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Developing personal learning networks through social media as an effective learning strategy across generational demographics

John A. Engelhart

University of Northern Iowa

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Abstract

The changing world of technology and the increasing use of social media for learning are present among a multitude of identified generations. Adult learning and the approach to which learning is facilitated has changed greatly in recent years due to emerging technologies. This literature review presents evidence of each generation's learning style. The integration of social media into learning environments supports Personal Learning Networks for any age demographic. This review of literature is based on published literature including peer-reviewed scholarly journals, books, and reputable websites. The reviewer found social media is not used equally among generational demographics. Social media's impact to each generation depends on the relevance it has to each generation. It was found that further research is needed in regard to social media and Personal Learning Networks for each generation.

DEVELOPING PERSONAL LEARNING NETWORKS THROUGH

SOCIAL MEDIA AS AN EFFECTIVE LEARNING STRATEGY

ACROSS GENERATIONAL DEMOGRAPHICS

A Graduate Review

Submitted to the

Division of Instructional Technology

Department of Curriculum and Instruction

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Of the Requirements for the Degree

Master of Arts

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by

John A. Engelhart

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Leigh E. Zeitz

_____
6/3/10
Date Approved

Graduate Faculty Reader

Joe Marchesani

_____
6/4/10
Date Approved

Graduate Faculty Reader

Jill Uhlenberg

_____
6.4-10
Date Approved

Head, Department of Curriculum and Instruction

ABSTRACT

The changing world of technology and the increasing use of social media for learning are present among a multitude of identified generations. Adult learning and the approach to which learning is facilitated has changed greatly in recent years due to emerging technologies. This literature review presents evidence of each generation's learning style. The integration of social media into learning environments supports Personal Learning Networks for any age demographic. This review of literature is based on published literature including peer-reviewed scholarly journals, books, and reputable websites. The reviewer found social media is not used equally among generational demographics. Social media's impact to each generation depends on the relevance it has to each generation. It was found that further research is needed in regard to social media and Personal Learning Networks for each generation.

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INTRODUCTION

Generationally diverse workplaces create a challenge for instructional designers when developing training to meet the needs of the class learning curve. Today's training classroom is comprised of four generations. Never before has the world seen four generations of adults raising families, working, and attending school together.

Research shows that we are approaching a time when education may not be benefiting the learner in life, school, or industry as it had previously (Draves & Coates, 2004). Coates (2006) states the classroom learner of today is still expected to function in learning settings designed to educate them to work in a world which no longer exists. Students live in the 21st century and are learning in the 19th century. Individuals are not going to school now only to be socialized to work in a factory setting. Our society is vastly changing due to technology, availability of resources, access to wealth, and changes in national and global communities (Coates, 2006).

Adler (1982) states education which takes place beyond the traditional high school is called higher learning. "Rather it should be referred to as further learning, for there is still more education to be had and to be done, beyond the higher learning" (p. 69). Almost thirty years later this is still true today. Digenti (1999) stated, because technology changes so frequently, the learner now has access to increased amounts of information. The learner no longer has the mental bandwidth necessary to store all of this information. Personal Learning Networks (PLN) enable a learner to access and contribute to the knowledge shared on a specific topic. Digenti states, "The PLN consists of relationships between individuals where the goal is enhancement of mutual learning. The currency of

the PLN is learning in the form of feedback, insights, documentation, new contacts, or new business opportunities" (p. 53).

Atwell (2007) says, "Personal Learning Networks provide learners with their own spaces under their own control to develop and share their ideas" (p. 7). Personal Learning Networks, sometimes referred to as personal learning environments, provide a more holistic learning environment than traditional classroom learning. Personal Learning Networks weave together sources and content in an electronic state (Atwell, 2007). Atwell (2007) also states, "Personal Learning Networks are not an application but rather a new approach to the use of new technologies for learning" (p. 7).

Personal Learning Networks foster an in depth learning experience for an individual. Learning at one's own pace is more impactful than routinized learning. This review of literature will focus on Personal Learning Networks developed through social media as an effective learning strategy across all generational demographics.

The author will answer the following questions based upon literature reviewed:

1) How are the current working generations defined?

2) How do adults learn?

3) What is a Personal Learning Network?

4) How do the generations use social media for learning in Personal Learning Networks?

METHODOLOGY

There is a wealth of information for this review since it is a current topic of interest in the career field for human resources, corporate training, and instructional design professionals. The University of Northern Iowa Rod Library, Des Moines Public Library, and the author's personal library were used to select resources. EBSCO, ERIC, UNISTAR, and online searches using Google Scholar were also used. The libraries were used for their large collections. The Internet was used as a source because of its limitless networking of resources. Sources used from the Internet were written by professionals in their fields and published on reliable sites, in refereed publications, or on professional organizational sites.

Descriptive search terms including adult learning styles, learning styles, Personal Learning Networks, generations, generations in the workplace, generational differences, generational learning styles, corporate training, technology in the classroom, emerging technologies, social media, social networking, androgogy, and pedagogy were used to retrieve research from library and online databases. Instructors at the University of Northern Iowa and professionals currently working in the corporate training field were also consulted.

The relevance and credibility of all the sources were considered in this literature review. The author evaluated the resources with the following criteria: (a) how current is the source? (b) does the source align with the author's research questions? and (c) what are the credentials of the source's author? The majority of cited references were within the last six years. A few researchers were included from previous decades to establish foundational concepts that continue to this day.

ANALYSIS AND DISCUSSION

The present workforce is quite diverse generationally. Experts note that this is the first time in history when four generations of adults are working, raising families, and furthering their education. Coats states that "the day of the multi-age classroom is here, and the issue of how to manage diverse generations in the workplace is upon us" (Coates, 2007, p. 1). There is value in knowing the characteristics between generations; it explains the differences which drive unspoken assumptions and attitudes (Filipczak, Raines & Zemke, 2000).

Generations

Generations exist in segments of roughly twenty years. It is said that these generations were founded and formed by defining events. They all have experienced, as a group, specific events which set the groundwork and trends which shaped their behavior and perceptions of the world. Research has found that, although there is the delineation between generations, there tends to be overlap. Generations merge with one another where the youngest Baby Boomers (b. 1940-1960) may have more in common with Generation X (b. 1960-1980) than with the leading-edge Boomers (Coates, 2007). It is said that people resemble their times more than they resemble their parents. Because of this, generations are said to cut across racial, ethnic, and economic differences (Filipczak et al., 2000).

The generational learning cohorts are also shaped by a significant event in an era. Coates writes, "for all of their differences, there is one thing these groups have in common; they all experienced, as a group, specific events and societal trends which have shaped their behavior" (2007, p. 61). At the printing of Filipczak et al.'s book in 2000,

the millennial (b. 1980-2000) cohort had not yet experienced the binding events of

September 11th 2001 which would result in the defining moment of their generation.

Raines (2003) has written that because of such large numbers of the population in

each generational demographic, it is difficult not to make generalizations about each

generation. Although there will be generalizations when talking about generations, it is

imperative to refrain from stereotyping or typecasting. Generalizations are helpful, as

generalizations are a way to begin understanding things in life, but stereotyping can lead

to a narrow viewpoint and does not lend itself to further understanding and effective

communication between the generations. "If we can reflect on our own behaviors and

examine the way we communicate, we'll find that generational generalizations can be

eminently valuable" (2003, p.11).

To understand the application of a Personal Learning Network (PLN) for the four

current generations in the workforce, an individual must first understand the generations.

The following section will define each generation. Much has been written on the topic of

generations. For the purpose of this review of literature, this section will introduce each

generation by observing birth years, defining world events, cohort experience, learning

preference, service preference, and societal impact.

Veterans

The Veteran generation has created the United States as we view it today. It is a

generation based on the importance of science. They built the space program which

landed a man on the moon, and created miracle drugs which wiped out childhood

diseases such as polio, tetanus, tuberculosis, and whooping cough. This cohort, born

between 1920 through 1940, grew up in a difficult and tumultuous time. As children they

saw the stock market crash and the bottom fall out of the American economy. It was a *do-without* era which was part of the contributing factors to generation characteristics which they portray (Filipczak et al., 2000).

As defined by experts in the field, generations focus around a major event which all members can say, until the day of their death, where they were when the event took place or what they were doing when they heard the news. The Veterans' defining moment came on the morning of December 7, 1941, when the Pearl Harbor Naval Base was bombed in Hawaii. This resulted in the catch phrase: *A day which will live in infamy* (Filipczak et al., 2000).

This conformist generation learned at an early age to follow and obey those who led before them. This generation found themselves following the drill sergeant approach to life where you learned your place and you "do the right thing" (Filipczak et al., 2000, p. 38). Veterans like everything to be consistent and uniform. Life is a set way and breaking the mold is not tolerated (Filipczak et al., 2000).

The Veterans may have begun their learning in a one-room school house depending on their geographic location. They strongly value education as families struggled to be able to get their children the education they deserved through the Great Depression. The Veteran generation learns best when they know what to expect as well as what is expected. Although this group was born and raised during a time of technological advancement, they may have some resistance to learning new technologies (Filipczack et al., 2000).

Each generation also has its own preferences. Veterans do not wish to be rushed and seek a relaxed pace. The Veterans also wish to be treated a bit more formally by

using *please, thank you,* and their name prefixes (Hunt & Raines, 2000). This generational trait stems from what the Veteran cohort has experienced. Filipczak, Raines and Zemke (2000) write, "the future is created by history" (p. 39) and with this historical way of recognition for a person, they seek formality when dealing with public situations (Filipczak et al., 2000).

The bottom line when describing the Veteran generation is that they "could best be described by one single word: loyal" (Lancaster & Stillman, 2002, p. 19).

Baby Boomers

The Baby Boomers are considered the generation that was born from 1940 through 1960. The Baby Boomers grew up during the time of economic growth. The United States had witnessed economic expansion which had never before been seen. This was the first time families were made simply for propagation and not out of necessity to work on the family farm (Filipczak et al., 2000).

Boomers are said to be work-a-holics, where everyone is expected to work. This generation was raised with a large focus on the importance of an education. Their early reading also focused on the importance of work. Boomers were the first generation to learn to read with *Dick, Jane,* and *Spot.* This series of books demonstrated for children that everyone works (Coates, 2007).

Boomers grew up in an era where medicine was more effective and nutrition contributed to healthy growth and longevity. This focus on wellness gives the Boomers the mindset that they do not age quickly and they have also witnessed a life expectancy rise. They are oftentimes optimistic. Boomers also desire to be seen as unique and to stand out from the rest with a sense of individuality (Coates, 2007).

The pivotal moment for this generation was Vietnam. This was a complex time. For the first time, mainstream media reported what the world was experiencing: large numbers of death, riots, and opposition. The United States was entering a time where the counterculture was an influence. Upon arriving home from the war, soldiers were not embraced warmly nor given the hero's welcome as their fathers had received before them (Filipczak et al., 2000).

According to Zemke, Boomers learn for learning's sake. They want information in an easy-to-access format and desire interactivity. They want a chance for their voice to be heard and want to feel as though they are truly important (Zemke, 2001).

Baby Boomers are digital immigrants. Through research, Lehtinen and his coauthors foresee this generation having a growing population online. However, they also found Baby Boomers have a small representation as social media users. Lehtnin (2009) reports, "findings suggest that older adults perceive the Internet generally as an unwelcoming place for sociality, and social networks as places for people who seek publicity and superficial relationships – qualities we found inconsistent with values expressed in older adult life" (Lehtinen, Nasanen, & Sarvas, 2009, p.45).

Similar to the Veterans, Baby Boomers also have a specific style which they seek. The Boomer seeks a personal touch. They want to be asked how they are doing and be recognized by their name in greetings. Although Boomers do not seek for someone to strike up a conversation, they do like warmth in greetings (Hunt & Raines, 2000).

The bottom line, when describing the Baby Boomer generation, is that they "could best be described by one single word: optimistic" (Lancaster & Stillman, 2002, p. 21).

Generation X

Generation X grew up in the shadow of the largest wave of a population, the Baby Boomers. Generation X birth years range from 1960 through 1980. This generation was the first to be referred to as the *latchkey* generation. Children were born into families where parents were not around when they would return from school. Many began working in their teens and early twenties (Raines, 1997).

Generation X has been viewed as slackers, who don't have to work, and have had everything handed to them on a silver platter. This could be the furthest from the truth as Raines (1997) reports, "47% earn minimum wage and struggle to survive; many took on adult responsibilities as children and grew up in a single-parent home" (p. 50).

Raines found that Generation X wants a workplace that is casual, friendly, neat, clean, orderly, technologically up-to-date, a place to learn, has a high level of freedom, and is functional and efficient. She also found the same employees leave career positions because of "limited career growth, lack of promotion, lack of regular feedback, low pay, poor treatment from managers, lack of recognition, and stress due to understaffing" (Raines, 1997, p. 9). Ultimately what they are looking for is praise for work accomplished and an opportunity for development. Sylwester found that Gen Xers are eager to bury themselves in an office cubicle and take orders from others in the workforce. They also want small goals with tight deadlines where they can take ownership of the project and create their own fate. Financially, this generation views money as important; however, the work-life balance takes precedence over money (Sylwester, 1995).

This generation was the first where both parents had to work and single parent families were becoming more common. The cohort experiences for this generation included the rise of the AIDS crisis and the economic downfall of the 1980s (Coates, 2007). "Generation X watched as America seemed to fail militarily, politically, diplomatically, and economically" (Filipczak et al., 2000, p. 96).

Generation Xers learn rather quickly and on their own, or with little guidance. This generation is seen as self-developing. Xers tend to read less and seek concise information while learning. This group tends to learn in a non-linear pattern (Filipczak et al., 2000).

When it comes to interactions, Generation Xers view competence as more important than self-promotion. Generation Xers are independent and want to make the decisions on their own; however, they do want and tend to ask many questions for clarification. They find that anonymity triggers more honest responses (Hunt & Raines, 2000). The bottom line when describing the Gen Xer's: "Gen Xer's have been marked by skepticism" (Lancaster & Stillman, 2002, p. 25).

Millennials

The Millennials, also known as the Net Generation and Nexters, were born from 1980 through 2000. The population size of this generation surpasses that of the Baby Boomers. The Millennials currently have a population at eighty million. The youngest are just entering elementary school and the eldest are entering the career world. A majority of this generation does not remember their home without a computer or other forms of digital media (Tapscott, 1998). This generation is the offspring of the most diverse group of parents the world has seen. Filipczak (2000) writes that they are "the coddled and

confident offspring of the most age-diverse group of parents ever – ranging from adolescents to midlifers, Xers to Boomers" (p. 128).

Identifying the values of this generation is not a simple task. A large portion of this generation has not yet grown into adulthood (Cole, 2002). What has been observed, however, is Millennials share many value traits with the Veterans. "Millennials are made up of confident, optimistic, young people who feel valued and wanted" (Coates, 2007, p. 113).

The Millennials have had multiple cohort experiences. The earliest of the generation witnessed the Oklahoma City bombings and the Clinton impeachment. Following these events have been multiple school shootings with the worst high school massacre at Columbine (Filipczak et al., 2000). Another cohort experience which many have written about for the Millennials is September 11, 2001, the day planes were highjacked and flown into the World Trade Center and the Pentagon (Coates, 2007).

This is the first generation where individuals have been on teams since they were born. Through extracurricular activities and academics, this group has been placed into collaborative teams for their entire personal as well as learning lives. They are also used to being judged and critiqued for their overall team result. They are engrained to think and act in an inclusive manner (Zemke, 2001).

Millennials want to take ownership and control of their own fate. They seek the development of new skills and embrace the challenge to master a skill. It is said that this is the generation which will have the most advanced degrees as they have such a high regard for education and learning (Spiro, 2006).

In regard to career development and learning, Millennials expect extensive training programs to begin a new position as well as continued training to develop work skills. Millennials seek and accept guidance from mentors as they realize there are many things they do not know, and recognize the information gap arising as Baby Boomers begin to leave the workplace (Flipczak et al., 2000).

It is thought that eventually this generation will have to level off on their learning and begin applying what they have learned- in a sense bringing formal learning to an end. Lancaster (2002) states, "To assume the Millennials will ever be finished with training is a huge mistake" (p. 281). The ever changing world and the technological access available for learning will continue to help this generation succeed and continue their path of lifelong learning (Lancaster, 2002). "This is a generation which places high value on making money- more than any previous generation – and they see education as a means to this goal" (Coates, 2000, p. 124).

Lastly, when interacting with Millennials, do not to talk down to this group as they dislike to be spoken to condescendingly. Millennials want a quick pace in learning as this generation is used to being entertained and find methodical tactics boring. Millennials have had their lives planned around very dense schedules. The largest disconnect between any generation is that between Millennials and Gen X. The clash between the Millennials and the Generation Xers can sometimes be worse than the clash between the Xers and the Boomers (Hunt & Raines, 2000). Filipczak et al. writes Xers may say "Here we go again…another self-absorbed generation of spoiled brats" (137). The disconnect, as viewed from the Xers, revolves around money and support systems. Generation X believes, if the economy fails, then Millennials will be bailed out by their

parents and family. Xers view this as a sense of entitlement by the Millennials (Filipczak, 2000).

The bottom line when describing the Millennials: "If you want to remember just one key word to describe Millennials, it's realistic" (Lancaster & Stillman, 2002, p. 30).

Adult Learning

Although all generations have different forces which drive the way they learn, all adults do learn. Similar to children, adults also have different learning styles and needs which must be met in order to continue their learning process. Trainers play an integral role in facilitating adult learning. For this section of the review of literature the author will look at adult learning in the classroom setting.

At the beginning of the twentieth century John Dewey wrote about education and the learning process. He began his book, *Democracy and Education,* with the context of the environment. "The environment consists of those conditions that promote, hinder, stimulate or inhibit the characteristics of a living being" (p. 13). Dewey then describes the social environment of learning. He writes, "Making an individual a sharer or partner in the associated activity so that he feels its success as his success and its failure as his failure" (Dewey, 1916 p. 17).

Research has found that self-directed learning and learning at one's own pace are how adults like to learn. Adults learning through the Internet choose to learn at times which are convenient for them. Instructors can monitor the mastery of skills through online assessments. Adult learners can connect and learn from teachers from around the world as the Internet breaks down the traditional classroom borders (Coates & Draves, 2004). Online learning can impact a large number of learners. Coates (2004) stated,

"Every learning situation will be altered [through online learning], including training for business and industry, customer education, association conferences and meetings, continuing education, Sunday school class, leisure learning, college degree, even elementary and secondary education" (p. 229).

The approach which learners take today to access information is non-traditional. Employees from any generation who are entering industry are hands-on learners forced to multitask. As Beard, Schweiger, and Surendran state, "Increased integration of technology into the classroom is essential, this integration can include podcast mini-lectures, computer-based tutorials, online materials, instant messaging, as well as web-enhanced courses" (2009, p. 6). The separation between learning and other activities is becoming less distinct. "As the lines between learning, work, and play quickly are less defined, we are faced with the reality that computing devices are omnipresent and an 'always on' culture has been facilitated by broadband Internet capacity" (McLaughlin & Lee, 2008, p. 10).

When trainers or facilitators are involved in the learning process, their role is to model the values, philosophy, knowledge, and skills which guide success. In order to do this, they must have a keen awareness of the generations which are accounted for in their audience. Knowledge of how members from each generation prefer their information organized, which activities they respond best to, and learning formats which they gravitate toward increase the effectiveness of a cross-generational trainer (Raines, 2003).

Everyone, when learning, has a natural curiosity about one another. Adult learners want to have a connection with other learners. "When we're curious it is almost

impossible to be depressed afraid, angry judgmental, or intolerant because our attention is directed outward" (Ewing & Raines, 2006, p. 52).

<p align="center">Social Media</p>

As the times change, so does the way in which people find communities where they will thrive, be it personal, or professional. Putnam (2000) writes the following:

> For the first two-thirds of the twentieth century a powerful tide bore Americans into ever deeper engagement in the life of their communities, but a few decades ago – silently, without warning, the tide reversed and we were overtaken by a treacherous rip current. Without at first noticing, we have been pulled apart from one another and from our communities over the last third of the century. (p. 27)

This downfall of our communities is due to numerous conditions such as mobility, urban sprawl, mass media, and technology. Putnam (2000) says, "At the beginning of the twentieth century the communication and entertainment industries hardly existed outside small publishing houses and music halls" (p. 216). When authors of the future write the history of the era which precedes us, technology will undoubtedly be a major contribution to communication between communities.

Many professionals search for a way to create their own way of learning to advance themselves in the workplace. Kaplan writes of an important finding. When it comes to a changing workforce, she says, "Employees who do want to advance don't necessarily want to do it with their organizations" (Kaplan-Leiserson, 2005, p. 10). While many companies say they will allocate a certain amount of time each year for professional development, many find there are limited funds available. Experts believe that learning should not be done only during a set time; rather learning should take place

every day on the job. This type of daily learning can be done through the establishment of PLNs (Tobin, 2009).

People bring with them diverse and expansive life experiences which influence behavior, work, and learning in the corporate training room. Lancaster (2003) writes, "If you look out onto the training horizon you will uncover a classroom more like a corporate Montessori, with four generations of students coming together to learn" (p. 276).

Personal Learning Networks are not something that have recently been created. As people grow and mature, they learn from others including, but not limited to, family, friends, colleagues, church groups, and professional organizations. Personal Learning Networks also stem from authors read, musicians listened to, radio personalities, and magazines subscribed to (Warlick, 2009). Warlick goes on to state, "PLNs open doors to sources of information that were not even available a few years ago, and continually evolving technologies are making it easier to capture and tame the resulting information overload" (Warlick, 2009, p. 13).

When developing a professional or personal PLN, it is not necessary for the participants to be coworkers. The advantage of a PLN is there is no need for the individuals to know each other personally. Tobin writes, "Members of your network should be people, both inside and outside of your work group and your company, who have the knowledge that you are trying to master and who are willing to share their knowledge and experience with you" (Tobin, 2009, p. 1).

As research has indicated, each generation has ways in which they communicate. In a face-to-face environment there may be some miscommunications and

misunderstandings (Hammill, 2009). Brake and Safko (2009) define social media as the following:

Social media refers to activities, practices, and behaviors among communities of people who gather online to share information, knowledge, and opinions using conversational media. Conversational media are web-based applications that make it possible to create and easily transmit content in the form of words, pictures, videos, and audios. (p. 6)

Social media is not new. Social networking is an activity which predates any and all forms of digital technology. Conversation is bound to take place when people gather; and when social media is added into the mix, the conversation can be borderless (Brake & Safko, 2009). Dede reports one third of U.S. households now have broadband access to the Internet. When looking at education and personal learning through social media, Dede describes it as: "the ability to access information resources and psychosocial community distributed across distance and time, broadening and deepening experiences" (Dede, 2009 p. 1).

Licklider (1968) wrote, "In a few years, men will be able to communicate more effectively through a machine than face-to-face" (p. 21). The main concern Licklider had was how much expense it would cost to have these "one-line-communities" (p. 35). He goes on to write the following:

Let us be optimistic. What will online interactive communities look like? In most fields they will consist of geographically separated members, sometimes in small clusters and sometimes working individually. They will be communities of not location, but of common interest. (p. 37)

His vision, during the late 1960s, included the decline of business trips which were seen as a necessity. His vision was to link consoles and share documents through that channel. He also envisioned that during necessary business trips, which would still be taken, a portion of time would still be devoted to the use of the linked consoles (Licklider, 1968).

There exist many writings from professionals in the field that precede current day technology and personal computing capabilities. Over half a century ago, Bush (1945) stated the following:

> Consider a future device for individual use, which is a sort of mechanized private file and library. It needs a name and to coin one at random, "memex" will do. A memex is a device which an individual stores all his books, records, and communications, and by which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged supplement to his memory. (p. 107)

Learners, utilizing social media to build their PLN, use hyperlinks to navigate through the Internet. Vannevar Bush described the concept of hyperlinking prior to the creation of technology available for such a feat. Bush (1945) wrote:

> Any given book of his library can thus be called up and consulted with far greater facility than if it were taken from a shelf. As he has several projection positions, he can leave one item in position while he calls up another. He can add marginal notes and comments, taking advantage of one possible type of dry photography, and it could even be arranged so that he can do this by a stylus, such as is now employed in the telautograph seen in railroad waiting rooms, just as though he had the physical page before him. (p. 107)

Approximately two decades after the publication of Bush, Marshal McLuhan and Quentin Fiore wrote the book, *The Medium is the Message*. This publication had readers questioning how technology was impacting their everyday lives. Some saw his writing as controversial or unintelligible. McLuhan said, "Societies have always been shaped more by the nature of the media by which men communicate than by the content of the communication" (Fiore & McLuhan, 1967, p. 5). In the publication of the reverse title, *The Message is the Medium*, Koch (1996) states that "the medium merely carries the data we all require" (p. 1).

McLuhan's writing also questions authorship. No longer were people living in a world of information being passed solely by listening to people speaking. The extension of the voice to the written word created a way for authors to now own what had been written. "The invention of printing did away with anonymity, fostering ideas of literary fame and the habit of considering intellectual effort as private property" (McLuhan & Fiore, 1967, p. 122). Bush (1945) agreed that "Science has enabled man to make extracts from records so that knowledge evolves and endures throughout the life of a race rather than that of an individual" (p.102).

Learning over the Internet is about composing, publishing, and sharing information with one another. This information-sharing is present with open source software where everyone can participate in the creation and dissemination of information. This provides the ability to move information easily to the Internet from the printed page (Warlick, 2009). The Millennials are beginning an information creation counterculture over the Internet. They do not value authorship the same as the generations which precede them (Johnson, 2005).

Research shows knowledge-building in online communities can be desirable in fostering the democratic learning process. Li writes, "Because students can build such strong relationships, they are more willing to share tentative ideas or prickly issues" (Li, 2009, p. 214).

A majority of learning will be done online as we move into the 21st century. The Internet is breaking down borders worldwide to facilitate learning for all ages. As a forecast to the twenty first century, researchers believe "online learning will constitute 50% of all learning and education" (Coates & Draves, 2004, p. 229). Through the remaining sections of this review of literature, multiple examples of social media, which can be used for PLNs, are described.

Blogs, Microblogs, and Wikis

There is a general concern that when anyone can add information to the web and have no filter, the posted information must be biased, incorrect, or both. Tenopir (2007) writes, "when anyone can add unfiltered, unvetted, and unattributed information to a growing array of social networking sites we have a dangerous dumbing down of culture and a world where truth is hard to differentiate from falsehood" (p. 1).

As we move further into the twenty-first century, the number of professional reporters is diminishing- due in part to everyone being a reporter. The public now has determined how they want to view and interpret the news and are ensuring social media acceptance. Blogs are a convenient medium for novice writers to compose their thoughts and publish them for others to read (Brake & Safko, 2009). Writings fuel conversation and encourage others' participation and response to their post which adds depth to the learning environment (Rollett, Lux, Strohmaier, Dosinger, & Tochterman, 2007).

Twitter

Twitter is a micro blogging utility, which is free to register and use online. Micro blogging enables individuals to update their Personal Learning Networks on what they are doing, reading, watching, or thinking in 140 characters. Brake and Safko (2009) write, "Micro blogging lets those who participate create small, intimate communities that are centered on topics such as politics, technology, or medical issues" (p. 263). Using Twitter helps build a PLN because it supports collaboration and understanding (Galagan, 2009).

Wiki

Social media thrives because users can add content. A wiki is a tool for individuals to have joint editing capabilities. "Wikipedia users create and evaluate content for other users" (Rollett et al., 2007, p. 90).

Wikis also, as Kester, Koper, Rosmalen, Sloep, Brouns and Kone (2007) phrased it, "allow one to follow the document history because they record the edits, including their time and author" (p. 123).

The advantage for learners using blogs, microblogs, podcasts, and wikis is that they are simple to navigate and relatively cheap if not free to use. The disadvantage is some people may sabotage what has been written. To curtail this problem many open source software packages, which are used in wikis, have a history function which restores material to a given date (Boulos, Maramba, & Wheeler, 2006).

Virtual Communication

As introduced at the beginning of this paper, learning communities were previously defined by the space where they were located and the participants which were

present. To function in this community, it was necessary not to break any of the social guidelines, and users were not free to express their own uniqueness (Palloff & Pratt, 1999). Virtual communities encompass all forms of social media and learning styles. They create a platform where generations can grow their PLN, free of a societal community's previous expectations.

In the following section the reviewer will present three forms of virtual communities: (a) Moodle, an extension to a traditional classroom; (b) Skype, a Voice over Internet Protocol (VOIP); and (c) Second Life, "the most popular virtual world platform in use today" (Brake & Safko, 2009, p. 317). These three forms of virtual communities are examples of a larger, more comprehensive PLN.

Moodle

When sharing knowledge through Personal Learning Networks, a Modular Object-Oriented Dynamic Learning Environment (MOODLE) can be used to facilitate this network. As earlier stated, learners face-to-face, virtual, or blended are diverse. MOODLE is a virtual learning environment where all generational learners can have a non-biased presence and learn from one another through shared knowledge (Kester, Van Rosmalen, Sloep, Brouns, Kone, & Koper, 2007).

MOODLE is beginning to have a presence beyond collegiate level courses. Cole (2007) states, "MOODLE is an open source course management system used by universities, community colleges, K-12 schools, businesses, and even individual instructors to add web technology to their courses" (p. 1).

The power of this type of PLN is the use of asynchronous communication through threaded discussions. The threaded discussion, like the wiki, has a history of the entire

discussion where learners can view how the conversation flowed (Kester et al., 2007). Cole and Foster define the threaded discussion as a forum. Cole and Foster (2007) say, "Forums are one of the keys to a successful discussion course, forums allow students to compose their thoughts and focus on the content of their responses" (p. 218). Wikis have multiple uses in PLNs. A class wiki can be established as a collaborative notebook. As learning takes place, the members can place their notes on the wiki. This culminates in a "synopsis of the entire class to take with them" (p. 219).

MOODLE offers synchronous discussion through instant messaging as well. Cole (2007) says learners, "Use messaging as a private feedback channel so students can discuss their work" (p. 219). Records of each discussion are archived for learners to consult back to at a later date (Cole & Foster, 2007).

Skype

Skype is an Internet program which transforms telephone calls as we know them. Skype users can call other Skype users for little or no cost. Through the use of voice over Internet protocol (VOIP), telephone calls are turned from an analog signal to a digital signal. When each party has downloaded Skype onto their computers they can begin making high quality online phone calls. Skype also offers a low cost to use their program to make local, national, and international calls. A Skype user can take it to the next level and incorporate a video component to the call. When both parties on the call have a web camera, the people on the call can video conference (Brake & Safko, 2009).

Skype has a growing base of users. Brake and Safko report that at the end of the first quarter in 2008 there were 309.3 million user accounts. These users are people who want to stay in contact with friends and families. Users are also businesses that want to

communicate globally. Similar to MOODLE, Skype offers users the synchronous chat capability (Brake & Safko, 2009).

As communication and technology change and adapt to the current times, there comes a sense of unease. The Veteran generation views the Internet "as an unwelcoming place for sociality" (Lehtinen, Nasanen & Sarvas, 2009). Skype is a technology which demonstrates the idea concluded by Lehtinen Nasanen, and Sarvas, "technology could be designed to be used in a more welcoming environment, namely, a physical real-life context familiar to the age group under discussion" (p. 52). The use of VOIP programs such as SKYPE lends itself to building community through conversation. Greenblatt (2005) wrote, "we need to introduce the idea of talking in a community structure in a more free-form, open way than the one-to-one interaction that takes place over the telephone" (p. 12).

Second Life

Second Life is a virtual world where "in addition to being a fun, entertaining way to pass the time, it gives you an opportunity to browse new and unexplored domains" (Brake & Safko, 2009, p. 305). The users, avatars, can visit endless destinations with the simple click of a mouse- from deserts to beaches from the moon to the depths of the ocean. Second Life is currently being used by not only gamers but educational institutions, professional organizations, and corporations (Pence, 2007).

Second Life has a growing professional acceptance even though some may view it merely as a game. Second life is not a game as there are no set goals for winning. Rather, Second Life is driven by the personal goals behind the avatar, which is present in the virtual community. This goal orientation is an advantage for learners searching to

enhance their PLN. The realism of Second Life is beneficial to the learner because the risk involved is variable. Pence (2007) writes, "It is just as easy to practice sky diving as it is to create a business, and the level of risk can be adjusted to make either option a valuable learning experience" (Pence, 2007, p. 174).

Educational institutions and the corporate sector are creating awareness of learning through virtual communities such as Second Life. Linden Lab (2009) reported that "Open University (OU) is the largest university in the United Kingdom and the only one dedicated to providing quality university education to the public through visionary distance learning" (p. 1). OU created its island in Second Life to feature life-like landscapes and provide the learner a sense of a collegiate community. OU has a student welcome center, classrooms, and student housing. "Of course, education is not about just classrooms or lecture halls. It is about establishing friendships and future professional networks" (p. 4).

Recently, Harvard Law established a presence in Second Life. Jennings and Collins (2008) wrote, "In the fall of 2006, Harvard Law offered a course called, 'CyberOne: Law in the Court of Public Opinion'" (p. 181). Students who were registered in the course for credit were awarded credit for completion. Members of the general public, who were interested in law and not registered for the course through Harvard, could take part by accessing class materials and participating in the moot trials (Jennings & Collins, 2008).

Large corporations such as The World Bank, Nike, Dell, Disney, Novartis, BMW, and most notably IBM have a presence in Second Life. IBM is setting the bar high for other industries to match. Mahaley (2009) writes, "IBM is leading the way, having

allocated more than $10 million to virtual-world development" (p. 1). IBM's CEO, Sam Palmisano, has created his own avatar. IBM's Vice President of technologies and innovation, Irving Wladawsky-Berger, has also created his own avatar. Cross, O'Driscoll, and Trondsen (2007) quoted Wladawsky-Berger, "Virtual reality connects directly with the mind. There is something so very human about visual interfaces. I almost think of text-based interfaces, including browsers, as 'narrowband' into our brains, whereas visual interfaces are 'broadband' into our brains" (p. 1). Learning through a social community, where participants have support and guidance from others sharing a common goal, is rewarding. This shared learning through virtual worlds, such as Second Life, is rewarding to the learner. Dede (1996) wrote:

> We are accustomed to face-to-face interaction as a means of getting to know
> people, sharing ideas and experiences, enjoying others' humor and fellowship,
> and finding solace. In a different manner, distributed learning via information
> infrastructures can satisfy these needs at any time, any place. (p. 13)

Through these examples of social media arises the fact that we are on an innovative edge of emerging technologies. In a world where the iPhone applications change daily, we truly are in a state of emerging technology. Rollett, Lux, Strohmaier, Dosinger and Tochtermann (2007) state, technology is "never really leaving the beta state" (p. 91). Because of continual updates, the social media program or application is traditionally an evolving version or release number.

CONCLUSIONS AND RECOMMENDATIONS

This literature review was to further the understanding of not only generation differences, but generational similarities and the way those individuals best learn. Through this review of literature, the author introduced the topic of social media and asked the question as to how it may break the generational divide and possibly unite all generations through the use of Personal Learning Networks. The author, based on literature reviewed, has identified generations and their use of social media when building Personal Learning Networks. My first research question asked: How are the current working generations defined? Understanding that the current working demographic is diverse, establishes a foundation for communication. The generational overlap can hinder communication. There is value in knowing the characteristics between generations; it explains the differences which drive unspoken assumptions and attitudes (Filipczak, Raines & Zemke, 2000).

My second research question asked: How do adults learn? The different ways each generation learns stems from world issues of the time in which they began learning. Generational learning cohorts are shaped by significant events in an era. Each generation has different learning characteristics. Veterans learned in a controlled environment. Teachers were viewed as militant. Baby Boomers learned for the sake of learning. The world was rapidly adapting to technological advances and the availability of education was at their fingertips. Generation X found quickly that they had to fend for themselves. Their learning characteristics exhibit this. Generation Xers learn at their own pace with little guidance. The Millennial generation is the first generation, conditioned from an early age, that teamwork/collaboration is a fundamental approach to learning.

My third research question asked: What is a Personal Learning Network? Personal Learning Networks are an adaptation of the earliest form of communication, a community. When developing a professional or personal PLN, it is not necessary for the participants to be coworkers. The advantage of a PLN is there is no need for the individuals to know each other personally. Personal Learning Networks thrive when each member has a shared interest of the overall theme or topic. It is a community where participants share their knowledge and seek others' knowledge.

My final research question asked: How do the generations use social media for learning in Personal Learning Networks? The author found this to be the area for opportunity. Research in regard to social media and Personal Learning Networks for each generation is limited. The author agreed with Putnam (2000), who wrote:

> When the innovation is introduced, many people try out the new phone or the new web browser. As individuals change their behavior, virtually none of the early growth in usage is attributable to generational change. Change, is however, easier for young people, so the immediate impetus for growth is dampened by the ingrained habits of the older generations. (p. 34)

The author recommends further research with current users of social media for personal learning networks. The research needs to include specific demographic information of age ranges using the media. Also, the research must include the reason why the individual chose to use social media to create their PLN rather than the traditional classroom-based learning. This topic warrants further research as social media and personal learning networks ultimately are the frontier for learning as we merge into the twenty first century.

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