & McLaughlin, 1995; Lieberman, 1995). These reforms have emphasized the need for educational change, which has resulted in an increase in a variety of both formal and informal professional development programs for educators.

The problem with many teacher professional development programs is the lack of high-quality, fragmented offerings, as well as a lack of ongoing, continuous support needed for professional development (Dede, 2006). In addition, Fullan (1991) states many teachers are resistant to change due to its personal nature, which leads to resistance or lack of motivation towards PD programs. Some of the factors leading to this resistance include a perceived lack of benefits (Richards, 2002), reflection of previously unsuccessful efforts (Zimmerman, 2006), and many programs being seen as "one-size-fits-all," which are not appropriate for educators with differing needs (Roy, 2010).

With development of technology over the years, it has led to major changes in our society and provided the ability to break away from traditional formats of professional development for online professional development opportunities. Tomei (2005) states that "technology has played a significant role in education and in most successful educational reform movements of the past four decades: charter schools and home schooling; standards testing, and accountability; best practice; outcome-based learning; professional teacher qualifications, and so forth" (p. 2). With the ability to cater to the unique learner characteristics of the educator, online professional development programs have grown in popularity with meeting the unique needs of the learner.

Web 2.0 and social media platforms have become one of those outlets where educators are turning to for online professional development.

The 21st century has brought upon us a computer-mediated communication age, where we live and talk through digital text and channels causing a change in behavior on how we interact and communicate with one another. Twitter, a popular Web 2.0 micro-blogging platform, is one of the popular applications in society, and is being adopted for professional development purposes. One of the unique characteristics of Twitter is the 140-character limit to a message, known as a "tweet," requiring brevity and conciseness to users' thoughts. In addition to other features of Twitter, including the ability to follow other users and add hashtags (#) to tweets as a way to categorize their messages, the media selection process becomes an area of research to investigate why educators select certain platforms to meet the needs for professional development. This led to the research selecting the uses and gratifications expectancy approach to examine how and why educators choose Twitter for professional development.

Theoretical Background

Katz, Blumler, and Gurevitch (1974) believed the audience had a more active role in mass communication selection process, which led to the development of uses and gratification theory. Uses and gratifications (UGT) is "an audience based theoretical framework, grounded on the assumption that individuals select media and content to fulfill felt needs or wants" (Papacharissi, 1996). Throughout the years, UGT has been used to examine the motives for using particular media dating back to the 1930s with studies discovering motives for using media by examining radio audiences (Cantril & Allport, 1935) leading up to more present day studies with

Internet usage (Papacharissi & Rubin, 2000; Ruggiero, 2000). The results of these studies led to the development of lists of functions served either by some specific contents or by the medium.

The growth in popularity for using Twitter as a tool for professional development purposes leads to a need to examine how and why it is a learning tool. "Learning in the 21st century demands greater dependence on new communication and computing technologies supporting greater learner activity and investigation. It advances the role of educators " (Tomei, 2005, p. 9). A theoretical framework of uses and gratifications expectancy to predict perceptions of an e-learning experience was introduced by Mondi, Woods, and Rafi (2008) and utilized for this study.

Problem Statement

With gaps in student achievement and demand for educational technology, school reform has been moved the forefront of the debate surrounding public schools in the United States and around the World. Dede (2006) emphasizes the importance of professional development (PD) for educational improvement, but acknowledges the negative perception due to resistance or ineffectiveness of many PD programs. Many researchers (Fullan, 1991; Richards, 2002; Dede 2006; Zimmerman, 2006; Roy, 2010) have identified a variety of reasons for teachers' resistance to change, including personal habits to a lack of motivation and perceived benefits. However, technology has opened the door to a plethora of learning opportunities that break away from traditional formats of PD for education and many of the negative perceptions surrounding PD. One form of online professional development (OPD) educators are utilizing is through social media platforms.

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Despite the growing movement of educators utilizing social media platforms in a variety of ways for professional development purposes, there has been limited research conducted to date on the perceived learning experience through these platforms. "The introduction of technology in teaching and learning process invokes pertinent issues; concerning [adult] students' expectations and communication behaviour towards e-learning systems in these schools" (Mondi, Woods, & Rafi, 2008). New and experienced teachers are in need of answers to their questions and problems surrounding the ever-changing educational landscape (Haas, 1957; Fullan, 2007). Dede (2006) recognizes that "little is known about best practices for the design and implementation of these alternative models for professional enhancement" (p. 2). This study was conducted to explore how educators' uses and gratification expectancy toward Twitter as a professional development tool influences their perceived e-learning experience, focusing on individuals seeking educational technology knowledge. In addition, this study will examine the demographics of individuals seeking professional development for educational technology knowledge through Twitter.

Significance of Study

There are a variety of different formats for online professional development (OPD) activities for educators. With a variety of technologies available for OPD, researchers have begun to investigate the selection process of certain media for OPD purposes, in particular, Web 2.0 and social media platforms. The microblogging site, Twitter, is one of the platforms educators have begun to turn to for OPD purposes and it becomes important to understand why educators have selected this platform for their needs. Anderson (1976) asserts "there is

continuing need for aids to making decisions about media–what to use, when, and why" (p. 3) –
based on the characteristics on a specific media.

Using a uses and gratification theoretical framework (UGT) opens up the opportunity to
study the uses and gratifications Twitter offers educators seeking OPD. "The UGT perspective
emphasizes that motives, attitudes, and behaviors related to media consumption will vary by
individual or group" (Papacharissi, 1996). Ruggerio (2000) acknowledges, "the theory will need
to be expanded to include new concepts related to the transforming technology of the Internet"
(Rosenberry & Vicker, 2009, p. 127). Being that communication plays a pivotal role in the
learning process, Mondi, Woods, and Rafi (2008) applied a uses and gratifications expectancy
model (UGEM) with their study examining how and why "students' 'communication behavior'
towards e-learning resources may affect their e-learning experience" (p. 244).

By using a modified version of the UGEM, this study can provide insights into educators'
uses and gratifications expectancy of Twitter for OPD purposes. The findings can provide
insights into why educators continue to use Twitter as a professional development tool, despite
the negative perceptions that typically surround PD. In addition, it continues to develop UGT
theory framework for future communication research with newer technologies.

Second, by examining educators' perceptions of their e-learning experience through
Twitter, we can begin to provide insights into how and why Twitter provides an environment
conducive to learning. Guskey (2000) notes it is important to understand different perspectives
for professional development, especially when it comes to the content, process and context of the
experience. The perceptions of educators e-learning experiences through Twitter can contribute
to the research in the fields of education and instructional technologies.

Next, this study will focus on the particular domain of *educational technology* for professional development. Professional development programs typically focus on a particular content knowledge or pedagogical knowledge educators are trying to obtain. With the growing popularity of educational technologies in education, it was decided to focus on educators' pursuing knowledge related to educational technology knowledge, rather than taking a broad approach to all types of professional development.

Finally, this study can begin to identify the types of individuals using Twitter for OPD. By identifying the demographics of individuals participating in professional development for educational technology knowledge, we can begin to build profiles on the type of educators seeking this knowledge and format of learning. This can provide insights into developing best practices and tailoring professional development activities through Twitter to better meet the needs of the audience seeking out this type of knowledge.

Research Purpose

Marshall McLuhan's famous statement, "the medium is the message," positions the medium is an extension of ourselves and is more important than the content. As the technology changes, it transforms our lives by influencing the way we see media and perceive their effects. Thornburg (1996) made the connection with McLuhan when he discussed "ways to bend and mold existing telematic media (primarily the World Wide Web) into something that meets the fundamental needs of education" (p. 13). "There is an increased expectation about the usefulness of electronic learning (e-learning) to complement traditional face-to-face learning" (Mondi, Woods, & Rafi, 2008, p. 241).

Today, there are a wide variety of online professional development (OPD) activities available for educators. While OPD becomes increasingly available for educators, there is a need to better understand how specific media meet the needs of educators and what motivates them to select these particular media for OPD. According to Chang & Lim (2005), there are "calls for greater depth and breadth in the studies for technology-mediated learning indicate growing interest in pedagogical impacts of IT on education" (p. 15). This research began to investigate how using Twitter for professional development influences educators' perceived e-learning experience and will benefit the research community by providing a better understanding of Twitter for facilitating the PD process.

To begin to evaluate Twitter as an educational technology professional development tool, it was important to identify a theoretical basis for the study. As Spector (2012) notes "communication theories and principles form key aspects of the effective use of educational technology" and have "strong implications for the effective planning and implementation of materials to support learning and instruction" (p. 18). With Twitter serving as a form of computer-mediated communication (CMC), the researcher decided to examine the use of Twitter for professional development purposes through the uses and gratifications communication theory to examine e-learning experiences. By examining Twitter through uses and gratifications theoretical lens, the results of this study will provide further foundational support linking specific reasons for the use of Twitter for professional development.

The purpose of this study was to examine how educators' uses and gratifications expectancy of Twitter for professional development influenced their perceived e-learning experience. In addition, it sought to investigate the demographics of participants who were seeking educational technology knowledge through Twitter.

Research Questions

This study proposed to examine how educators' uses and gratifications expectancy of Twitter for professional development influences their perceived e-learning experience. This study looks to answer the following research questions:

RQ$_1$: Are educators' cognitive uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_2$: Are educators' affective uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_3$: Are educators' personal integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_4$: Are educators' social integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

Research Hypothesis

The following hypotheses were tested:

H$_1$: Educators *Cognitive* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

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H2: Educators *Affective* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

H3: Educators *Personal Integrative* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

H4: Educators *Social Integrative* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

Summary

As the field of online professional development (OPD) continues to evolve and develop, it is important to investigate the learning experiences in these programs and activities. As Guskey (2000) states, it is important to understand "why something does or does not work and how it can be improved" (p. ix). This chapter provided a brief overview on the evolution of professional development dating back to the colonial days up through the role technology has played in online professional development formats. In addition, this chapter discussed the problem surrounding the concept of professional development, which traditionally encompasses the negative perceptions carried by educators due its involuntary nature and their resistance to change caused by professional development. However, there are professional development opportunities that educators are seeking out on their own to build upon their different needs, with Twitter being one of those outlets.

Finally, this chapter discussed the communication theoretical approach of uses and gratifications of users with their selection of media for specific needs and how this theory can be

used to evaluate the perceived e-learning experience (Mondi, Woods, & Rafi, 2008). The next chapter will provide a review of literature into the domains of professional development, Web 2.0 tools, and the uses and gratifications theoretical framework. The review of literature will identify the gap into the need to answer the research questions identified in this chapter surrounding educators' perceived e-learning experience through Twitter for professional development purposes.

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of this literature review is to study the evolution of professional development (PD) practices over the years, as it has transformed from one-stop workshops to continuous learning opportunities through online professional development (OPD). With major changes to the educational system due to school reform efforts and the technological revolution, there is a growing need to rethink education and how educators can become better prepared for these changes. However, there are many challenges to educational change due to a resistance to change or a lack of motivation amongst educators, but there are educators out there seeking professional development in different content areas and a variety of online environments. One particular content area this study will focus on is in the field of educational/instructional technologies and Twitter being the tool educators are utilizing.

This study examined educators' uses and gratifications expectancy of Twitter as a professional development tool for educational technology knowledge. The goal of this study was to gather the perceptions of educators on the gratifications sought and gratifications obtained by using Twitter as a professional development tool. This chapter begins by reviewing the literature in the field of professional development and providing a historical context on the evolution of professional development, as well as establishing a definition and addressing issues surrounding professional development. Next, this chapter will examine the micro-blogging platform Twitter as an interpersonal communication tool and past research on its role in education. The chapter

will end by reviewing past research of uses and gratifications theory and analyze how it was utilized in this study.

<div align="center">Professional Development</div>

Over the decades, there have been fundamental changes to professional development practices in large part to policy changes and educational reform movements in the United States. The major goal behind these changes is to better prepare teachers for improving student learning and their classroom practices. However, just abiding by the policies will not result in successful educational change, it will take a transformational change and collaboration from the entire educational system, from teachers and their classrooms up through administration and the district (Corey, 1957; Fullan, 2007; Darling-Hammond, 1997). This call for educational reform has resulted in a need for increased opportunities for professional development of educators to enhance knowledge and develop their instructional practices to improve schools, teaching, and learning (Gordon, 2004).

This section provides a brief overview on the evolution of professional development from the learning environments to the effects of educational reform. This evolution will provide a foundation to the definition of professional development and how educational change plays an important role in the professional development process. This section will conclude with online professional development opportunities as an outlet for educators to learn in the virtual world.

Evolution of Professional Development

The present day concept of professional development is not a new one. It is grounded in a rich history dating back to the colonial period and has evolved into a new kind of learning

affected by the ever-changing landscape of society and education. Throughout this section the term professional development has been used interchangeably with a variety of terms, including in-service training, teacher education, adult learning, staff development, and professional learning to demonstrate the evolution of this concept and the slightly different meanings each take in a specific context. This historical overview will establish an understanding of present day professional development efforts and develop a rationale for the use of professional development and professional learning interchangeably throughout the rest of this research study.

The history of professional development has been traced back to the colonial period in the sixteenth and seventeenth centuries when settlers in North America required skill training to take advantage of the new opportunities in the new settlement. Stubblefield and Keane (1990) note that adult learning looked for "improvement in all its forms, from intellectual to political and from social to economic, was implicit in their perceptions of the New World" (p. 27). Even during this time period, there were a variety of formats of learning opportunities available from independent study through printed works to formal and evening courses in their local community, but access to these opportunities was a major question moving forward.

In the nineteenth century, there was an increasing demand for teachers and the need for continuing professional growth. The training opportunities provided to teachers typically occurred while they were "in-service," which led to "in-service education" (Ogren, 2005). Between the 1920's to the 1940's there was a fluctuation between teacher supply, which led to a greater need for in-service education. "During the period between the establishment of state systems of public education and the recovery from the effects of the Civil War, the public schools, on the whole, were staffed by probably the most indifferent, incompetent, and poorly educated teachers in the history of American education" (Richey, 1957, p. 37). This demand led

to a focus on in-service education, which can be defined as "all activities engaged in by the professional personnel during their service and designed to contribute to improvement on the job" (Haas, 1957). At that time, some of the main purposes of establishing in-service education programs were to address the deficiencies in teachers, promote continuous improvement of teachers, and begin to improve on the American education system (Haas, 1957; Richey, 1957).

According to Gordon (2004), professional staff development existed in the early 1940s during an "extensive period of teacher shortages, beginning with World War II and exacerbated by the baby boom, has continued into this new century" (p. ix). During this time period, there were two major factors contributing to a new movement in adult education. The first factor effecting adult education was the rapid creation of information and advancements in science and technology. These advancements required adults to pursue opportunities to close the gap with the new knowledge in their profession (Howey & Vaughan, 1983; Stubblefield & Keane, 1990). The second factor arose Post-World War II with the introduction of the Servicemen's Readjustment Act in 1944, or more commonly known as the G.I. Bill. The G.I. Bill subsidized higher education and vocational training for veterans returning from the war (Stubblefield & Keane, 1990). There was a major misconception that professional staff development was solely for the least-prepared educators, when in all reality, it provides support for any educator seeking ongoing learning opportunities to improve performance of themselves, along with improving student learning and achievement.

Moving forward into the 1950s to the present is when you began seeing heavier government involvement in relation to changes within education. One of the first major movements occurred in 1957, when some believe a partial cause for the large-scale national curriculum reform launched by the U.S. federal government was a result of the Russians

reaching space with Sputnik before the U.S. (Fullan, 2007). This historic event led to addressing a major need to revamp the educational system leading to greater development in the fields of mathematics and sciences, as well as passing the National Defense Education Act (NDEA). "The NDEA included support for loans to college students, the improvement of science, mathematics, and foreign language instruction in elementary and secondary schools, graduate fellowships, foreign language and area studies, and vocational-technical training" (U.S. Department of Education, 2012). The emphasis on training in specific domains by the government was a clear demonstration for educators to have the proper training in those specific areas to develop their content and pedagogical knowledge.

It was also around this time professionals began to notice the importance the entire staff – administrators, supervisors, and teachers – played in the process of change. "The history of in-service teacher education must be viewed against the background of changing educational theories and practices that developed in response to or in conjunction with the changes that occurred in the aspirations of the American people and in the conditions of their social, political, economic, and intellectual life" (Richey, 1957, p. 64). These shifts caused a change with in-service education becoming geared toward the professional growth of staff rather than the in-service training of teachers (Richey, 1957, p. 62). It was around this time you see a transition from in-service education to an increase in staff development. Griffin (1983) defines staff development as "any systematic attempt to alter the professional practices, beliefs, and understandings of school persons toward an articulated end" (p. 2). From this definition, the term staff isn't directed solely at teachers, but includes administrators, supervisors, teachers, and support personnel (Griffin, 1983).

This period ushered in innovatively new teaching programs, such as individuation and programmed instruction, in the 1960s and new staff-development delivery systems in the 1970s (Gordon, 2004; Fullan, 2007). Killion and Harrison (1997) noted that staff development efforts in the 1970s focused on the delivery of workshops and training, which demonstrate a shift to a more active approach to adult education (p. 33). However, Corey (1957) recognized in-service education programs "becoming increasingly common; but it is also apparent that much of what goes for in-service education is uninspiring and ineffective" (p. 1).

Around this same time period we began to see the development of the term and model for lifelong learning taking shape in literature and research. Professional development has direct implications on lifelong learning with the idea that individuals will need opportunities to continue to learn and develop in their profession (Kormives & Carpenter, 2009). Lengrand (1975) believes lifelong learning is a concept that includes formal, non-formal, and informal learning throughout one's life. "When we speak of lifelong education, it is the unity and totality of the educational process which we have constantly in mind" (Lengrand, 1975, p. 20).

Despite the efforts in educational reform leading into the early 1980s, there was still a "widespread public perception that something is seriously remiss in our educational system" (National Commission on Excellence in Education, 1983). Americans were beginning to notice their educational system was struggling to stay competitive with the rest of the world and the need for highly skilled workers in the scientific and technological fields. During the Reagan administration in 1981, the U.S. Secretary of Education T.H. Bell formed the National Commission on Excellence in Education (NCEE) to study and address the struggling educational system (Jester, 2006). Two years later, the NCEE made a major move by issuing the "A Nation At Risk" report. The report established standards of learning for K-12, but more importantly,

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identified that educators were not academically qualified. This report acknowledged the need for additional staff training and encouraged lifelong learning (National Commission on Excellence in Education, 1983). It also led to the reauthorization of the Dwight D. Eisenhower Professional Development Program for providing "financial assistance to state and local education agencies and to institutions of higher education to support sustained and intensive high-quality professional development, and to ensure that all teachers will provide challenging learning experiences for their students in elementary and secondary schools" (U.S. Department of Education, 1995).

Despite the increase in professional development opportunities leading up to this point, the education system was still seeing students with low test scores and unprepared educators, which more recently has led to an increase in policies and calls for school reform. A variety of professional development models have been proposed and implemented over time in response to the need for training educators, but many efforts were still not been popular with educators nor were they improving schools (Gordon, 2004). These failed efforts ushered in one educational reform that has played a pivotal role in the education system of the 21st century: the No Child Left Behind Act of 2001.

The No Child Left Behind Act of 2001 (NCLB)–a reauthorization of the Elementary and Secondary Education Act of 1965 (ESEA)–was signed into law by President George Bush on January 8th, 2002. NCLB was a blueprint for educational reform in the United States in an effort to promote high academic standards and accountability in public schools (No Child Left Behind (NCLB) Act of 2001, 2002; Jester, 2006). More specifically, NCLB sought to improve in the areas of literacy, mathematics, science, and enhancing education through technology. In order to

accomplish successful education in these areas, it was also documented that there needed to be an improvement in preparing teachers.

As stated in the NCLB, there were two primary purposes for the improvement of teacher and principal training. The first purpose focused on increasing the number of high-quality teachers and principals in an effort to increase student academic achievement. The second purpose dealt with accountability and holding educational agencies and schools accountable for improving student academic achievement. In order to meet these two purposes, encouraging and supporting professional development efforts was proposed (NCLB, 2002). On March 13, 2010, the Obama Administration proposed revisions to improve NCLB by adding additional support to states and districts to ensure great teachers and leaders.

Defining Professional Development

The concept of professional development has been attached to a variety of terms and contexts over the years. Literature has used the terminology: professional development, staff development, in-service education, adult education, continuing education, lifelong learning, independent learning projects, community development, adult learning, andragogy, and adult basic education (Haas, 1957; Griffin, 1983; Knowles, 1984; Stubblefield & Keane, 1990; Sparks & Hirsh, 1997; Gordon, 2004). More recently, we have seen the terms professional development and professional learning being used interchangeably in literature. *Learning Forward*, the association devoted exclusively to advancing professional learning for student success, recognized a new kind of educator in the 21st century and how it signaled "the importance of educators taking an active role in their continuous improvement and places emphasis on the learning" (Learning Forward, 2011, p. 13).

Learning Forward established a more formal definition of professional development for the use in the No Child Left Behind Act of 2001. In summary, NCLB defines professional development as "a comprehensive, sustained, and intensive approach to improving teachers' and principals' effectiveness in raising student achievement" (NCLB, 2002). In addition, professional development "fosters collective responsibility for improved student performance" and should be "supported by activities such as courses, workshops, institutes, networks, and conferences" (NCLB, 2002). For the complete definition for professional development, refer to Appendix C.

For the purpose of this study, the terms professional development and professional learning will be used interchangeably, as they are presently the terms formally used by *Learning Forward* and utilized in recent research studies.

Professional Development and Change

In an ever-changing society and advancements in technology, there has been a call for reform in education emphasizing the need for change. These reforms have led to an increasing need for continuous professional development (PD) opportunities for educators (Fullan, 2007). However, many PD programs have been unsuccessful, mainly due to many teachers being resistant to change, resulting in a resistance to PD programs (Gordon, 2004).

Educators are resistant to change for a variety of reasons. Fullan (1991) states many teachers are resistant to change due to its personal nature, which leads to resistance or lack of motivation towards PD programs. Richards (2002) survey of teachers found skepticism, increased burden, lack of ownership, chaos, lack of support, and lack of perceived benefits being the leading causes of resistance (p. 75). Furthermore, Zimmerman (2006) discovered a variety of reasons for resistance to change, including failure to recognize the need for change, personal

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habits, reflection of previously unsuccessful efforts, fear of the unknown and feeling threatened (p. 239-240). Finally, a majority of PD or in-service programs are seen as "one-size-fits-all," which are not appropriate for educators with differing needs (Roy, 2010).

Any discussion of educational reform means there is some level of change required by the system and its members and investments into PD (Fullan, Hill, & Crévola, 2006). With the negative perceptions held by teachers towards change and PD, it can become a waste of time and resources for schools. However, with the introduction of technologies into education, it has opened new opportunities for educator's to pursue PD opportunities online at any time. Some forms of online professional development have begun to reduce the resistance to PD programs, because it allows educators to participate on a voluntary basis and meet their individual learning needs. In addition, online professional development has opened doors to a greater variety of resources.

Online Professional Development

Throughout the evolution of professional development, a majority of the programs were based around face-to-face, in-service activities with very few opportunities to learn from a distance due to communication barriers. "Prior to the 1970s, distance education was characterized as correspondence education and was based on independent study using books, and materials delivered and returned by mail" (Haughey, 2010, p. 48). With the development of technology over the years, it has led to major changes in our society and provided the ability to break away from traditional formats of professional development (PD) for education. Tomei (2005) states that "technology has played a significant role in education and in most successful educational reform movements of the past four decades: charter schools and home schooling;

standards testing, and accountability; best practice; outcome-based learning; professional teacher qualifications, and so forth" (p. 2). One area technology has played a significant role in is online professional development activities.

Online professional development (OPD) provides educators an alternative model for distance education. Distance education can be defined as "Internet-based learning that delivers content and enables communication between instructor and students, online teaching and learning is rooted in the transaction of distance education and advanced computer and communication technology" (Cleveland-Innes, 2010, p. 2). The overlap of distance education and OPD is made through the examination of how technology facilities the learning process, since PD is about providing adult's with a body of knowledge during the session. Technology has just provided an expansion on the communication and correspondence between learners by eliminating physical barriers.

OPD offers advantages to traditional contexts of professional development. The creation of OPD programs has allowed the experience to be more customizable, real-time, and provides an outlet for ongoing support (Whitehouse et al., 2006). OPD also provides educators with programs that are convenient for their busy schedules, provide just-in-time assistance, and offers access to exports and resources that are more cost efficient then traditional forms of PD (Dede, 2006, p. 2). Furthermore, Wiske, Perkins, and Spicer (2006) found OPD offers the distinct advantage of fostering reflective, collaborative professional communies, which the digital text shared within the community is readily available in threaded discussions and archives. With a variety of technologies available for OPD, researchers have begun to investigate the selection process of certain media for professional development purposes.

An important component to OPD is the media selection process for meeting the needs of the adult learners. With the wide variety of existing technologies and the emergence of new one's on a daily basis, it is important to understand the media selection process for professional development activities. Anderson (1976) asserts "there is continuing need for aids to making decisions about media–what to use, when, and why" (p. 3) – based on the characteristics on a specific media. Malcolm Knowles (1984) identifies that intrinsic motivational factors drive adult learning, but this is based on adult's perception on the need to learn certain material.

The selection of particular educational technologies can be based around the foundation pillars established by Spector (2012) from a variety of authors studying the field. The six pillars are communication, interaction, environment, culture, instruction, and learning. "These particular pillars were selected because they also represent clusters of things people do or that strongly influence what people do when in instructional situations" (p. 18). One particular type of educational technology that encompasses the six pillars is social media platforms, which educators have adopted as a form of OPD.

Web 2.0 and social media technologies are still in their early stages and models of use in education are still fairly new. In the realm of education, we are seeing these platforms being utilized in K-12 settings, higher education and adult education. Relating it back to a form of distance education, social media platforms are breaking down a lot of the traditional barriers with providing formal and informal learning opportunities to educators (Powers, Alhussain, Averbeck, & Warner, 2012). Learning more about the use of the different media will help in the process of developing future models and best practices through these tools.

Web 2.0 and Social Network Sites

Web 2.0, also known as the "Read/Write Web" or "Semantic Web" (Glaser, 2006), is comprised of numerous social platforms that allow users to collaborate and interact with one another synchronously or asynchronously. Web 2.0 tools include blogs, wikis, photo and video sharing, social bookmarking, and microblogging.

One form of Web 2.0 technology is social networking websites. Boyd and Ellison (2007) defined social network websites as: *web-based services that allow individuals to (a) construct a public or semi-public profile within a bounded system, (b) articulate a list of other users with whom they share a connection, and (c) view and traverse their list of connections and those made by others within the system.* While the concept of social networking is not new, these technologies have facilitated the process of staying connected and communicating with individuals in their network.

Microblogging

Microblogging is a Web 2.0 application and "a new form of communication in which users can describe their current status in short posts distributed by instant messages, mobile phones, email or the Web" (Java, Song, Finin & Tseng, 2007). Created to keep friends, colleagues and customers up-to-date, small images may be included as well as brief audio and video clips." These entries range from 140-200 characters and the individual(s) who participate in these environments are called "microbloggers." Some of the current, popular microblogging websites include Twitter, Plurk, and Yammer. For the purpose of this study, it will focus on the use of Twitter.

Background of Twitter

Twitter is a social networking service that was founded in March 2006 by Jack Dorsey, and co-founders Evan Williams and Biz Stone, and launched in October 2006 (Java, Song, Finin & Tseng, 2007). Dorsey envisioned Twitter as a fusion of IM (Instant messaging) and an SMS-based (short messaging service) communications platform where users could post mobile status updates, or "tweets," answering the question, "What are you doing?" What makes Twitter unique from other web-based communication platforms is its limit of 140-characters for tweets. The reason tweets were limited to 140-characters was due to Twitter originally being designed for SMS on mobile phones, which were limited to 160-characters. The creators left the 20-character difference for Twitter usernames to be attached to the tweet (Milian, 2009). Today, the contents of tweets range from daily life statuses to news stories and conversations.

Twitter is aligned with Boyd and Ellison's (2007) definition of social network websites: *web-based services that allow individuals to (a) construct a public or semi-public profile within a bounded system, (b) articulate a list of other users with whom they share a connection, and (c) view and traverse their list of connections and those made by others within the system.* Individuals join Twitter by creating a profile with a username, or handle, which is signified with an @ symbol (i.e. @Username). In addition, users have the option to upload a profile photo or provide personal information, such as their first and last name, a short bio, location, and website URL. Users also have the ability to set their profile to public or private, which restricts who can view the user's tweets.

After creating a profile, users can begin to build out their list of other users by "following" other Twitter accounts, while individuals who follow your account are classified as

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"followers." The accounts individuals follow can be people they know (friends, family, co-workers, etc.) to people they have never met (celebrities, etc.). This allows each individual user of Twitter to construct their own unique network and view the tweets of the accounts they selected to follow in their Twitter Timeline or Feed. Another unique feature of Twitter is the lists features. Lists allow users to add other Twitter users into lists, or groups, under their account by creating and naming the list to define the group. This allows users to curate and follow the users who you are following.

Despite the limitation to 140-characters, tweets can be supplemented with hashtags, mentions and links to add value to the tweet. A hashtag is a word or phrase prefaced with the # and is a way of categorizing or tagging a topic of conversation in a tweet. The hashtag adds value to a tweet by categorizing it within a larger conversation on Twitter and users have the ability to click on or search hashtags to see all of the tweets that mention it in real-time. With the ability to add a hashtag or multiple hashtags to a tweet, it adds an extra value layer to the message and helps identify trending topics on Twitter.

With every Twitter user having a handle, this enables users to communicate with other users by including their handle in the tweet. These tweets are published in the public realm where others can see the message, but Twitter does have a private messaging feature called direct messages (DM). A direct message also has a 140-character limit and users can only send direct messages to other users who follow each other. Direct messages are limited to a discussion between two individuals, where a public tweet can include as many handles within the 140-character limit.

Although Twitter forces brevity in messages, users have the ability to include links in their postings to additional web-based content, including websites, blogs, and multimedia. Link

shortening websites, such as bitly and TinyURL, provided an outlet to reduce long URL's down to 20 characters. Shortening links allows users to include supporting text with a link. The addition of links has made Twitter "a real-time information network that connects you to the latest stories, ideas, opinions and news about what you find interesting" (Twitter, n.d.).

The last type of tweet is a retweet (RT). A retweet is a way for users to share tweets they find from other users. According to Boyd, Golder, and Lotan (2010), retweeting "can simply be seen as the act of copying and rebroadcasting, the practice contributes to a conversational ecology in which conversations are composed of a public interplay of voices that give rise to an emotional sense of shared conversational context." Similar to a retweet, a new syntax becoming more visible on Twitter is the modified tweet (MT). The modified tweet indicates that the user retweeting another user has modified the original tweet in some way, usually shortening it in order to be able to retweet it or add their own thought to the tweet.

The Twitter ecosystem has grown since its creation. Beginning as a basic SMS-service that required users to submit their tweets by texting them to 40404, it has developed into a mobile application increasing the ease of use. Twitter can now be accessed through web browsers on desktop and mobile devices (phones & tablets), as well as a downloadable mobile application (app). Social media dashboard tools (e.g. HootSuite or Tweetdeck) allow users to connect and manage multiple social media accounts in a more integrated and seamless way. These tools allow for the creation of streams, where users can search and follow particular hashtags or terms to focus on tweets including those items. This is just another way for users to curate the information coming through their Twitter feed.

Social Network Sites in Education

"For higher education, micro-blogging is an increasingly important tool for communities of practice, enabling scholars to communicate informally on subjects of shared interest and to open windows into their own projects, sparking interest and discovery among peers" (Educause Learning Initiative, 2009). With the popularity of social networking websites in the lives of students, educators are looking for ways to study the effects these websites have when integrated into the classroom (Messner, 2009; Ebner, Lienhardt, Rohs, & Meyer, 2010). Messner (2009) feels that Twitter created a personal learning environment for her that was very important to her professional development, which she believed could be just as important to her students. One advantage provided by micro-blogging websites like Twitter is the ability to have immediate or near immediate ways to interact with your followers. According to the 2011 Social Network Analysis Report, 52% of Twitter users have some college education, followed by 25% holding a bachelors degree. This study indicates that the education level for three-quarters of Twitter users have some level of college education, indicating this is a strong demographic to evaluate.

There has been research conducted with the use of Twitter in education. Researchers have examined the use of Twitter and its effect of engagement and grades (Junco, Heiberger, & Loken, 2010); in large lectures (Elavsky, Mislan, & Elavsky, 2011); and on instructor credibility (Johnson, 2011). However, little research has focused on educators' uses and behaviors for their own use and not for strictly classroom purposes. While there has been research conducted on characterizing user behaviors on social networking sites (Benevenuto, Rodrigues, Cha, & Almedia, 2009), the goal of this research will focus on a particular group of educators seeking educational technology knowledge for PD using a particular social networking site (Twitter). With each social network site having its own unique features and functions, it is important to see

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how particular groups utilize these functions to communicate with their personal learning network.

Uses and Gratifications Theoretical Approach

The foundation of the uses and gratifications theoretical approach was derived from earlier media effects research dating back to the 1930s and 1940s (Katz, Blumler, & Gurevitch, 1974; Lowery & DeFleur, 1983). Early effects-based research was an approach to study how media or content influenced the audience. These persuasive messages or "campaigns" sought to change the opinion or attitudes of the audience members with researchers examining if there were changes. While these effects-based studies provided guidance into how the media or content influenced their audience, they portrayed the audience as being passive and having little choice in how they consume the message or determining the messages impact on themselves (West & Turner, 2010).

Prior to the label of uses and gratifications, Cantril and Allport (1935) were one of the first studies focusing on discovering motives for using a particular media by examining radio audiences. Ruggiero (2000, p. 4) cited similar studies to follow, including Waples, Berelson, and Bradshaw's (1940) research on reading; Herzog's (1940, 1944) research on quiz programs and soap opera; Suchman's (1942) research on the motives for listening to music; and Berelson's (1949) research on the functions of newspaper reading. The results of these studies led to the development of lists of functions served either by some specific contents or by the medium itself. Through examination of these studies, Katz (1959) proposed the change in direction from classical effects-based research answering the question "what do the media do to people?" to a new question of "what do people do with the media?" (p. 2). Klapper (1960) reinforced this idea

by questioning the validity of short-term effects-based research approaches and proposed a long-term approach examining a variety of factors in the media message, including psychological and social factors.

Katz, Blumler, and Gurevitch (1974) believed the audience had a more active role in mass communication selection process, which led to the development of Uses and Gratification Theory (UGT). UGT is "an audience based theoretical framework, grounded on the assumption that individuals select media and content to fulfill felt needs or wants. These needs are expressed as motives for adopting particular medium use, and are connected to the social and psychological makeup of the individual" (Papacharissi, 1996). UGT research led to the creation of typologies representing all the reasons for a particular media being used by the audience.

Katz, Blumler, and Gurevitch (1974) described the theoretical foundation of UGT as an "assessment of media consumption in audience-related terms" (p. 21) concerned with "(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones" (p. 20). The central idea to the theory is the belief that media users are aware of their own needs and make media choices to fulfill their needs. With the development of the theory, researchers have become interested in determining specific factors for media use – needs, goals, motives, benefits, positive or negative consequences, and individual factors – and identifying specific reasons for how media consumptions varies by individual or group (Kuehn, 1994; Rubin, 1994; Papacharissi, 1996; West & Turner, 2010). From a UGT perspective, in order to explain the effects media has on its audience, there needs to be an understanding of the

audience's characteristics and motivations for their involvement in that form of communication (Rosengren, 1974).

One of the final components to UGT pertains to gratifications sought and obtained from a particular medium. From Johnson & Wang (2009), Rubin, Sypher, & Palmgreen (1994, p. 173) define gratifications sought (GS) as "the various motivations– based on expectations–for both media and non-media use behaviors," where gratifications obtained (GO) are "the 'perceived personal outcomes' of these behaviors" (p. 5). This assumes that users of media obtained some level of satisfaction with the medium if they are continually using it or they would seek out an alternative medium. Palmgreen, Wenner, and Rosengren (1985) expand by stating that "a variety of audience gratifications [both sought and obtained] are related to a wide spectrum of media effects, including knowledge, dependency, attitudes, perceptions of social reality, agenda-setting, discussion, and various political effects variables" (p. 31). However, researchers have also acknowledged the difficulty in sometimes determining the connection between GS and GO (Palmgreen, 1984; Palmgreen et al., 1985), so UGT does carry some assumptions and criticisms.

Assumptions

Katz, Blumler, and Gurevitch (1974) established five assumptions, which Lunberg and Hultén (1968) stated summarize the uses and gratifications theory (UGT). The first assumption is the audience is conceived as active and goal-oriented with its media use, meaning each audience member brings different levels of activity and goals for the media use. The second assumption links the initiative for need gratification and media choices with the audience and limits the effect of media content on attitudes and behavior. The third assumption states media compete with other sources of need satisfaction, including other functional alternatives meeting that need.

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The fourth assumption acknowledges individual media users are able to identify their own needs and motives, and possess the ability to report these needs and motives in particular cases. Lastly, the fifth assumption suspense's researchers value judgments linking specific media content with audience needs, since the audience decides on how they will use the content.

Criticisms

Since its creation, the uses and gratifications theory (UGT) has been refined and developed to become an accepted model in the mass communication field, however, components of the theory have been challenged and criticized by researchers. Elliott (1974) has been noted as one of the most prominent critiques with his categorizing the issues with UGT into theory and assumptions; the methods and findings; and policy implications. More recently, Ruggiero (2000) identified and summarized a number of criticisms surrounding perceived theoretical and methodological issues surrounding UGT studies.

One of the primary criticisms of UGT is the lack of a common theoretical base leading to many researchers referring to at as an "approach." Through the review of research by Blumler (1979), he indicated the lack of underlying theory was a key focal point to the criticisms of UGT, which has been expressed by a variety of researchers (Klapper, 1960; Stanford, 1983; Ruggerio, 2000). Blumler draws attention to UGT's similarities to previously accepted media effects research, which took a variety of theories without having a singular theory of use. Blumler and Katz (1974) established a collective resolution to this dilemma by identifying UGT as "a research strategy that can provide a home for a variety of hypotheses about specific communication phenomena and a testing ground for propositions about audience orientations stemming from more than one sociological or psychological theory" (p. 15). Philip Palmgreen

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and J.D. Rayburn (1982) further supported UGT being a theory when their study found that UGT had strong ties to social psychological theories, in particular, expectancy-value theory.

Another key criticism to UGT relates to the first assumption of the theory and the level of activity of the audience (Elliott, 1974; Katz, Blumler, & Gurevitch, 1974; Ruggiero, 2000). Elliott (1974) stressed the ambiguity of the term active in relation to the use of media. This leads to researchers having a wide range of perceptions on the level of activity. To help clarify this criticism, Ruggiero (2000) states, "different individuals tend to display different types and amounts of activity in different communication settings and at different times in the communication process" (p. 8). Furthermore, Levy and Windahl (1985) have drawn attention to the "voluntaristic and selective orientation by audiences toward the communication process" (p. 110), which emphasizes the need and goal components of UGT. Recent UGT research has addressed this issue and moved toward a better understanding of the concept of audience activity (Rubin, 1993; Ruggiero, 2000).

This leads into a third criticism surrounding the individualistic analysis produced by UGT studies (Elliott, 1974; García Jiménez, Cruz López de Ayala Lopez, and Gaona Pisioneo, 2012). Researchers believe the results of UGT studies draw conclusions on a particular individual, but cannot be used to describe the whole. In addition, "it makes it difficult to explain or predict beyond the people studied or to consider societal implications of media use" (Ruggiero, 2000). However, this allows researchers to examine individual differences for media use within a group.

Despite the criticisms surrounding UGT, it must be noted that it is very difficult to find a unity of theory and method in any approach (Elliott, 1974). In an effort to further support and defend uses and gratifications theory, two additional theories have been created as extensions in the defense of UGT as a theory: expectancy-value theory and dependency theory.

Expectancy-Value Theory

Expectancy-value theory (EVT) applies that "the gratifications you seek from media are determined by your attitudes toward the media–your beliefs about what a particular medium can give you – and your evaluations of this material" (Littlejohn & Foss, 2011, p. 351). Based off previous attitudes and beliefs research by Milton Rosenberg and founded by Martin Fishbein in the 1970s (Fishbein & Ajzen, 1975), Philip Palmgreen utilized EVT to further develop uses and gratifications theory (UGT) to acknowledge individuals media usage is based of previous beliefs through their own evaluations. In addition, Palmgreen created the following formula to represent the relationship of beliefs (b_i) and evaluations (e_i) with gratifications sought (*GS)*:

$$GS_i = \sum_{i}^{n} b_i e_i$$

Using this formula, Littlejohn and Foss (2011) state as individuals "gain experience with a program, genre, or medium, the gratifications you obtain will in turn affect your beliefs, thus reinforcing your pattern of use" (p. 351). One study by David Swanson and Austin Babrow explored the connection between expectancy values and media gratifications by examining college student's television news viewing habits. Students were asked to provide feedback on if they watched the news, frequency of their viewing, their attitudes toward the news, and gratifications obtained. The study concluded, "that the students' expectancy values (attitudes) toward the news related to how much they used the news to gratify certain media needs" (Littlejohn & Foss, 2011). Through the research performed connecting uses and gratifications to

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other social psychological theories defends why it should be considered a theory, as opposed to one of the major criticisms against it being deemed a theory.

Dependency Theory

Dependency theory, also known as media systems dependency theory (MSD), examines "the relationship among social systems, media systems, and audiences, and how each of these interacts and affects one another" (Rosenberry & Vicker, 2009, p. 127). Baran and Davis (2006) expand on the definition by stating, "the idea that the more a person depends on having needs gratified by media use, the more important the media's role will be in the person's life, and therefore, the more influence those media will have" (p. 324). MSD was developed by Sandra Ball-Rokeach and Melvin DeFleur in the mid-1970s to support the idea of an active audience and individuals using certain media–not depending on each media equally–to meet their needs and goals (Rosenberry & Vicker, 2009; Littlejohn & Foss, 2011). Ball-Rokeach and DeFleur (1976) concluded that individual's dependency on any medium was determined on two factors: media that meets a number of needs as opposed to a few and social stability/change.

While a large part of literature focuses on applying MSD to television habits, this theory has been expanded into researching dependency of the Internet to satisfy goals (Tolbert & McNeal, 2003; Shaojing, Rubin, & Haridakis, 2008; Riffe, Lacy, & Varouhakis, 2008). Patwardhan & Yang (2003) studied online consumer behaviors/actions and acknowledged the need for future research into dependency on specific types of Internet content to satisfy needs. With recent research making the linkage between UGT and MSD, as well as recent research studying the Internet, it is important to continue research into the area of uses and gratifications and the Internet.

Uses and Gratifications and the Internet

  With the development of technology over the years, it creates more choices of channels for users to seek gratification of their needs, as well as provides researchers more opportunities to apply uses and gratifications (UGT) to study how people are using the new media technologies to understand each audience's needs and motives. "The strength of the uses and gratifications perspective lies in its applicability to a variety of media contexts" (Papacharissi, 1996) and due to the interactivity of these media, it provides stronger backing for an active audience (Ruggiero, 2000). In addition, each medium offers a unique combination of (a) characteristic contents; (b) typical attributes; and (c) typical exposure situations, which results in different media playing a different role in satisfying different needs (Katz, Blumler, and Gurevitch, 1974).

  Positioning the Internet as a mass medium, Morris and Ogan (1996) recommended using UGT to provide a framework to develop a better understanding of Internet communication. Compared to previous new media technologies, the Internet is also recognized as having a unique set of characteristics. Newhagen and Rafaeli (1996) stressed the importance of studying the qualities, which included: multimedia, hypertextuality, packet switching, synchronicity, and interactivity. Through their dialogue in the paper, they come to conclude UGT could serve as a logical paradigm for Internet usage and assist in future applications of UGT in research. Supporting their thoughts, Ruggiero (2000) identifies how researchers would like to create a continuum between mass and interpersonal communication, which UGT can assist in establishing a typology of uses (p. 23).

Uses and gratification research has studied motives and established a typology for basic

Internet usage (Ko, 2000; Stafford, Stafford & Schkade, 2004; Ferguson & Perse, 2000;

Papacharissi & Rubin, 2000). Papacharissi and Rubin (2000) concluded that there were five

primary uses and gratifications for the Internet: entertainment, information seeking, passing time,

convenience, and interpersonal utility. Further research has emerged from the application of

UGT examining Internet components, such as email (Stafford, Kline, & Dimmick, 1999); instant

messaging (Lueng, 2003); electronic bulletin boards (Rafaeli, 1984; James, Wotring, & Forrest,

2009); online gaming (Yee, 2006); and the recent emergence of social media (Shao, 2009;

Haridakis & Hansen, 2009; Bonds-Raacke & Raacke, 2010; Sundar & Limperos, 2013).

Uses and Gratifications Theory and Twitter

In recent years, researchers have begun to study the reasons users select to use social

media tools over alternate communication media. Web 2.0 and social media tools have provided

a new form of computer-mediated communication (CMC). This small collection of research has

included the application of uses and gratifications theory (UGT) to the microblogging platform

Twitter to identify typologies of use.

Johnson and Yang (2009) had one of the first studies examining user motives and

satisfactions through Twitter to determine gratifications sought and obtained. The study sought

to answer three different areas of gratification and satisfaction, and discovered the following

findings. First, they found social motives and informative motives were the two factors for

gratifications sought and obtained. Second, from the 15 motives they measured, only one item–

having fun–was the only motive users were not satisfied with through Twitter. Finally, seeking to

identify the relationship between gratifications obtained and Twitter use, they found social

gratifications showed no significant relationship with Twitter use, while informative gratifications did. This shows that users find Twitter use more informative, then social.

In a different application of UGT, Liu, Cheung, and Lee (2010) proposed four types of gratifications for continuing Twitter use: content gratification, technology gratification, process gratification, and social gratification. From their survey of 124 respondents, content gratifications and technology gratification were the two main reasons for continuance. Similar to Johnson and Yang (2009), social gratification was not a factor in continuing to use Twitter, which is interesting being that Twitter is a *social* media tool.

There have been additional studies of Twitter usage through a UGT approach. Chen (2011) studied 317 Twitter users and found that the more time users spend on Twitter expressed greater gratification to be connected with others. Ballard (2011) conducted a survey with undergraduate students and found gratifications sought by Twitter were not gratifications obtained from Twitter.

Through the development of UGT, researchers have become more interested in studying specific factors for media use and identifying specific reasons for how media consumption varies by individual or group (West & Turner, 2010). Clavio and Kian (2010) wanted to examine a specific audience by looking at a retired athlete's Twitter followers to determine demographics, uses, and gratifications. Hambrick, Simmons, Greenhalgh, and Greenwell (2010) examined Twitter use among professional athletes to communicate with fans grouping tweets into six categories: interactivity, diversion, information sharing, content, promotional, and fanship. These studies demonstrate the need to examine smaller, niche communities by identifying particular audiences and their motives for using Twitter to meet their communication needs.

Uses and Gratifications Expectancy Model

Palmgreen et al. (1985) found through the UGT researchers have only begun to understand theoretical linkages even through the supporting empirical evidence. As UGT has developed through decades of research, its ability to be an adaptable theory for a variety of media has been established (Raacke & Bonds-Raacke, 2008) and will provide us with initial typologies for use of communication media in particular domains (Ruggerio, 2000). Over the years, we have begun to see researchers continue to extend UGT through the application of expectancy theory and a branch of research into uses and gratification expectancies (UGE).

Rayburn and Palmgreen (1984) investigated the notion of merging UGT and the expectancy-value approach, and found this model has significant implications for media consumption processes. In a continued effort to investigate UGT and expectancy-value theory, researchers have utilized this model to explore specific types of media consumption, such as e-learning environments. Mondi, Woods, and Rafi's (2008) research focused on understanding students' "uses and gratification expectancy" (UGE) of e-learning resources (gratifications sought) influenced their "perceived e-learning experiences" (gratifications obtained) through a Smart School initiative in Malaysia. Another goal of their research was to establish a "Uses and Gratifications Expectancy Model" (UGEM) to predict students' perceived learning experience.

Mondi, Woods, and Rafi's (2008) UGEM was built on the studies of Katz, Gurevitch, and Haas (1973), where they found students carry certain expectations for media and seek media that gratify their communication needs. "According to Expectancy-value theory, students' 'communication behavior' describes a set of 'beliefs and values' that may initiate the learners' tendency to integrate education media technology in their learning process" (Mondi et al., 2008). From Katz, Gurevitch, and Haas' review of literature on the functions of mass media in fulfilling

students' expectancies of educational media, the researchers grouped the functions into five

categories. These five categories of needs include: cognitive, affective, personal integrative,

social integrative, and entertainment (Table 1).

Table 1.
Katz, Gurevitch, and Haas' (1973) Five Communicative Attributes.

Factors	Classification
Cognitive needs	Needs related to strengthening information, knowledge, and understanding
Affective needs	Needs related to strengthening aesthetic, pleasurable, and emotional experience
Personal Integrative needs	Needs related to strengthening credibility, confidence, stability, and status
Social Integrative needs	Needs related to strengthening contact with family, friends, and the world
Entertainment needs	Needs related to escape or tension-release which we define in terms of the weakening of contact with self and one's social roles

Mondi, Woods, and Rafi (2008) hypothesized that learners' communication behaviors, in

relation to the five communicative attributes, had a direct connection to the learning process with

e-learning resources affecting their perceived e-learning experience. The research found three of

the five communicative attributes (affective, personal integrative, and social integrative) were

significant in relation to perceived e-learning experience, while two of the categories (cognitive

and entertainment) were not significant. Overall, their study did suggest, "students' UGE for e-

learning resources is positively related to their 'Perceived e-Learning Experience.'" (Mondi, et

al., 2008, p. 255), but recommended future research into selecting diverse groups to test and

refine UGEM further.

Although the adoption of educational technologies is becoming more common in educational settings, few studies have been conducted to investigate the 'how and why' of adoption with particular technologies for professional development and perceptions on learning. This gap in educational technology research leads to great potential for applying UGEM to a variety of context, as proposed by Mondi, Woods, and Rafi (2008). This study will seek to further expand on the UGEM by applying it to a group of educators seeking educational technology professional development by utilizing Twitter. The purpose of this study was to examine how educators' uses and gratifications expectancy of Twitter for professional development influenced their perceived e-learning experience. In addition, it sought to investigate the demographics of participants who were seeking educational technology knowledge through Twitter.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to examine how educators' uses and gratifications expectancy of Twitter for professional development influenced their perceived e-learning experience. Guskey (2000) identifies that the key to clarifying professional development activities "rests in the development of stronger theories connecting practices with results" (p. 38). To begin to evaluate Twitter as a professional development tool, it was important to identify a theoretical basis for the study. As Spector (2012) notes "communication theories and principles form key aspects of the effective use of educational technology" and have "strong implications for the effective planning and implementation of materials to support learning and instruction" (p. 18). With Twitter serving as a form of computer-mediated communication (CMC), the researcher decided to examine the use of Twitter for professional development purposes through an adapted version of Mondi, Woods, & Rafi's (2008) uses and gratifications expectancy (UGE) theory to examine e-learning experiences.

This chapter outlines the methodology for the study, including the research questions, hypotheses, participants, setting, instrumentation, research design, procedures, and data analysis.

Research Questions

This study proposed to examine how educators' uses and gratifications expectancy of Twitter for professional development influences their perceived e-learning experience. This study seeks to answer the following research questions:

RQ$_1$: Are educators' cognitive uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_2$: Are educators' affective uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_3$: Are educators' personal integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_4$: Are educators' social integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

Hypotheses

First Research Hypothesis

H$_1$: Educators *Cognitive* uses and gratifications expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

Second Research Hypothesis

H$_2$: Educators *Affective* uses and gratifications expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

Third Research Hypothesis

H$_3$: Educators *Personal Integrative* uses and gratifications expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

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Fourth Research Hypothesis

H4: Educators *Social Integrative* uses and gratifications expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

Research Design

This study proposed to examine educators' uses and gratifications expectancy of Twitter for professional development influences their perceived e-learning experience. In addition, it sought to investigate the demographics of participants who were seeking educational technology knowledge through Twitter. This research was conducted as an exploratory, quantitative study and used a survey adapted from Mondi, Woods, and Rafi's 'Uses and Gratifications Expectancy Questionnaire (UGEQ). Surveys allow for investigation problems and collect large amounts of data relatively easily at a low cost (Wimmer & Dominick, 2006; Fowler, 2009).

The original UGEQ survey utilized by Mondi, Woods, and Rafi (2008) measured how students' uses and gratifications expectancy (UGE) for e-learning resources influenced their perceived e-learning experience. The researchers examined five latent variables of UGE (cognitive, affective, personal integrative, social integrative, and entertainment) against the latent variable of perceived e-learning experience. This study will use a modified version of the UGEQ by measuring four areas (cognitive, affective, personal integrative, and social integrative) with measurement-items inside of each construct adapted to examine Twitter, as opposed to general e-learning resources. The construct of entertainment needs was dropped for this study, as it was not relevant to the focus of this study. In addition, the questionnaire will collect basic demographic data.

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With the focus of this study on the domain of educational technology professional development, the survey was administered to educators' who use or follow the #edtechchat hashtag on Twitter. This hashtag is utilized to discuss educational technology topics and a weekly, one-hour long chat is held through the #edtechchat hashtag. A Twitter chat is a synchronous conversation where moderators post questions throughout the hour and participants respond to those questions. This prompts an exchange of messages between users, as well as the sharing of knowledge and resources. The data was analyzed using a stepwise multiple regression analysis to test the hypotheses.

Participants

The #edtechchat is a weekly, hour-long discussion on the use of technology in education held through Twitter. Five educators from around the United States moderate the chat and each moderator comes from a different expertise in educational technology. The main purpose of the chat is to provide a global conversation and professional learning opportunity among participants focusing on learning with technology in the 21st century. With the setting of the chat being held on Twitter, it provides an outlet for anyone around the world to participate in the chat by just using the provided hashtag.

The participants for this study consist of educators who utilize or follow/participate in the #edtechchat on Twitter. For the purpose of this study, educators are classified as anyone who plays a role in the process of schooling or instruction in an educational setting. This includes K-12 teachers/instructors, higher education instructors, principals, curriculum directors, librarian/media specialists, or technology directors. Individuals who are not classified as

educators, such as college students, are able to participate in this chat, but those respondents were eliminated by the researcher to assure only educators are analyzed.

Setting

This study utilized a Web-based survey to conduct the research to fit the nature of the environment studied, Twitter. This method allowed for proper distribution of the survey, because the venue being studied is an online format with no physical meeting location and serves an international audience. However, every type of research method carries its advantages and disadvantages. Advantages to Web-based or Internet surveys include, low cost, potential for high-speed returns, and offers all the advantages of a self-administered or computer-assisted instrumentation (Wrench, Thomas-Maddox, Richmond, & McCroskey, 2008; Fowler, 2009). One of the disadvantages of Internet surveys is the sample is limited to Internet users, but in this case, it becomes an advantage since this research is focusing on participants who are using the Internet to access Twitter for an online professional development tool (Fowler, 2009, p. 83).

This study took place by sharing the survey link through an online Twitter Chat utilizing the #edtechchat – a hashtag devoted to tweets related to educational technology. The study encompassed participants who follow or participate using the hashtag, which means it has an international reach to anyone who has a Twitter account.

Instrumentation

The instrument used in this quantitative study comprised of two sections administered through an online survey application, Survey Monkey. The first section of the survey required respondents to provide basic demographic information through open-ended and closed-ended

questions. The second section focused on the primary purpose of this study, which was to examine participants' perceived e-learning experience through Twitter utilizing an adapted version of Mondi, Woods, and Rafi's (2008) Uses and Gratifications Expectancy Questionnaire (UGEQ).

Demographic Questionnaire

The first part of the survey focused on collecting demographic information from Twitter chat participants (Appendix B). This information was used to begin to develop a demographic profile on the types of individuals who participate in the #edtechchat Twitter chats. The first part of the demographic questions related to gender (*male* or *female*), location (dropdown of all the US states, Canada, and Other), age (six age range groupings from *under 22* up through *61 and older*), educational setting (*K-12* or *higher education*), primary role in education (Teacher/Instructor; Principal; Curriculum Director; Librarian/Media Specialist; Tech Director; Student; or Other), and years of experience (five years of experience groupings from *five or less* up through *21 or more*).

The second part of the demographic questionnaire related to the respondents use of Twitter. These questions asked participants to respond to approximate length of time using Twitter (four years of usage groupings from less than one year up through five or more), average number of hours spend on Twitter per week (five time groupings from *less than two hours* up through *more than 20 hours*), number of individuals they follow on Twitter (open-ended number response), and number of individuals following them on Twitter (open-ended number response). This was the first section survey participants were presented.

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Uses and Gratifications Expectancy Questionnaire (UGEQ)

The instrument for this study was modified from Mondi, Woods, and Rafi (2008) Uses and Gratification Expectancy Questionnaire (UGEQ). The UGEQ was used to investigate "how and why students' UGE for e-learning resources influences their 'Perceived e-Learning Experience'" (Mondi, Woods, & Rafi, 2008, p. 244). Mondi, Woods, and Rafi based their five 'communication behavior' constructs from the 1973 UGT study conducted by Katz, Gurevitch, and Haas. The five constructs included: cognitive needs, affective needs, personal integrative needs, social integrative needs, and entertainment needs. Their study sought to examine the relationship between these five constructs against the construct of students' perceived e-learning experience. For the purpose of this study, the original UGEQ contained five UGE categories, but the Entertainment UGE was dropped due to its irrelevance to this study and measurement-items were modified to focus on the use of Twitter. These measurements were obtained using a 5-point Likert scale system, where 1= *strongly disagree* and 5= *strongly agree*.

The questionnaire consisted of 22 items with a 5-point Likert Scale to collect the data for the latent variables of Cognitive Uses and Gratifications Expectancy (CUGE), Affective Uses and Gratifications Expectancy (AUGE), Personal Integrative Uses and Gratifications Expectancy (PUGE), Social Integrative Uses and Gratifications Expectancy (SUGE), and Perceived e-Learning Experience (PLEUGE). The 22 measure-items are broken down into groupings to represent each of the five variables listed above (Appendix F).

Reliability and Validity

The original UGEQ contained six constructs with each construct containing four to five measurement-items each. Reliability and validity testing of the original UGEQ was performed.

The researchers used Cronbach's Alpha to test for reliability to test for internal consistency, which produced a statistically acceptable 0.9 for the 26 measurement items within the six constructs. All six constructs also produced statistically acceptable results (Table 2). The researchers tested the validity of the measurement-items using content and construct validity using Exploratory Factor Analysis (EFA). The results of the Factor Analysis demonstrated satisfactory measures for validity.

Table 2.

Mondi, Woods, and Rafi's (2008, p. 247) Internal Consistency Reliability for UGEQ Constructs

Factors	Alpha	No. of Items
Cognitive Uses and Gratifications Expectancy	0.6	4
Affective Uses and Gratifications Expectancy	0.5	4
Personal Integrative Uses and Gratifications Expectancy	0.7	4
Social Integrative Uses and Gratifications Expectancy	0.7	5
Entertainment Uses and Gratifications Expectancy	0.6	4
Perceived e-Learning Experience	0.6	5
Overall	0.9	26

Procedures

The survey link was posted to Twitter, including an invite message, link to the survey, and #edtechchat to be distributed to Twitter users following the hashtag (Appendix H). The survey was hosted on Survey Monkey. This assured for a random sample of users who participate or follow the #edtechchat hashtag. These tweets were posted throughout the week for no more than once per day for three weeks. Every couple days the researcher reposted a message (tweet) to Twitter to gather more responses.

Participants were provided with instructions, details of the study, and the extent of anonymity for participation when they opened the survey (Appendix B). The demographic data was used as a generalization for the survey respondents. At the end of the details, there was a question asking participants to select 'Yes' if they consent to participate in the study. At the end of the three-week period, the survey was closed and the data was analyzed.

Data Analysis

The quantitative data from this study was collected into Survey Monkey and imported into Statistical Package for the Social Sciences (SPSS) Statistics Software Version 22. First, descriptive statistics were applied to the demographics and Twitter usage data to determine the general profile of the sample. Next, the Uses and Gratifications Expectancy Questionnaire (UGEQ) items comprised of 22 statements adopted and modified from the Mondi, Woods, and Rafi (2008) study were analyzed using Pearson's correlation coefficient and more rigorously tested using stepwise multiple regression, in an effort to see the order of contribution into predicting perceived e-learning experience and the relative result of each variable being added.

Prior to analysis, the scores for each of the constructs were transformed using summated scales. A summated scale is a measurement technique when multiple items or related questions of an underlying construct are combined or summed to create a total score (Spector, 1992). Cronbach's alpha was used to measure internal reliability of the uses and gratifications expectancy variables, and appropriate data screening was performed to test the assumptions of stepwise multiple regression. The assumptions that were tested and met included outliers, multicollinearity, independence of residuals, normality, linearity, and homoscedasticity (Hair, et al., 1998).

The hypotheses were tested using a stepwise multiple regression analysis. The independent or predictor variables in the analysis are cognitive uses and gratifications expectancy, affective uses and gratifications expectancy, personal integrative uses and gratifications expectancy, and social integrative uses and gratifications expectancy. The dependent variable is perceived e-learning experience. The survey instrument took the grouping of each independent variable construct and test it against the dependent variable (Appendix G).

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A stepwise multiple regression analysis was conducted to examine which independent variables, if any, contributes to the regression model of the dependent variable. The stepwise procedure is automated by the SPSS software and tested the independent variable with the highest correlation against the dependent variable to see if it is statistically significant. This process continues until no independent variables are seen as statistical significance, which the process is then terminated and the final regression model will be reported.

Conclusion

This study examined the relationship between educators' uses and gratification expectancy (UGE) of Twitter for professional development and their perceived e-learning experience. Educators who use or follow the #edtechchat, a hashtag focusing on educational technology topics and conversations, were the population being studied. An online survey with demographic questions and the Uses and Gratifications Expectancy Questionnaire (UGEQ) was distributed through Twitter posts using the #edtechchat hashtags. The data was examined for internal reliability of the uses and gratifications expectancy variables, as well as appropriate testing of assumptions for stepwise multiple regression analysis. The hypotheses were tested using stepwise multiple regression analysis to see the order of contribution into predicting perceived e-learning experience.

CHAPTER IV

RESULTS

The purpose of this study was to examine how educators' uses and gratifications expectancy of Twitter for professional development influenced their perceived e-learning experience. In addition, it sought to investigate the demographics of participants who were seeking educational technology knowledge through Twitter. By examining educators' perceptions of their e-learning experience through Twitter, we can begin to provide insights into how and why Twitter provides an environment conducive to learning and online professional development. Guskey (2000) notes it is important to understand different perspectives for professional development, especially when it comes to the content, process and context of the experience.

This study focused on educators who use or follow the #edtechchat, a hashtag utilized on Twitter focusing on educational technology topics and conversations. The online survey was comprised of a section gathering respondents' demographics and their uses and gratifications towards Twitter for professional development through an adapted version of the Uses and Gratification Expectancy Questionnaire (UGEQ) (Mondi, Woods, & Rafi, 2008). The UGEQ asks respondents to rank their perceptions of the Twitter in five areas of uses and gratifications expectancy: cognitive, affective, personal integrative, social integrative, and perceived e-learning experience. The summated scores of the measurement-items for cognitive, affective, personal integrative, and social integrative were measured against the summated score of the measurement-items for perceived e-learning experience (Appendix G). The perceptions of educators e-learning experiences through Twitter can contribute to the research in the fields of education and instructional technologies.

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This chapter presents and discusses the statistical analysis of the data and results on educators' perceptions of Twitter for educational technology professional development through a uses and gratifications expectancy model approach. This exploratory study utilized a quantitative research design with an approximate pool of 160 educators. A total of 39 educators completed the entire survey, representing a response rate of approximately 24%.

An Instrument and Reliability analysis using the Cronbach's Alpha scores for each construct was conducted to test the reliability of the adapted version of the Uses and Gratifications Expectancy Questionnaire and appropriate sample size. Descriptive statistics were utilized to examine participant demographics and Twitter usage data.

Hypotheses

This chapter will discuss the findings related to the following research hypotheses:

H_1: Educators *Cognitive* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

H_2: Educators *Affective* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

H_3: Educators *Personal Integrative* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

H_4: Educators *Social Integrative* uses and gratification expectancy of Twitter for professional development is not positively related to their *Perceived e-Learning Experience*.

Instrumentation and Reliability Analysis

The Uses and Gratifications Expectancy Questionnaire (UGEQ) produced by Mondi, Woods, and Rafi (2008), a 22-item questionnaire, was adapted and used to measures educators' perceptions toward their uses and gratifications of Twitter for professional development (Appendix E). The questionnaire measured five constructs: cognitive, affective, personal, social and perceived e-learning experience. The original UGEQ examined individuals' uses and gratifications of the Internet towards their e-learning experience. For this study, the items for each construct were modified to include the use of the term, Twitter, in place of the term, Internet, for each item. Respondents responded to each item using a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree, nor Agree, 4 = Agree, 5 = Strongly Agree).

In order to test reliability of the modified questionnaire, internal consistency reliability was assessed using Cronbach's Alpha scores at a level of .05 (Table 3). Internal consistency examines the "consistency among the variables in a summated scale" and "the individual items or indicators of the scale should all be measuring the same construct and thus be highly intercorrelated" (Hair, et al., 1998). The scores for all five constructs exceeded the .70 minimum (Hair, et al., 1998), which demonstrates it is a reliable instrument.

Table 3.
Reliability statistics for UGEQ Constructs

Construct	Items	Alpha
CUGE	CUGE1, CUGE2, CUGE3, CUGE4, CUGE5	.862
AUGE	AUGE1, AUGE2, AUGE3	.856
PUGE	PUGE1, PUGE2, PUGE3	.791
SUGE	SUGE1, SUGE2, SUGE3, SUGE4, SUGE5	.773
PLEUGE	PLEUGE1, PLEUGE2, PLEUGE3, PLEUGE4, PLEUGE5	.901

After determining the reliability and internal consistency of the items, a new unobserved variable, called a summated scale, was created for each of the five constructs into a composite score, based on the mean of the items for each construct (Hair et al., 2010). The new composite scores was used in a stepwise multiple regression analysis to examine how educators' uses and gratifications expectancy (UGE) of Twitter for professional development influenced their perceived e-learning experience. A stepwise estimation takes partial correlation coefficients, which are statistically significant, and provides a more rigorous test by "selecting variables for inclusion in the regression model that starts by selecting the best predictor of the dependent variable," then adds variables until the best predication model is achieved (Hair et al., 2010).

Sample Size

The target population for this study focused on educators' seeking educational technology professional development through the weekly #edtechchat Twitter chat. Participants' role as an educator was verified by prompting them to confirm they were in the field of education prior to entering the survey and by asking them to select their role in education in the demographics section of the survey. Over the one month time period the survey was distributed, there were an average of 160 individuals per week who participated in the weekly #edtechchat Twitter chat, which a majority of those individuals were repeat participants in the chat.

In total, 112 individuals clicked on the survey link with 49 individuals responding. After data screening, 10 respondents were eliminated due to missing data. The remaining 39 respondents made up the final sample. Cronbach's Alpha scores at a level of .05 were generated to test for appropriate sample size (Table 3). The scores for all five constructs exceeded the .70

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minimum (Hair, et al., 1998), which demonstrates it is an affective instrument for the total

sample (*N* = 39).

Participant Demographics

The target population for this study focused on educators' seeking educational

technology professional development through the weekly #edtechchat Twitter chat. Participants'

role as an educator was verified by prompting them to confirm they were in the field of

education prior to entering the survey and by asking them to select their role in education in the

demographics section of the survey. The first part of the survey was designed to obtain the

demographic characteristics of the responders and general information to their Twitter usage.

Gender and Age

Of the 39 respondents, 23.1% were male and 76.9% were female. In regards to age, a

total of 12 were between the age of 31-40 (30.8%), 12 were 41-50 (30.8%), 8 were 51-60

(20.5%), 6 were 23-30 (15.4%), 1 responded they were under 22 (2.6%), and no one responded

in the 61 or older range. A majority of the respondents (61.6%) responded between the ages of

31-50). Table 4 shows the details to respondents' age.

Table 4.
Respondent's Age Range

Age	Frequency	Percentage	Cumulative Percent
Under 22	1	2.6	2.6
22-30	6	15.4	17.9
31-40	12	30.8	48.7
41-50	12	30.8	79.5
51-60	8	20.5	100.0
61 or older	0	0	100.0
Total	39	100.0	

Respondent's Location

The respondents were provided the options of selecting a specific state, Canada, or

Outside US & Canada as options for their location. The largest percentage of respondents came

from Pennsylvania (7, 17.9%). Table 5 shows the details to respondents' location.

Table 5.
Respondent's Location

Location	Frequency	Percentage	Cumulative Percent
Alaska	1	2.6	2.6
Alabama	1	2.6	5.1
California	4	10.3	15.4
Canada	1	2.6	17.9
Connecticut	3	7.7	25.6
Florida	1	2.6	28.2
Georgia	1	2.6	30.8
Indiana	1	2.6	33.3
Outside US & Canada	3	7.7	41.0
Massachusetts	2	5.1	46.2
Maryland	1	2.6	48.7
Missouri	1	2.6	51.3
North Carolina	2	5.1	56.4
New Jersey	1	2.6	59.0
Nevada	1	2.6	61.5
New York	2	5.1	66.7
Ohio	1	2.6	69.2
Pennsylvania	7	17.9	87.2
Texas	3	7.7	94.9
Virginia	1	2.6	97.4
Wyoming	1	2.6	100.0
Total	39	100.0	

Respondent's Educational Background

In order to gauge respondents' role in education, they were asked to provide information related to their educational background. These questions asked them to indicate their work environment, role in education, and years of experience in education. Respondents were first

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prompted to report if they worked in a K-12 or higher education work environment. Most

respondents (32, 82.1%) indicated they worked in a K-12 environment, while the others (7,

17.9%) worked in higher education. Table 6 provides details regarding respondents' role in

education.

Table 6.
Respondent's Role in Education

Role	Frequency	Percentage	Cumulative Percent
Teacher/Instructor	18	46.2	46.2
Professor	4	10.3	56.4
Principal/Assistant Principal	2	5.1	61.5
Curriculum Director	2	5.1	66.7
Librarian/Media Specialist	5	12.8	79.5
Tech Director/Coordinator	3	7.7	87.2
Other	5	12.8	100.0
Total	39	100.0	

The years of experience was fairly even across all categories, but the largest percentage

(10, 25.6%) of respondents indicated they have 11-15 years of experience. Table 7 provides

details regarding their years of experience in education.

Table 7.
Respondent's Years of Experience in Education

Years of Experience	Frequency	Percentage	Cumulative Percent
5 or less	9	23.1	23.1
6-10	6	15.4	38.5
11-15	10	25.6	64.1
16-20	8	20.5	84.6
21 or more	6	15.4	100.0
Total	39	100.0	

Respondent's Twitter Usage

The last section of the demographics information asked them to provide information related to their Twitter usage. These questions asked them to indicate estimates on their years on Twitter and the average hours they spend using Twitter per week. Of the 39 respondents, 33.3% (13) responded they have been using Twitter for 3-4 years, 30.8% (12) for less than 1 year, 28.2% (11) for 1-2 years, and 7.7% (3) for 5 or more years. Table 8 provides details regarding respondents' years on Twitter.

Table 8.
Respondent's Years on Twitter

Years on Twitter	Frequency	Percentage	Cumulative Percent
Less than 1 year	12	30.8	30.8
1-2 years	13	33.3	64.1
3-4 years	11	28.2	92.3
5 or more years	3	7.7	100.0
Total	39	100.0	

A majority (46.2%) of the respondents indicated they use Twitter for more than 2 hours, but less than 5 hours per week, whereas 33.3% use it for more than 5 hours, but less than 10

hours; 10.3% use it less than 2 hours; 5.1% use it for more than 10 hours, but less than 20 hours;

and 5.1% use it for more than 20 hours a week. Table 9 provides details regarding the average

hours per week they spend on Twitter.

Table 9.
Respondent's Average Hours Per Week on Twitter

Avg. Hours/Week on Twitter	Frequency	Percentage	Cumulative Percent
Less than 2	4	10.3	10.3
More than 2, but less than 5	18	46.2	56.4
More than 5, but less than 10	13	33.3	89.7
More than 10, but less than 20	2	5.1	94.9
More than 20 hours	2	5.1	100.0
Total	39	100.0	

Correlation Analysis

To determine the relationship between variables, a correlation analysis using a Pearson

correlation coefficient was calculated to assess the relationship between educator's perceived e-

learning experience and the four independent variables. The correlation coefficient (r) is a

decimal value ranging from -1.00 to +1.00 reflecting the strength of the correlation (Salkind,

2008). Table 10 interprets the size of the correlation with the general interpretation. Results of

the correlation analysis are found in Table 11 and a summary of each hypothesis follows.

Table 10.
Salkind's (2008) Interpreting a Correlation Coefficient

Size of the Correlation	Coefficient General Interpretation
.8 to 1.0	Very strong relationship
.6 to .8	Strong relationship
.4 to .6	Moderate relationship
.2 to .4	Weak relationship
.0 to .2	Weak or no relationship

Table 11.
Correlation Matrix for the Uses and Gratification Expectancy Variables

	Perceived	Cognitive	Affective	Personal	Social
Perceived E-Learning	1.00				
Cognitive	.806	1.00			
Affective	.562	.571	1.00		
Personal	.622	.637	.581	1.00	
Social	.577	.579	.702	.549	1.00

**All Correlations are significant at the 0.05 level (2-tailed)

The results of the correlation analyses in Table 11 show that all four of the correlations were statistically significant. There was a very strong correlation between Cognitive Uses and Gratifications Expectancy ($r = .806$, $p < .01$), a strong correlation to Personal Uses and Gratifications ($r = .622$, $p < .01$), a moderate relationship with Social Uses and Gratifications Expectancy ($r = .577$, $p < .01$), a moderate relationship with Social Uses and Gratifications Expectancy ($r = .577$, $p < .01$), and the dependent variable Perceived E-Learning Experience. These results show that the four uses and gratification expectancy variables of Twitter for professional development play a role in educator' perceived e-learning experience.

While all four UGE variables (IVs) were found to be correlated with perceived e-learning experience (DV), the objective of this research study was to examine which of the UGE constructs best predict perceived e-learning experience. In order to test the relationships between the UGE constructs and educators' perceived e-learning experience, a more rigorous test using a stepwise multiple regression analysis was performed to identify whether any of the UGE constructs predicted relationships with the perceived e-learning experience and to learn the order of contribution in the prediction model.

Stepwise Multiple Regression

A stepwise multiple regression analysis was performed to determine which uses and gratifications expectancies (cognitive uses and gratifications expectancy [*cuge*]; affective uses and gratifications expectancy [*auge*]; personal uses and gratifications expectancy [*puge*]; and social uses and gratifications expectancy [*suge*]) predicted perceived e-learning experience [*pleuge*] for professional development through Twitter. A stepwise regression analysis takes the independent variable that significantly contributes to the variance, adds it first to determine the proportion, and the next independent variable is tested until the best set of predictor variables is determined for the dependent variable (Hair, et al., 1998; Cramer, 2003).

This section will discuss the process of data screening for stepwise multiple regression by examining the assumptions. The assumptions that were tested and met included outliers, multicollinearity, independence of residuals, normality, linearity, and homoscedasticity. This section concludes with the summary table of the stepwise multiple regression analysis to aid in the discussion of each hypothesis.

Data Screening

Prior to conducting the stepwise multiple regression analysis, all data were evaluated for outliers, collinearity and to test for assumptions. The assumptions tested included independence of the residuals, normality, linearity, and homoscedasticity. Any cases with missing data were eliminated prior to these tests.

Outliers

Outliers were screened for using Mahalanobis distance with $p < .001$. The Mahalanobis distance, or D^2, measures "the uniqueness of a single observation based on differences between the observation's values and the mean values for all other cases across all independent variables" (Hair, et al., 1998, p. 219). The Mahalanobis variable (*MAH_1*) was created to determine which cases were too large according to the chi-square (χ^2) criteria with "the degrees of freedom equal to the number of variables in the analysis" (Mertler & Vannatta, 2010). The critical value of chi-square at $p < .001$ with a *df* = 5 is 20.515 with no cases exceeding this critical value (Table 12).

Table 12.
Outliers for Mahalanobis Distance

Construct	Case	Case Number	Value
Highest	1	32	16.03
	2	2	15.68
	3	16	12.67
	4	3	10.29
	5	34	6.55
Lowest	1	36	.30
	2	4	.37
	3	19	.91
	4	5	.98
	5	7	1.10

In addition, Cook's distance (D_i), which "measures the combined influence of the case's being an outlier on y and on the set of predictors" (Stevens, 2009, p.105), was utilized to identify any influential points with values larger than 1. According to Stevens (2009), "if a point is a significant outlier on y, but its Cook distance is <1, there is no real need to delete the point because it does not have a large effect on the regression analysis" (p. 111). The maximum Cook's distance for this analysis was .282, which is less than one and means outliers should not be a concern (Stevens, 2009).

Multicollinearity

The first assumption assessed was multicollinearity, which refers to "the correlation among three or more independent variables" (Hair et al., 1998, p. 156) and can lead to misleading interpretations of the model. Multicollinearty can be evaluated using two measures:

tolerance and the variance inflation factor (VIF). Tolerance values range from 0-1 and values close to zero indicates multicollinearity (Mertler & Vannatta, 2010, p. 163). There is no standard rule for measuring VIF, values greater than 10 are a general cause for concern for collinearity (Mertler & Vannatta, 2010, p. 163). The tests indicated multicollinearity was not a concern (Table 13).

Table 13.
Multicollinearity Statistics for UGEQ Constructs

Construct	Tolerance	VIF
CUGE	1.00	.862
AUGE	.674	1.48
PUGE	.595	1.68
SUGE	.665	1.50

Independence of the Residuals

The second assumption assessed was the Independence of the Residuals, or Independent Error. This test is used to examine if the residual terms are uncorrelated using the Durbin-Watson value and is important to assess with the focus being on the predication error of the residuals. The Durbin-Watson statistic ranges from 0 to 4 and the residuals are uncorrelated if the value is approximately 2. The data met the assumption with a Durbin-Watson value = 2.01.

Normality

The third assumption assessed was normality of the error term. This assumption used skewness and kurtosis to examine if the data was normally distributed. Hair et al. (1998) define skewness as, "a measure of symmetry of a distribution" (p. 38) and kurtosis as, "the measure of the peakedness or flatness of a distribution when compared with a normal distribution" (p. 37).

The cognitive uses and gratifications expectancy (CUGE) was negatively distributed with a skewness of -0.99 (SE = .398) and kurtosis of .55 (SE = .778). The affective uses and gratifications expectancy (AUGE) was negatively distributed with a skewness of -0.42 (SE = .398) and kurtosis of -1.08 (SE = .778). The personal integrative uses and gratifications expectancy (PUGE) was negatively distributed with a skewness of -0.99 (SE = .398) and kurtosis of -0.13 (SE = .778). The social integrative uses and gratifications expectancy (SUGE) was negatively distributed with a skewness of -1.00 (SE = .398) and kurtosis of 1.37 (SE = .778). Lastly, the perceived e-learning experience (pleuge) was negatively distributed with a skewness of -1.06 (SE = .398) and kurtosis of 2.05 (SE = .778). With the skewness values ranging from -0.42 through -1.06, which negative skewness indicates few small values in the distribution (Hair, et al., 1998), and kurtosis values ranging from -1.08 through 2.05, the data for the uses and gratifications expectancies are considered to be reasonably normally distributed.

Linearity and Homoscedasticity

The final assumption assessed was for linearity and homoscedasticity. Linearity of data refers to predicted values "that fall in a straight line by having a constant unit change (slope) of the dependent variable for a constant unit change of the independent variable" (Hair et al., 1998, p. 145). Homoscedasticity relates to the dependence relationships between variables and "refers to the assumption that dependent variable(s) exhibit equal levels of variance across the range of predictor variable(s)" (Hair et al., 1998, p. 73). Linearity was assessed using the normal P-P plot of standardized residuals (Figure 3), which the normal P-P plot showed the points were close to the line indicating linearity. Homoscedasticity were tested using a scatterplot of standardized predicted values (Figure 4) and if the assumption were met, the residuals would form a random

sample of points. Upon assessment, the scatterplot showed the data met the assumption of

homoscedasticity.
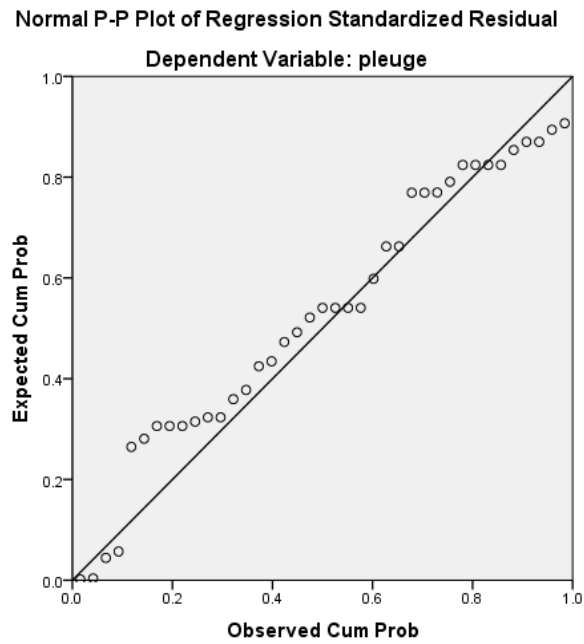
Figure 1. Graphical Representation Testing for Linearity: Normal P-P Plot of Standardized
Residuals
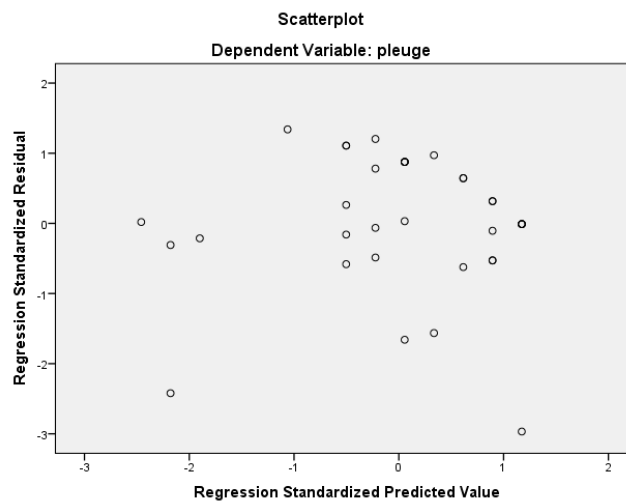
Figure 2. Graphical Representation Testing for Linearity and Homoscedasticity: Scatterplot of
Standardized Residuals

Stepwise Multiple Regression Results

A stepwise multiple regression analysis was performed using Cognitive UGE, Affective

UGE, Personal UGE, Social UGE as the independent or predictor variables and perceived e-

learning experience as the dependent variable (Appendix G). The multiple regression model

summary is shown in Table 14 and a summary of regression coefficients results are shown in

Table 15. The entire data analysis results can be found in Appendix I.

Table 14.
Summary of Regression Coefficients

Construct	R	R^2	*Adjusted R^2*	*Sig. F Change*
Cognitive UGE	.665	.650	.641	.000

   a. Predictors: (Constant), cuge
   b. Dependent Variable: pleuge

Table 15.
Coefficients Table of Stepwise Multiple Regression Analysis

Model	Unstandardized Coefficients		Standard Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	6.71	1.80		3.72	.001
Cognitive UGE	.72	.09	.806	8.29	.000

a. Dependent Variable: pleuge

Null Hypothesis One: Cognitive UGE

Are educators' cognitive uses and gratification expectancy of Twitter for professional

development positively related to the perceived e-learning experience? The null hypothesis

stated educators' cognitive uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience. The regression model results indicated that cognitive uses and gratifications expectancy significantly predicted perceived e-learning experience, $R^2 = .650$, $R^2_{adj.} = .641$, $F(1,37) =$, $p < .01$. This model accounts for 65% of variance in perceived e-learning experience. Therefore, the null hypothesis was rejected and it was concluded that cognitive uses and gratification expectancy of Twitter for professional development is positively related to their perceived e-learning experience.

Null Hypothesis Two: Affective UGE

Are educators' affective uses and gratification expectancy of Twitter for professional development positively related to the perceived e-learning experience? The null hypothesis stated educators' affective uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience. The regression model results indicated that affective uses and gratifications expectancy did not significantly predict perceived e-learning experience. Therefore, the null hypothesis was not rejected and it was concluded that affective uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience.

Null Hypothesis Three: Personal Integrative UGE

Are educators' personal integrative uses and gratification expectancy of Twitter for professional development positively related to the perceived e-learning experience? The null hypothesis stated educators' personal integrative uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience. The

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regression model results indicated that personal integrative uses and gratifications expectancy did not significantly predict perceived e-learning experience. Therefore, the null hypothesis was not rejected and it was concluded that personal integrative uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience.

Null Hypothesis Four: Social Integrative UGE

Are educators' social integrative uses and gratification expectancy of Twitter for professional development positively related to the perceived e-learning experience? The null hypothesis stated educators' social integrative uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience. The regression model results indicated that social integrative uses and gratifications expectancy did not significantly predict perceived e-learning experience. Therefore, the null hypothesis was not rejected and it was concluded that social integrative uses and gratification expectancy of Twitter for professional development is not positively related to their perceived e-learning experience.

Summary

This chapter presented the results and findings of the exploratory research into how educators' uses and gratifications expectancy (UGE) of Twitter for professional development influenced their perceived e-learning experience. This study utilized an adapted version of Mondi, Woods, and Rafi's (2008) Uses and Gratifications Expectancy Questionnaire (UGEQ) to collect educators' perceptions of their cognitive UGE, affective UGE, personal integrative UGE, and social integrative UGE variables to predict perceived e-learning experience through the

weekly #edtechchat Twitter chat. Perceived e-learning experience served as the dependent variable for this study. All five variables were transformed into summated scale scores for analysis. Descriptive statistics, correlation, and stepwise multiple regression were used for analysis and to answer the four research questions.

A total of 49 educators responded to the survey, of which 10 were dropped due to missing data, thereby leaving a data sample of 39 educators to be analyzed. Of the 39 respondents, 23.1% were male and 76.9% were female with over 60% of them falling in the 31-50 year old age range. A large portion of the respondents was located in the east coast (59%) with Pennsylvania having the largest percentage of respondents (7, 17.9%). Most respondents (32, 82.1%) indicated they worked in a K-12 environment, while the others (7, 17.9%) worked in higher education. The teacher/instructor role in education returned the highest results (18, 46.2%) and there was a fairly even distribution of years of experience in education amongst the respondents, ranging from 5 or less up through 21 or more years.

Respondents were also asked to provide basic Twitter usage data. Of the 39 respondents, 33.3% (13) responded they have been using Twitter for 3-4 years, 30.8% (12) for less than 1 year, 28.2% (11) for 1-2 years, and 7.7% (3) for 5 or more years, but a majority of the respondents (31, 79.4%) claim to be on Twitter an average of more than 2, but less than 10 hours per week.

To determine the relationship between variables, a correlation analysis using a Pearson Product-Moment Correlation was calculated to assess the relationship between educator's perceived e-learning experience and the four independent variables. The results of the correlation analyses showed that all four of the correlations were statistically significant. There was a very strong correlation between Cognitive Uses and Gratifications Expectancy ($r = .806$, $p < .01$), a

strong correlation to Personal Uses and Gratifications ($r = .622$, $p < .01$), a moderate relationship with Social Uses and Gratifications Expectancy ($r = .577$, $p < .01$), a moderate relationship with Social Uses and Gratifications Expectancy ($r = .577$, $p < .01$), and the dependent variable Perceived E-Learning Experience.

A stepwise multiple regression analysis was performed to identify whether any of the UGE variables predicted relationships with the perceived e-learning experience. Prior to conducting the regression analysis, data screening was performed to test for assumptions. . The assumptions that were tested and met included outliers, multicollinearity, independence of residuals, normality, linearity, and homoscedasticity, where all assumptions were met. Results showed that only cognitive UGE was found to be a predictor of perceived e-learning experience, $R^2 = .650$, $R^2_{adj.} = .641$, $F(1,37) =$, $p < .01$, with the final model accounting for 65% of the variance. These results found that only null hypothesis one to be rejected.

CHAPTER V

DISCUSSION

Introduction

The purpose of this chapter was to provide a summary of this research into gathering a better understanding of educators' perceptions regarding their use of Twitter for online professional development. This study investigated how educators' uses and gratifications expectancy (UGE) of Twitter for professional development influenced their perceived e-learning experience. Educators' perceptions of UGE were collected utilizing an adapted version of Mondi, Woods, & Rafi's (2008) Uses and Gratification Expectancy Questionnaire (UGEQ) to answer the research questions. In addition, it sought to investigate the demographics of participants who were seeking educational technology knowledge through Twitter.

This chapter presents a summary of the study, which provides the background into professional development, uses and gratifications theory, and Twitter. This chapter also presents the findings of this study and how it relates to the literature of the three domains mentioned previously, as well as conclusions will be drawn from these findings. Finally, limitations and recommendations for future research will be presented.

Summary of the Study

The practice of professional development has evolved to adapt to the needs of a changing society and a call for educational reform. These reforms have placed a larger emphasis on the need for educational change, which has resulted in an increased need for professional development opportunities for educators. The problem with many teacher professional development programs is the lack of high-quality, fragmented offerings, as well as a lack of

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ongoing, continuous support (Dede, 2006) and teachers resistance to change (Fullan, 1991). These challenges and the advancements of technology have led to a shift from traditional formats of professional development to online professional development opportunities to meet the individual learner's needs.

One particular type of educational technology domain educators are selecting for professional development is Web 2.0 and social media platforms. More specifically, there has been a growing interest in utilizing the microblogging platform, Twitter, for online professional development. Twitter is a fusion of instant messaging and SMS-based communications platform were users post messages ("tweets") limited to 140-character limit. Twitter allows users to create their own username, or handle, signified with the @ symbol and hashtags (#), which is a way to categorize or tagging a topic of conversation in a tweet. One way hashtags are being utilized is through Twitter chats, which allow users to conduct synchronous chats through Twitter by creating a hashtag specific to the chat topic (i.e., #edtechchat, which focuses on discussions surrounding how technology is used for learning in education).

With educators being drawn to Twitter as a professional development tool, the media selection process becomes an area of research to investigate how and why Twitter is meeting their learning needs. Through this selection process, it demonstrates that educators are active participants in selecting which tools meet their learning needs and provides the opportunity for research into how and why they are selecting certain online professional development tools. The uses and gratifications theory (UGT) will provide the theoretical background for this study. UGT is "an audience based theoretical framework, grounded on the assumption that individuals select media and content to fulfill felt needs or wants" (Katz, Blumler, & Gurevitch, 1974).

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The purpose of this study was to examine how educators' uses and gratifications expectancy of Twitter for professional development influenced their perceived e-learning experience. By examining educators' perceptions of their e-learning experience through Twitter, we can begin to provide insights into how and why Twitter provides an environment conducive to learning and online professional development. This study sought to continue building on years of research and evaluation into online professional development with gathering perceptions of the e-learning experience through Twitter.

The following research questions were addressed in this study:

RQ$_1$: Are educators' cognitive uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_2$: Are educators' affective uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_3$: Are educators' personal integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

RQ$_4$: Are educators' social integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

Summary of Procedure

This exploratory research study was conducted using quantitative data analysis to examine how educators' uses and gratifications expectancy of Twitter for professional development influences their perceived e-learning experience. An exploratory approach seeks to explore and provide a better understanding of participants' experiences and how they define that experience (Marshall & Rossman, 2011; Shank & Brown, 2007). The instrumentation for this study used an adapted version of the Mondi, Woods, and Rafi (2008) Uses and Gratifications Expectancy Questionnaire, which measured the constructs of cognitive UGE, affective UGE, social integrative UGE, personal integrative UGE, and perceived e-learning experience.

This survey was administered to educators who participated or followed the weekly #edtechchat Twitter chat, since the focus of this study was to evaluate the domain of educational technology professional development. The main goal of this chat is to create an open dialogue on topics related to learning with technology in the 21st century. The first part of the survey asked respondents to identify their role as an educator. This included K-12 teachers/instructors, higher education instructors, principals, curriculum directors, librarian/media specialists, or technology directors.

The study was conducted the entire month of June 2014. Survey results were collected through an online survey hosted on Survey Monkey. The link for the survey was distributed through daily tweets using the #edtechchat hashtag. Upon clicking on the link, respondents were presented with the IRB approval detailing the description of the study, instructions and the extent of anonymity for participation. At the end of the month long data collection period, the survey link was closed.

Interpretation of Results

The Statistical Package for the Social Sciences (SPSS) Statistics Software Version 22 was used to analyze the data for this study. Descriptive statistics were used to analyze the basic demographic data of the respondents. Next, the Uses and Gratifications Expectancy Questionnaire (UGEQ) data were analyzed by transforming the measurement-items for each construct into summated scales and used Pearson's correlation coefficient and stepwise multiple regression to answer the research questions.

In total, 49 individuals responded to the survey with 10 of the respondents having missing data. The remaining 39 respondents made up the final sample and the Cronbach's Alpha scores for each construct exceeded the .70 minimum (Hair, et al., 1998), which demonstrates it is an affective instrument for the total sample. The Pearson correlation coefficient analysis reported a very strong correlation between Cognitive Uses and Gratifications Expectancy (r = .806, p < .01), a strong correlation to Personal Uses and Gratifications (r = .622, p < .01), a moderate relationship with Social Uses and Gratifications Expectancy (r = .577, p < .01), a moderate relationship with Social Uses and Gratifications Expectancy (r = .577, p < .01), and the dependent variable Perceived E-Learning Experience.

A stepwise multiple regression analysis was performed to answer the hypotheses for determining which uses and gratifications expectancies (cognitive uses and gratifications expectancy [cuge]; affective uses and gratifications expectancy [auge]; personal uses and gratifications expectancy [puge]; and social uses and gratifications expectancy [suge]) predicted perceived e-learning experience [pleuge] for professional development through Twitter. The final regression model indicated that cognitive uses and gratifications expectancy was the only

UGE construct to significantly predict perceived e-learning experience. These results rejected null hypothesis one, but failed to reject the other three null hypotheses.

Findings Related to Literature

The foundation of this study was developed around the domains of professional development, uses and gratifications theory, and social media in education. The primary focus of this research was to examine how educators' uses and gratifications expectancy of Twitter for professional development influences their perceived e-learning experience. The findings from this study provide insights into this growing field of online professional development through Twitter. This section will discuss how the results of this study affect each of the domains.

Professional Development

The nineteenth century to present day research in the field of educator professional development has shown an increasing demand for continuous professional growth. Furthermore, it is also important the entire staff – administrators, supervisors, and teachers – be involved in these learning experiences and the process of change (Richey, 1957). Challenges arise when you present professional development to educators, including a resistance to change due to a lack of motivation (Fullan, 1991) or its "one-size-fits-all" format (Roy, 2010). In order to meet the growing demand for continuous learning experiences and meet the needs of varying types of educators, they are turning to online professional development opportunities.

With a variety of professional development opportunities available, it becomes important to perform evaluations to provide evidence into the implementation of these opportunities. Guskey (2000) emphasizes the need to provide evidence into why certain forms of professional

development do or don't work in an effort to gather a better understanding into what is effective. This study provided educators with the opportunity to rank their perceptions on their uses and gratification expectancy of one type of online professional development environment – the microbloging platform, Twitter.

The results from the Pearson Correlation analysis showed that all four uses and gratifications expectancy's of Twitter for professional development play a role in educator' perceived e-learning experience. This explains why the educators' perceive Twitter as a valuable tool for e-learning and begins to provide a model for how to utilize Twitter for professional development. The use of Twitter as the delivery device for professional development allows for it to be a continuous learning experience and cater to the needs of the learner. In addition, it also helps to explain why educators' continue to return and use Twitter for professional development.

Furthermore, Guskey (2000) alluded to how perceptions provide you with evidence on what aspects of the model contributes to its effectiveness (p. 39). The stepwise regression analysis provided a deeper analysis into which UGE components predicted perceived e-learning experience among educators. Cognitive uses and gratifications expectancy – the needs related to strengthening information, knowledge and understanding – was the one aspect that educators' perceived as predicting their e-learning experience. Future research can examine the level of participants' learning to see if participants acquired the intended knowledge or skills from the Twitter chat, which is the next level of professional development evaluation (Guskey, 2000).

Despite the increase in professional development opportunities, the education system is still seeing struggles in student achievement and unprepared educators to help improve in this area. The findings from this research are an effort to continue the pursuit for evaluating

professional development opportunities to better prepare educators and provide a model for evaluating the success of future professional development efforts through Twitter.

Uses and Gratifications

There is a growing need to study how current and new forms of media are affecting different areas of our culture and society. As one of the most popular mass communication theories, uses and gratifications theory (UGT) focuses on how audience members actively select particular media to achieve their goals, as well as how the media gratifies your needs (Littlejohn & Foss, 2011). Adapting previous research performed by Mondi, Woods, and Rafi (2008), this study utilized the theoretical backing of uses and gratifications expectancy, an extension of uses and gratifications theory, to examine educators' perceptions of Twitter as a professional development tool.

As stated in the review of literature, the Internet and Web 2.0 technologies have become increasingly popular to study using a uses and gratifications approach (Newhagen & Rafaeli, 1996; Ruggiero, 2000). Previous research into use of social media as a communication media has provided use unique insights into findings on motives and establishing typologies (Papcharissi & Rubin, 2000, Shao, 2009; Haridakis & Hansen, 2009; Bonds-Raacke & Raacke, 2010). Building on previous uses and gratifications literature, researchers have begun to develop a literature of research into the uses and gratifications of Twitter.

Johnson and Yang (2009) produced one of the first studies examining user motives and obtained gratifications through Twitter. Their study found social motives and information motives sought and obtained, but discovered social gratifications showed no significant relationship with Twitter use, while information gratifications did. Social gratifications were also

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found not to be a factor in Liu, Cheung, and Lee's (2010) study of factors related to continuing use of Twitter, while content gratification and technology gratification were factors. In an examination of higher education scholars' participation practices on Twitter, Veletsianos (2011) found that scholars primary activity on Twitter was sharing information, media, and resources.

The results from these studies are similar to the results of this current study. Social uses and gratifications expectancy – the needs related to strengthening contact with family, friends and the world – showed no influence on perceived e-learning experience. This was also true for affective uses and gratifications expectancy – the needs related to the strengthening aesthetic, pleasurable, and emotional experience – and personal integrative uses and gratifications expectancy – the needs related to strengthening credibility, confidence, stability, and status. However, cognitive uses and gratifications expectancy – the needs related to strengthening information, knowledge and understanding – showed an influence on educators' perceived e-learning experience. Thus, research is beginning to show users are continuing to seek and obtain gratifications from Twitter in the form of content, information and knowledge.

Limitations

This research was an exploratory study examining how educators' uses and gratifications expectancy of Twitter for professional development influenced their perceived e-learning experience. An exploratory approach seeks to explore and provide a better understanding of participants' experiences and how they define that experience (Marshall & Rossman, 2011; Shank & Brown, 2007). The results of this study will be a first step in examining how and why educators' use Twitter for professional development in the domain of educational technology.

The distribution of the survey through Twitter and online may have caused the low response rate to the survey. There are many advantages to using online surveys (generally inexpensive, potential for higher speed returns, convenient for respondents and provides time for thoughtful responses), but one of the major disadvantages is the challenge of enlisting individuals to participate or take the survey (Fowler, 2009; Wimmer & Dominick, 2006). The researcher lacked the control of data collection through an online survey compared to in-person collection. However, for the purpose of this study, it is not seen as a disadvantage since this research is focusing on participants who are using the Internet to access Twitter for an online professional development tool (Fowler, 2009, p. 83).

In relation to the distribution of the survey online, it was noticed that respondents would typically only click on the link on Sunday-Tuesdays, despite a tweet being posted on a daily basis. Throughout the distribution of the survey, analytics were being collected to examine if and when individuals were clicking on the survey link. The analytics revealed that users mainly clicked on the link around the time of the chat on Mondays, and Tuesdays when users would most likely be viewing the archive of the chat. There were very few clicks on the link between Wednesday and Saturday, which shows users are not really focused on following the #edtechchat hashtag throughout the week.

This study was also limited by its small sample size. With a total of 49 individuals starting the survey, there were only 39 respondents to complete the entire survey. The distribution of the survey began at the beginning of June, which is the time of year educators are ending their school year or already on summer break and may not be engaged in their typical professional development routine. This could have been improved by distributing the survey in

the middle of a school year where more educators may still be focusing on professional development opportunities.

This research study population consisted only of educators who were seeking educational technology professional development and who used or followed the #edtechchat hashtag. The fact respondents were aware of this hashtag assumed educators were interested in educational technology knowledge. Because this research study was only conducted on this particular population, findings may not be generalized to other content areas of professional development or other educators who seek educational technology professional development, but are unaware of the #edtechchat hashtag. This limitation actually offers a potential for future research into other domains or Twitter chats.

A final limitation to this study was relying on respondents to self-report on their perceptions. This study asked educators' to rate themselves on their perceptions of the uses and gratifications expectancy items in relation to using Twitter for online professional development. The reliance on self-reported data has the potential for bias. This also leads to the potential for the inability to ensure the person responding is actually the individual who completes the survey (Wimmer & Dominick, 2006). This area may have negative effects on the outcome of the research. This can be an issue with any online survey, but through the informed consent letter prior to the survey, the research hoped to eliminate this issue.

Future Research

As an increased number of individuals seek additional opportunities for professional development, the development and continuation of research in this area will be beneficial. This research yielded interesting data for the fields of professional development, uses and

gratifications, and social media in education research. Based on these results, five recommendations are suggested for researching the use of Twitter for online professional development. These recommendations will provide a model for future studies of the same nature and allow for advancements in the different domains.

The first recommendation, and perhaps the most interesting for future research, would involve developing a deeper understanding of which measurement-items within uses and gratifications expectancy (UGE) construct relate to educators' perceived e-learning experience. From the original study, Mondi, Woods, and Rafi (2008) performed Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to verify the structure of the model, examine each of the individual measurement-items comprising each construct, and answer their hypotheses. The goal of this research was to simply examine which of the 4 UGE constructs predicted e-learning experience, so it did not require as deep of an analysis. However, future research into the structure of the model and examining the effects of each individual measurement-item through Partial Least Squares analysis or SEM could provide valuable insights into what components play a role in the perceived e-learning experience of how and why educators use Twitter for professional development.

The second recommendation would be to investigate demographic differences and how they contribute to the perceived e-learning experience through Twitter. This research asked respondents to provide general demographic data (Appendix D), but this data was only used to construct a general profile of the educators' who participate in the #edtechchat Twitter chat. The context of the Twitter chat – a chat discussing topics related to instructional or educational technology – differs from chats discussing different content areas, so it is important to not only gain a better understanding of the characteristics of the individuals participating in these chat, but

to further explore differences between these characteristics and their perceived e-learning experience. This type of analysis will also provide valuable insights into e-learning differences through Twitter amongst the different characteristics. Descriptive statistics for this research were reported in Chapter 4.

The third recommendation to improve the study would be to increase the sample size to provide a stronger representation of the larger population. A small sample size (39 total respondents) was used for this study, which was appropriate upon internal reliability testing using Cronbach's Alpha. While there is no correct sample size, Hair, et al. (1998) recommends a sample size of 100-200, as 200 is consider a "critical sample size" (p.605).

The fourth recommendation would be to examine different content areas and Twitter chats. This study focused on educators who utilized the #edtechchat, which focuses on discussions surrounding educational technologies. A majority of these educators already use technology in the classroom, which may lead to the results being in favor of the use of Twitter for professional development. With the popularity of Twitter chats, there is need for more research investigating the perceptions of educators seeking different types of knowledge using Twitter as a professional development tool. This will expand the research into how and why educators' use Twitter for online professional development and their perceived e-learning experience.

The final recommendation would be to adopt a qualitative research design to examine the "complexity of the social interactions" (Marshall & Rossman, 2011) and the culture of Twitter as a professional development tool. An open-ended questionnaire could be distributed to allow respondents to provide more detail in their responses, as well as qualify and clarify their responses on why they utilize Twitter as a professional development tool. With cognitive uses

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and gratifications expectancy being the strongest influencers on perceived e-learning experience, a content analysis of Twitter chat archives could be conducted, which would provide "more directly how individual-level cognitive processes and effects relate to message characteristics" (Riffe, Lacy, & Fico, 2014).

Conclusion

This study presented data examining educators' uses and gratifications expectancy (UGE) of their perceived e-learning experience through Twitter for educational technology knowledge. Furthermore, this study advances the use of the model developed by Mondi, Woods, and Rafi (2008) and adapts the instrumentation to assist in the successful development and deployment of Twitter as a professional development tool.

Web 2.0 and social media platforms are becoming increasing popular tools for learning. The results of this study show that while all four UGE constructs were found to be statistically significant, a deeper analysis uncovered that cognitive uses and gratifications expectancy resulted in the highest and only construct in the stepwise regression model to be significant in predicting perceived e-learning experience. The exploratory nature of this study has provided some insights into how and why educators utilize Twitter for online professional development purposes and advancing research into the fields of professional development.

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APPENDIX A:

IRB APPROVAL

To: Douglas Strahler
From: Linda Goodfellow, IRB Chair
Subject: Protocol #2014/05/13 - Approval Notification
Date: 06/07/2014

The protocol **Educators' Perceptions of Twitter for Educational Technology Professional Development: A Uses and Gratifications Expectancy Model** has been approved by the IRB Chair under the rules for expedited review on **06/07/2014**.

The consent form is stamped with IRB approval and one year expiration date. You should use the stamped forms as originals for copies that you distribute or display. If possible, please upload the stamped consent form to the online data collection site. If you are not able to do this, please be sure that the exact wording of the consent form is used.

The approval of your study is valid through 06/06/2015, by which time you must submit an annual report either closing the protocol or requesting permission to continue the protocol for another year. Please submit your report by **05/09/2015** so that the IRB has time to review and approve your report if you wish to continue it for another year.

If, prior to the annual review, you propose any changes in your procedure or consent process, you must complete an amendment form of those changes and submit it to the IRB Chair for approval. Please wait for the approval before implementing any changes to the original protocol. In addition, if any unanticipated problems or adverse effects on subjects are discovered before the annual review, you must immediately report them to the IRB Chair before proceeding with the study.

When the study is complete, please terminate the study via Mentor by completing the form under the Continual Renewal tab at the bottom of your protocol page and clicking on terminate. Please keep a copy of your research records, other than those you have agreed to destroy for confidentiality, over a period of five years after the study's completion.

If you have any questions, feel free to contact me.

Linda Goodfellow, PhD, RN
IRB Chair
goodfellow@duq.edu

Attachments:
   • Protocol 2014-05-13 Revised Consent Form.pdf

APPENDIX B:

CONSENT FORM

DUQUESNE UNIVERSITY
600 FORBES AVENUE ◆ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: Educators' Perceptions of Twitter for Educational Technology Professional Development: A Uses and Gratifications Expectancy Model

INVESTIGATOR: Douglas C. Strahler
Ed.D. Candidate in Instructional Technology & Leadership
600 Forbes Avenue
Pittsburgh, PA 15282

ADVISOR: David D. Carbonara, Ed.D.
School of Education, Instructional Technology
327A Fisher Hall
412-396-4039
carbonara@duq.edu

SOURCE OF SUPPORT: This study is being performed as partial fulfillment of the requirements for the doctoral degree in the School of Education at Duquesne University.

PURPOSE: You are being asked to participate in a research project that seeks to investigate educators' uses and gratifications expectancy of Twitter as a professional development tool and how it influences your perceived e-learning experience. This quantitative study is comprised of two sections administered through an online survey application, Survey Monkey. The first section of the survey requires you to provide basic demographic and Twitter usage information through open-ended and closed-ended questions. You will not be required to provide your first name, last name or Twitter username in order to provide you a degree of confidentiality. The second section focuses on the primary purpose of this study, which is to examine your perceived e-e-learning experience through Twitter utilizing an adapted version of Mondi, Woods, and Rafi's (2008) Users and Gratifications Expectancy Questionnaire (UGEQ). The 22 measurement-items will measure cognitive needs, affective needs, personal integrative needs, social integrative needs, and perceived e-learning experience using a 5-point Likert scale system. The entire survey should take approximately 10-15 minutes for you to complete. These are the only requests that will be made of you.

RISKS AND BENEFITS: There are no risks greater than those encountered in everyday life. Although there is no direct benefit to the participant for completing the study, the research will provide valuable insight into educators' perceived e-learning experience through Twitter.

COMPENSATION: There is no compensation for completing this survey. However, participation in the project will require no monetary cost to you.

CONFIDENTIALITY: Your name will never appear on any survey or research instruments. No identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file in the researcher's home. Your response(s) will only appear in statistical data summaries.

RIGHT TO WITHDRAW: You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time.

SUMMARY OF RESULTS: There will not be a summary or results provided to the participants, due to no contact information being gathered due to anonymity. However, summary of the results of this research can be supplied to you at no cost upon request.

VOLUNTARY CONSENT: I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Dr. David Carbonara, Faculty Advisor (412-396-4039) or Dr. Linda Goodfellow, Chair of the Duquesne University Institutional Review Board 412-396-6326).

I have read and understand the above consent form, I certify that I am 18 years old or older and, by clicking the Accept button to enter the survey, I indicate my willingness voluntarily to take part in this study.

ACCEPT   DECLINE

APPENDIX C:

PROFESSIONAL DEVELOPMENT DEFINED

PROFESSIONAL DEVELOPMENT— The term "professional development" means a comprehensive, sustained, and intensive approach to improving teachers' and principals' effectiveness in raising student achievement –

(A) Professional development fosters collective responsibility for improved student performance and must be comprised of professional learning that:

(1) is aligned with rigorous state student academic achievement standards as well as related local educational agency and school improvement goals;

(2) is conducted among educators at the school and facilitated by well-prepared school principals and/or school-based professional development coaches, mentors, master teachers, or other teacher leaders;

(3) primarily occurs several times per week among established teams of teachers, principals, and other instructional staff members where the teams of educators engage in a continuous cycle of improvement that —

(i) evaluates student, teacher, and school learning needs through a thorough review of data on teacher and student performance;

(ii) defines a clear set of educator learning goals based on the rigorous analysis of the data;

(iii) achieves the educator learning goals identified in subsection (A)(3)(ii) by implementing coherent, sustained, and evidenced-based learning strategies, such as lesson study and the development of formative

assessments, that improve instructional effectiveness and student

achievement;

(iv) provides job-embedded coaching or other forms of assistance to

support the transfer of new knowledge and skills to the classroom;

(v) regularly assesses the effectiveness of the professional development in

achieving identified learning goals, improving teaching, and assisting all

students in meeting challenging state academic achievement standards;

(vi) informs ongoing improvements in teaching and student learning; and

(vii) that may be supported by external assistance.

(B) The process outlined in (A) may be supported by activities such as courses,

workshops, institutes, networks, and conferences that:

(1) must address the learning goals and objectives established for professional

development by educators at the school level;

(2) advance the ongoing school-based professional development; and

(3) are provided by for-profit and nonprofit entities outside the school such as

universities, education service agencies, technical assistance providers, networks

of content-area specialists, and other education organizations and associations.

APPENDIX D:

DEMOGRAPHICS QUESTIONNAIRE

Q_1: Are you over the age of 18?
   Yes   No

Q_2: What is your gender?
    Male   Female

Q_3: Where do you live? (Dropdown)
    List of all US States & Outside U.S.

Q_4: What is your age range?
   A. Under 22
   B. 23-30
   C. 31-40
   D. 41-50
   E. 51-60
   F. 61+

Q_5: Do you work in the K-12 or higher education setting?
   K-12   Higher Education

Q_6: What is your primary educational role?
   A. Teacher/Instructor
   B. Principal
   C. Superintendent
   D. Curriculum Director
   E. Librarian/Media Specialist
   F. Technology Director
   G. Student
   H. Other

Q_7: How many years of experience do you have as an educator?
   A. 5 or less
   B. 6-10
   C. 11-15
   D. 16-20
   E. 21 or more

Q_8: I have been using Twitter for approximately _____ year(s).
    A. Less than 1
    B. 1-2
    C. 3-4
    D. 5+

Q_9: I spend an average of _____ hours per week on Twitter.
    A. Less than 2
    B. More than 2 but less than 5
    C. More than 5 but less than 10
    D. More than 10 but less than 20
    E. More than 20 hours

For Questions 10 & 11, at the time of this survey:

Q_{10}: How many people are you following on Twitter?

Q_{11}: How many followers do you have?

ORIGINAL USES AND GRATIFICATIONS QUESTIONNAIRE (UGEQ)

pneumonic	Construct and Measurement-items
	Construct 1: Cognitive Uses and Gratification Expectancy
KNMNTHG3	I use computers to help me to know many things
SEARCH2	I use the internet to search for new information
ANSQU4	I carry out internet searches to answer questions coming from class discussions
EXPLORE5	I use computers to explore topics of interest, beyond my normal school assignment
	Construct 2: Affective Uses and Gratification Expectancy
TALKCO33	I like to talk to others about computers
SHOWF23	I like showing my friends how to use technology in different ways
AESTH17	Computer-based courseware layout, animation and illustrations are good to look at
ENJOY9	I enjoy working with a computer
	Construct 3: Personal Integrative and Gratification Expectancy
INTERN20	Learning to use internet is easy for me
COMPES19	Using computers is easy for me
ANYWT21	Using the internet allows me to be virtually anywhere at any time
NAVG54	I can search and navigate through multimedia content on CDs and on the internet
	Construct 4: Social Integrative Uses and Gratification Expectancy
FEEDBK27	Using e-mail gives me the feedback I need from others
EMAILF31	I use e-mail to interact with my friends
LEARNC28	Using the internet prepares me to join the extended learning community in the world
COMMUN52	Using computers improves my ability to communicate with other people
PARASO25	Using computers keeps me from feeling lonely
	Construct 5: Entertainment Uses and Gratification Expectancy
MUSND39	I like the background music and sound effects on the CD-courseware, they make learning fun
COMPGM38	I like playing educational computer games
EDUWEB36	I find educational websites on the internet to be interesting
FUN40	It is fun to experiment with technology
	Construct 6: Perceived e-Learning Experience
OWNPAC51	Using computer allows me to learn at my own pace
CONTRO50	Using computers gives me control over what I want to learn and when I want to learn it
CRITIC47	When I discover a new thing on the internet, I think about it critically
DISCOV46	I discover things on the computer on my own
ACCESS41	I am able to access information that I need from computers

MODIFIED CONSTRUCTS AND MEASUREMENT-ITEMS FOR UGEQ

Construct 1: Cognitive (CUGE)
CUGE1.   I use Twitter to help me know many things
CUGE2.   I use Twitter to search for new information
CUGE3.   I carry out Twitter searches to answer questions
CUGE4.   I post questions to Twitter for answers
CUGE5.   I use Twitter to explore topics of interest, beyond my normal content area

Construct 2: Affective (AUGE)
AUGE1.   I like to talk to others about Twitter
AUGE2.   I like showing others how to use Twitter in different ways
AUGE3.   I enjoy working with Twitter

Construct 3: Personal Integrative (PUGE)
PUGE1.   Using Twitter is easy for me
PUGE2.   Using Twitter allows me to be virtually anywhere at any time
PUGE3.   I can search and navigate through Twitter content easily

Construct 4: Social Integrative (SUGE)
SUGE1.   Using Twitter gives me feedback I need from others
SUGE2.   I use Twitter to interact with other educators
SUGE3.   Using Twitter prepares me to join the extended learning community in the world
SUGE4.   Using Twitter improves my ability to communicate with other people
SUGE5.   Using Twitter keeps me from feeling lonely

Construct 5: Perceived e-Learning Experience (PLEUGE)
PLEUGE1.   Using Twitter allows me to learn at my own pace
PLEUGE2.   Using Twitter gives me control over what I want to learn and when I want to learn it
PLEUGE3.   When I discover new things on Twitter, I think about it critically
PLEUGE4.   I discover things on Twitter on my own
PLEUGE5.   I am able to access information that I need from Twitter

APPENDIX G:

UGEQ MEASUREMENT-ITEM DESIGN FOR RESEARCH QUESTIONS

Research Question #1: Are educators' cognitive uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

CUGE	PLEUGE
CUGE1. I use Twitter to help me know many things	*PLEUGE1.* Using Twitter allows me to learn at my own pace
CUGE2. I use Twitter to search for new information	*PLEUGE2.* Using Twitter gives me control over what I want to learn and when I want to learn it
CUGE3. I carry out Twitter searches to answer questions	*PLEUGE3.* When I discover new things on Twitter, I think about it critically
CUGE4. I post questions to Twitter for answers	*PLEUGE4.* I discover things on Twitter on my own
CUGE5. I use Twitter to explore topics of interest, beyond my normal content area	*PLEUGE5.* I am able to access information that I need from Twitter

Research Question #2: Are educators' affective uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

AUGE	PLEUGE
AUGE1. I like to talk to others about Twitter	*PLEUGE1.* Using Twitter allows me to learn at my own pace
AUGE2. I like showing others how to use Twitter in different ways	*PLEUGE2.* Using Twitter gives me control over what I want to learn and when I want to learn it
AUGE3. I enjoy working with Twitter	*PLEUGE3.* When I discover new things on Twitter, I think about it critically
	PLEUGE4. I discover things on Twitter on my own
	PLEUGE5. I am able to access information that I need from Twitter

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Research Question #3: Are educators' personal integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

PUGE	PLEUGE
PUGE1. Using Twitter is easy for me	*PLEUGE1*. Using Twitter allows me to learn at my own pace
PUGE2. Using Twitter allows me to be virtually anywhere at any time	*PLEUGE2*. Using Twitter gives me control over what I want to learn and when I want to learn it
PUGE3. I can search and navigate through Twitter content easily	*PLEUGE3*. When I discover new things on Twitter, I think about it critically
	PLEUGE4. I discover things on Twitter on my own
	PLEUGE5. I am able to access information that I need from Twitter

Research Question #4: Are educators' social integrative uses and gratification expectancy of Twitter for professional development positively related to their perceived e-learning experience?

SUGE	PLEUGE
SUGE1. Using Twitter gives me feedback I need from others	*PLEUGE1*. Using Twitter allows me to learn at my own pace
SUGE2. I use Twitter to interact with other educators	*PLEUGE2*. Using Twitter gives me control over what I want to learn and when I want to learn it
SUGE3. Using Twitter prepares me to join the extended learning community in the world	*PLEUGE3*. When I discover new things on Twitter, I think about it critically
SUGE4. Using Twitter improves my ability to communicate with other people	*PLEUGE4*. I discover things on Twitter on my own
SUGE5. Using Twitter keeps me from feeling lonely	*PLEUGE5*. I am able to access information that I need from Twitter

APPENDIX H:

UGEQ TWEETS TO #EDTECHCHAT

Doug Strahler @profstrahler · Jun 19
Using #edtech or #edtechchat for PD? Looking for people to complete my survey as part of my doctoral research-Thanks! bit.ly/UGEQPD

Doug Strahler @profstrahler · Jun 21
Are you using Twitter for #edtech PD? Please help me with my research by taking my survey bit.ly/UGEQPD #edtechchat

★ 1

Doug Strahler @profstrahler · Jun 23
Would love more input from #edtechchat on Twitter for #edtech PD for my research (survey approx 10 min) - thanks! bit.ly/UGEQPD

↻ 1 ★ 1

Doug Strahler @profstrahler · Jun 24
Educators' Perceptions of Twitter for #EdTech PD survey bit.ly/UGEQPD #edtechchat

↻ 1

Doug Strahler @profstrahler · Jun 30
Using Twitter for #edtech PD? I'm still looking for survey respondents to help w my dissertation-thanks! bit.ly/UGEQPD #edtechchat

↻ 1 ★ 1

Doug Strahler @profstrahler · Jun 23

Why do you use Twitter for #edtech PD? Help me with my dissertation by completing my survey! Thanks! bit.ly/UGEQPD #edtechchat

↻ 11 ★ 1

APPENDIX I:

SPSS OUTPUT

Correlations

		pleuge	cuge	auge	puge	suge
Pearson Correlation	pleuge	1.000	.806	.562	.622	.577
	cuge	.806	1.000	.571	.637	.579
	auge	.562	.571	1.000	.581	.702
	puge	.622	.637	.581	1.000	.549
	suge	.577	.579	.702	.549	1.000
Sig. (1-tailed)	pleuge	.	.000	.000	.000	.000
	cuge	.000	.	.000	.000	.000
	auge	.000	.000	.	.000	.000
	puge	.000	.000	.000	.	.000
	suge	.000	.000	.000	.000	.
N	pleuge	39	39	39	39	39
	cuge	39	39	39	39	39
	auge	39	39	39	39	39
	puge	39	39	39	39	39
	suge	39	39	39	39	39

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.650	.641	2.27839	.650	68.754	1	37	.000

a. Predictors: (Constant), cuge

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	356.905	1	356.905	68.754	.000[b]
	Residual	192.069	37	5.191		
	Total	548.974	38			

a. Dependent Variable: pleuge

b. Predictors: (Constant), cuge

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Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	6.707	1.804		3.717	.001					
	cuge	.722	.087	.806	8.292	.000	.806	.806	.806	1.000	1.000

a. Dependent Variable: pleuge

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	cuge
1	1	1.979	1.000	.01	.01
	2	.021	9.789	.99	.99

a. Dependent Variable: pleuge

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	auge	.151[b]	1.284	.207	.209	.674	1.484	.674
	puge	.183[b]	1.472	.150	.238	.595	1.681	.595
	suge	.165[b]	1.405	.169	.228	.665	1.504	.665

a. Dependent Variable: pleuge

b. Predictors in the Model: (Constant), cuge