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Networked learning in an educational environment

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Abstract

Yesterday's methods of instruction are no longer sufficient for today's global world or today's learners. Networked learning provides the capability of making connections with people and information for lifelong learning. This literature review seeks to define Networked Learning and Personal Learning Networks and their implications for education. Networked learning and Personal Learning Networks in relationship to motivation theory is also explored. Recommendations for future use include using social networking as an educational strategy for student learning and instructor professional development. Another recommendation and strategy discussed includes student-centered learning to improve student learning in an educational environment through networked learning. Technology has set the path for the support of an individual's learning. This approach allows the learner not to be solely a storage of information but the means of being able to find relative information important to us as we take our place as global citizens.

NETWORKED LEARNING IN AN EDUCATIONAL ENVIRONMENT

A Graduate Review

Submitted to the

Division of Instructional Technology

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In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

UNIVERSITY OF NORTHERN IOWA

by

Garey Gill

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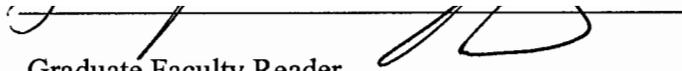
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ABSTRACT

Yesterday's methods of instruction are no longer sufficient for today's global world or today's learners. Networked learning provides the capability of making connections with people and information for lifelong learning. This literature review seeks to define Networked Learning and Personal Learning Networks and their implications for education. Networked learning and Personal Learning Networks in relationship to motivation theory is also explored. Recommendations for future use include using social networking as an educational strategy for student learning and instructor professional development. Another recommendation and strategy discussed includes student-centered learning to improve student learning in an educational environment through networked learning. Technology has set the path for the support of an individual's learning. This approach allows the learner not to be solely a storage of information but the means of being able to find relative information important to us as we take our place as global citizens.

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INTRODUCTION

Twenty-first Century learners have an abundance of tools available to support their learning due to the technological advances that have been made in the past few decades. Networked Learning and Personal Learning Networks are integrated tools that can support 21st Century students' learning. Networked Learning provides channels for learners to access global resources, information, and educators. This tool is a system through which today's learners can become global citizens.

The purpose of this literature review is to examine Network Learning and Personal Learning Networks in the framework of infrastructure and content. Networked Learning and Personal Learning Networks will be discussed through examining learning strategies of individualized learning, implications to the subject areas, and motivational perspectives.

Examining the developing phenomenon of Networked Learning and Personal Learning Networks that support the learners and the methods they use to learn is important when considering the learner in today's learning environments. The investigation of the different types of connections made through Networked Learning and Personal Learning Networks will be reviewed as well as the impact different types of methods of instructional strategies that can be influenced by these components. The examination of Networked Learning can be applied to both the K-12 learning environment and adult learners. Networked Learning combined with Personal Learning Networks can provide a shift in educational pedagogy from teacher-centered instruction to student-centered learning. Additional instructional strategies are reviewed to reflect a paradigm shift in these teaching philosophies. This paradigm shift is away from lecturing

teachers at the front of the room to students involved in collaborative work that encourages peer tutoring, mentoring and learning, and providing ownership over their learning. Learning is often considered by some to only occur in traditional settings such as the classroom with the teacher, but Networked Learning expands the educational experience beyond the classroom to include everyday experiences and contexts.

This review's ultimate objective is to advise educators in using Networked Learning to advance learner knowledge acquisition. Based on existing literature this review will provide information in what Networked Learning can achieve and how it can be implemented. Suggested strategies to benefit our students' learning in the 21st Century will also be addressed.

The foundation for this literature review will be based on five research questions.

These questions are:

1. What is Networked Learning?
2. What are Personal Learning Networks?
3. What methods of instruction are influenced by the concept of Networked Learning and Personal Learning Networks?
4. What types of connections are constructed through Networked Learning and Personal Learning Networks in an educational environment?
5. How do Networked Learning and Personal Learning Networks create learning environments that are motivating for learners?

METHODOLOGY

Validity and reliability were key components for selecting resources about Networked Learning. The reviewer used various databases to locate resources. These databases included PsycInfo, Expanded Academic ASAP, JSTOR, and ERIC (USDE). The University of Northern Iowa Rod Library Panther Prowler database was also used for locating resources. Various key-words/descriptors were used to find the information used in this chapter. The descriptors/key words used for this research were: Networked Learning, Personal Learning Networks, Networked Learning Communities, teaching, learning, pedagogy, connectivism, theory and practice, learning theories, computer mediated communication, individualized learning, distance education, communities of practice, computer assisted instruction, instructional effectiveness, motivation, and motivational strategies.

The criteria used for evaluating the information found were based on the reviewer's past experience with the various databases as well as the quality of the content and the year the work was published. The reviewer consulted with knowledgeable figures in the field of Networked Learning or instructional technology to provide guidance in searching for publications. The reviewer also used the World Wide Web to locate resources on the topic. Due to the recent introduction of some of these topics into the literature, it was a challenge to find a sufficient number of research articles in the field of Networked Learning.

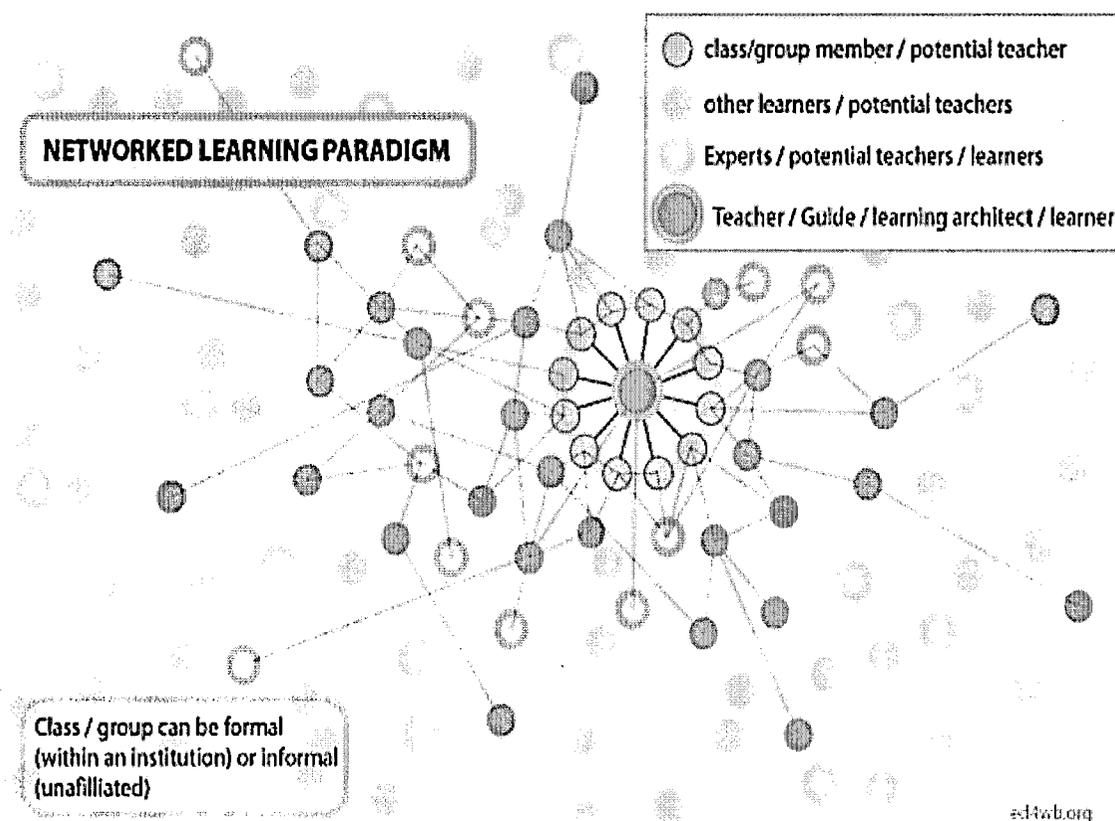
ANALYSIS AND DISCUSSION

Understanding Networked Learning and Personal Learning Networks can be a complex task. They can best be understood by providing general definitions for each. Once this groundwork has been presented, a discussion of how these systems can influence existing instructional methods will take place. Finally, discussing the methods for using Networked Learning can provide the reader with a framework for implementation.

Networked Learning

Networked Learning entails a variety of information and topics that correlate to many aspects in education. Dialogue about Networked Learning is meaningless, however, without explaining its many dimensions. Networked Learning has been defined as "Learning in which information and communication technology is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources" (Goodyear, Banks, Hodgson, & McConnell, 2004, p. 1). In essence, the learning environment originates from a single source, the teacher, and is made available to the students. The students explore this learning environment to transform this information into knowledge. This environment may involve other teachers, students, or subject matter experts. See Figure 1 for a diagram of the relationships between members of a Networked Learning Community.

Figure 1 – Network Learning (Richardson, 2008, p. 1).



The term, Networked Learning, can be fundamentally understood from a different perspective by examining the words that compose it, *network* and *learning*. Siemens describes a network as “links between nodes” (2005, p. 1). It doesn’t matter if the node is a learner, teacher or tool; a well-designed network will provide a natural flow of information. Siemens further defines a network as:

The beauty of networks is their inherent simplicity. A network requires at minimum two elements: nodes and connections. Nodes carry different names in other disciplines (vertices, elements, or entities). Regardless of name, a node is any element that can be connected to any other element. A connection is any type of link between nodes (Siemens, 2005, p. 1.)

Jacobson and Levin (2009) further describe nodes as network mediators that help to guide the flow of information and knowledge. Mediators act as filters (human or otherwise) to help define the nature of the incoming information and what to do with it. Siemens' defines a node is a "learner or teacher or tool" (2005, p. 1). The nodes assist in making decisions about the value of the information and therefore will help to organize and continue the flow of the information.

Learning, as a concept related to Networked Learning, can be defined as "Coming to understand things and developing increased capacities to do what one wants or needs to do" (Schoenfeld, 1999, p. 6). Learning is not merely what takes place in the classroom but through everyday life and experiences. Siemens (2005) presents a similar notion on learning with his idea of Connectivism. Connectivism is defined as "learning as a lasting changed state (emotional, mental, physiological (i.e. skills)) brought about as a result of experiences and interactions with content or other people" (Siemens, 2005, p. 6). Connectivism is a theory developed for our time when learners are more connected than ever. It is a combination of "principals explored by chaos, network, and complexity and self-organization theories." (p. 6). To the idea of learning presented by Schoenfeld (1996), Seimens (2005) states:

Connectivism presents a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. How people work and function is altered when new tools are utilized. The field of education has been slow to recognize both the impact of new learning tools and the environmental changes in what it means to learn. Connectivism provides insight into learning skills and tasks needed for learners to flourish in a digital era (2005, p. 8).

Goodyear (2001) defines characteristics of Networked Learning as “interactive but flexible, promotes active engagement, reflective (aiding in deeper processing), permanent records, new opportunities for group working, social interaction, ease of access to global resources, [At-Risk] groups, and changing relationships in learning” (Goodyear, 2001, p. 14 - 16). Adding a brief description of the characteristics mentioned above is useful to the discussion of Networked Learning.

Networked Learning is a dynamic system that has many characteristics and ever-changing capabilities to simultaneously meet the needs of the learners and teachers. The dynamics of this system allow a user to obtain data or retrieve results and at the same time maintain the user’s attention. Network learning's capability for promoting active engagement between individuals is represented in K-12 schools when well-elaborated and involved telecollaborative projects take place between multiple students at multiple schools. This allows students who are near the same level to learn from each other and have ownership of their own learning. This idea also shares characteristics with the adoption of the concepts of new opportunities for group efforts and social interactions. Networked Learning allows for group work to occur outside of the classroom in the confines of a learning environment. These interactions between students are dissimilar from what students are continually exposed to in the traditional setting. The Networked Learning interactions are based on Web 2.0 tools where students are using video conferencing or other means of real time communication.

The Networked Learning Model facilitates reflection (aiding in deeper processing) in a way that many distant education students appreciate (Goodyear, 2001). Whenever students are presented with a question, assignment, or discussion they

typically have time to think and reflect to provide well-thought out clear and concise answers. This allows for deeper processing during learning.

Networked Learning has the capacity to record what happens, no matter what is discussed, read, or lectured in class. The students and teachers alike will have access to this information. In a Networked Learning environment the described characteristics will improve student learning because a student has the opportunity to reflect on their experiences because they have a record or “permanent trace” (Goodyear, 2001, p. 15). Ease of obtaining global resources is vital when gauging the validity of the information.

In addition to the above mentioned characteristics concerning the strengths of Networked Learning, At-Risk groups can also be successful in using Networked Learning. At-Risk groups typically are underperformers and underachievers. In the Networked Learning experience Networked Learning can also provide equal opportunity for those students who may have difficulties or minority students (learning disability students, cultural barriers, or language barriers.) Lastly, changing relationships in the learning process is also important when discussing theories of learning and how Networked Learning meshes into this model (Goodyear, 2001).

Having documented how Networked Learning can accommodate the differing needs of students as a group is important to consider how this system can be personalized to the individual student. The Personal Learning Network can be an effective tool for succeeding in today's learning environments.

Personal Learning Networks

A Personal Learning Network (PLN) is defined as a network created by the learner to succeed in Networked Learning environments and ultimately the world (Couros, 2008). Warlick (2009) defines Personal Learning Networks as networks that:

... are the people and information sources that help you accomplish your goals, either on the job or in your personal pursuits. They are the teachers who work in your school, your instructional supervisor, your library media specialist, the art teacher at the high school, with whom you are friends, the magazines you subscribe to, books you brought home from college, etc. (2009, p. 1)

Personal Learning Network is a key term used in this sophisticated and changing world of learning, technology, and resources, to meet the needs of 21st Century learners. Not only does it take into account the world around the learner but also the responsibility of the learner to be helpful and accountable because someone may reference them in their Personal Learning Network as well (Warlick, 2009).

Warlick (2009) describes 3 types of PLNs:

- Personally maintained synchronous connections
- Personally and socially maintained semisynchronous connections
- Dynamically maintained asynchronous connections (p. 1).

These PLNs include a variety of sources. The most familiar of these could be the personal discussions that two or more people might have over a telephone or the backyard fence. The most complex might involve an up-to-the-minute RSS (RSS is an acronym for Really Simple Syndication.) information feed on a specific topic selected from the international Google news service.

Personally Maintained Synchronous Connections

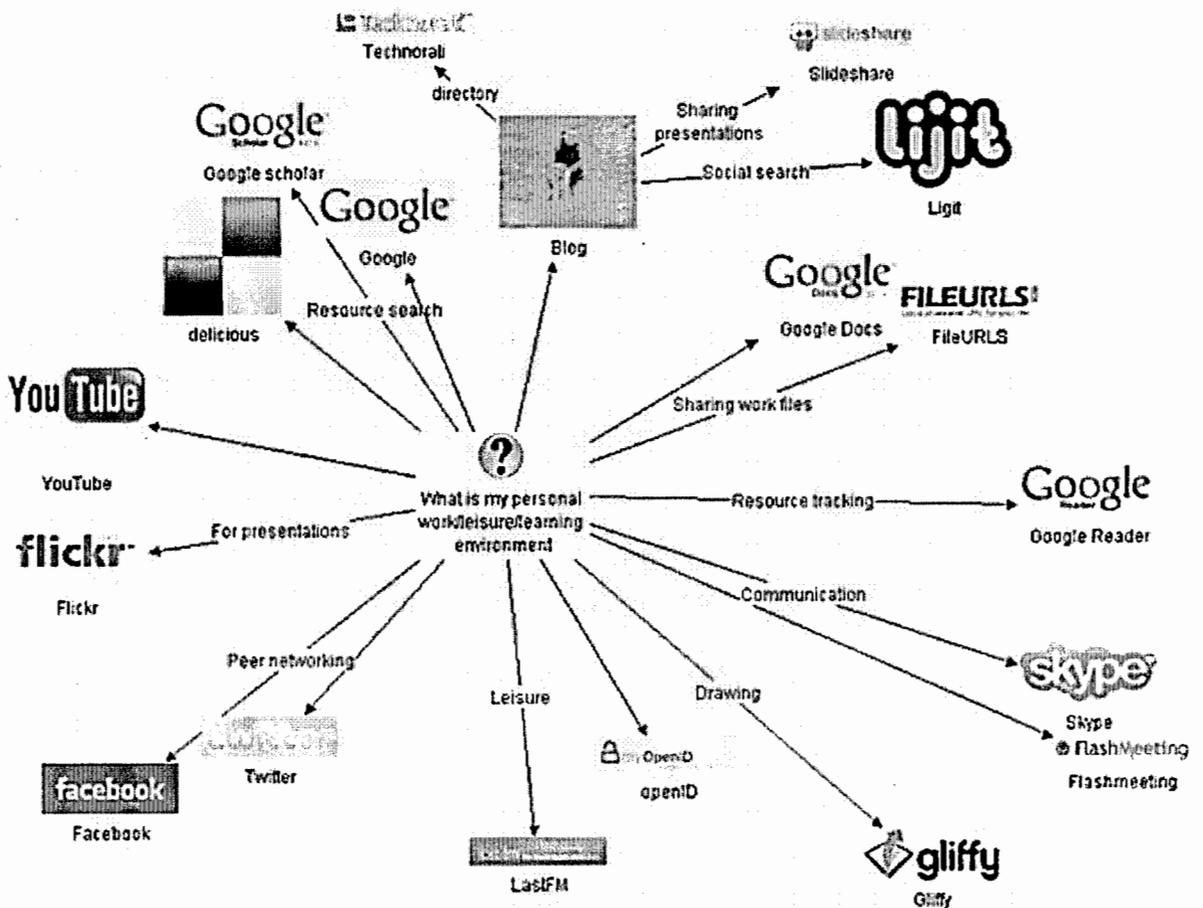
Personally maintained synchronous connections encompass the majority of the population that is typically born before 1980. They tend to use the PLNs they are accustomed to using like talking face-to-face with colleagues and friends. Essentially, people in this category tend to gravitate towards familiar technology which includes phones. Other applications included in a Personal Learning Network for this group might consist of more complex technologies such as video conferencing; Skype is an example, or the use of virtual environments, such as Second Life. This type of connection in a Personal Learning Network is different from the other groups in that learning and interactions happen in real time, that is, it takes place concurrently. An example of a personally maintained synchronous connection is using a virtual world like Second Life to involve two or more people being on at the same time to hold a conversation through their assigned avatars.

Personally and Socially Maintained Semisynchronous Connections

Personally and socially-maintained semisynchronous connections tend to encompass larger portions of the population, typically born after 1980. Learners of this type are those who usually combine multitasking with learning. This type of Personal Learning Network also includes using social networking sites such as Facebook and Twitter. These connections provide viable opportunities for learners to consult subject matter experts (SME) about questions and new concepts. Students don't need to know the experts personally, but learners at least need to be part of the SME's network to make contact. What distinguishes this type of Personal Learning Network from others is that it takes place at the convenience of the user. For example, people can post questions or

comments about information and the subject matter experts might answer at times that are convenient. A person in this group may want to post a question on Facebook. This person does not need the answer immediately, however, so a posting on Facebook allows the user to ask the question and return to the site at a convenient time, as well as research for answers on other websites. See Figure 2 for an example of a Personal Learning Network containing the semisynchronous applications.

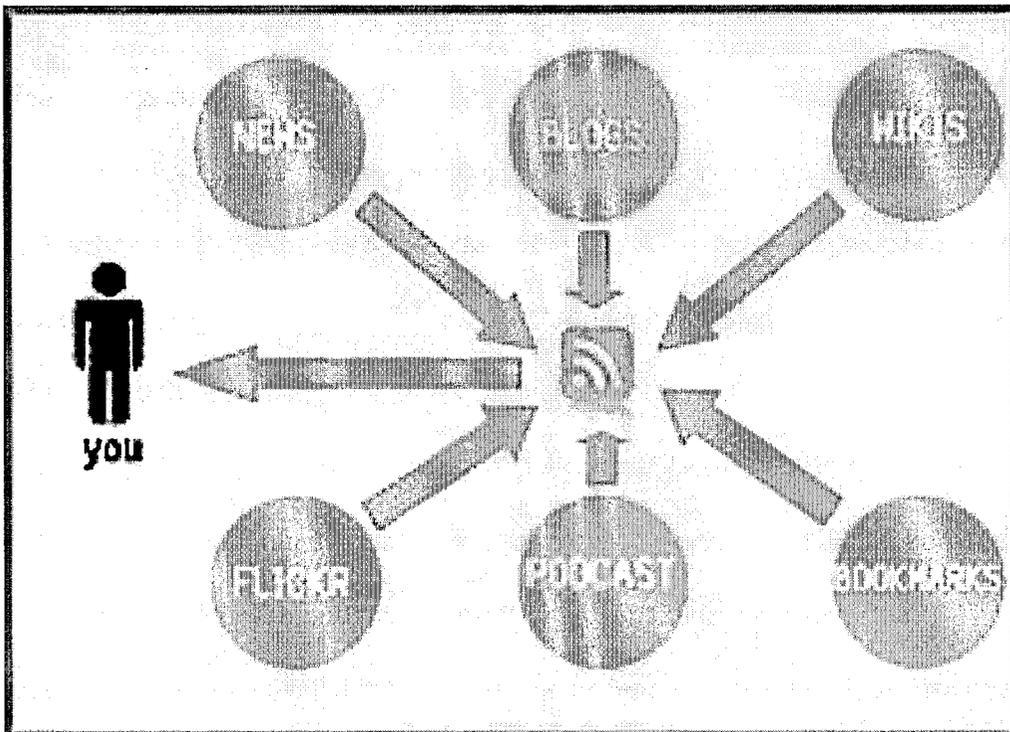
Figure 2 - The Ed Techie: My Personal Work/Leisure/Learning Environment (Weller, 2007, p. 1)



Dynamically Maintained Asynchronous Connections

Dynamically maintained asynchronous connections differ slightly from the first two groups. Instead of being directly connected to people, those in this category are instead linked to the technology and sources on the web, specifically through an RSS aggregator (Warlick, 2009). An aggregator uses a web-feed format to publish from frequently updated online sources (ex., blogs, podcasts, news). Aggregators allow users to subscribe to these resources so that updated information will be delivered to the user instead of requiring the user to search for the information directly. There are various types of RSS aggregators including Google Reader, iGoogle, Bloglines, and Feed Demon. See Figure 3 for an image of how an RSS aggregator is used to build a Personal Learning Network for an individual.

Figure 3 – Cultivating Your Personal Learning Network - Learning 2008 Shanghai Conference (Warlick, 2008, p. 1)



Influences of Networked Learning and Personal Learning Networks

This section discusses literature on the current methods of instruction in education and the implications when Networked Learning (infrastructure) and Personal Learning Networks (content) are applied as tools to enhance learning environments. This section includes ways to support learning and modeling the proper uses of Networked Learning.

Promoting connections between learners and teachers provides the foundation for learning communities (Goodyear, Avgeriou, Baggetun, Bartoluzzi, Retalis, Ronteltap, & Rusman, 2004). The Center of the Integration of Research reports that learning communities “bring people together for shared learning, discovery, and the generation of knowledge. Within a learning community, all participants take responsibility for achieving the learning goals” (2006, p. 4). The discussion of learning communities relates to the idea of infrastructure, that is, the systems developed that allow a learner to connect with others.

The discussion of how connections are made is essential when discussing the Personal Learning Network. The key to understanding involves exploring how people can use what is around them to support their learning or knowledge development. Originally, as Warlick states, “learning comes from, friends, families, colleagues, reference books, textbooks, television, radio, professional and personal periodicals, and many web-based applications like Twitter, Skype, and Second Life” (Warlick, 2009, p. 13).

Implications of Personal Learning Networks

A correlation between teacher support and development using Personal Learning Networks is another important aspect (Richardson, 2008., Warlick, 2009). There are different techniques available to help foster student growth through the use of a Personal

Learning Network. These techniques include demonstration, discussion, and modeling. An intriguing element, that those new to the Personal Learning Network concept should consider, is that students have been using digital Personal Learning Networks for some time (Richardson, 2008). The drawback is that today's learners have had no one to scaffold their use of the Personal Learning Network or the proper uses of it to support their personal learning in and out of the classroom. Teachers must not only support personal development but also model the proper uses of how their students should properly manipulate students' Personal Learning Networks. This includes issues related to ethical use, an important term to those in the field of instructional technology. More importantly, teachers do not have to hold their students' hands to walk them through proper uses of their Personal Learning Network but act as a model in developing and using Personal Learning Networks. Therefore, as Richardson (2008) suggests; parents, teachers, and role-models need to create their own PLNs as models for our students.

Modeling is occurring all the time. Successful modeling requires it to be done correctly. For example, educators will demonstrate using Twitter and even displaying desktop clients that can make using Twitter more user-friendly (ex., Twitterific and Tweetdeck). Kirkpatrick (2009) states that teachers can follow this how-to introduction by demonstrating real-world applications for Twitter by asking a question of those in their Personal Learning Network. The responses from the network will demonstrate how a networking tool can benefit one's learning process. The goal is to demonstrate the simplistic access of the application and its educational uses (Kirkpatrick, 2009).

Creating a Personal Learning Network for School

Schools, teachers, and classrooms have been using Personal Learning Networks for a long time, whether labeled a Personal Learning Network or not. Researching current events from the news or publishing work on the Internet are examples of using Personal Learning Networks (Davis, 2009; Fisch, 2008). In the past, teachers would consult subject matter experts, research from printed materials, conduct face-to-face conversations, and attend workshops or staff developments (Roland, 2009; Anderson, 2008). As technological capabilities have evolved, possible educational uses of technology have evolved as well. Due to technological advancements teachers are able to connect to each other through the use of the Internet and the emerging Web 2.0 tools.

To successfully use a Personal Learning Network in the classroom, the teachers must first become familiar with using it themselves. Waters (2007) offers four ideas that need to be considered when beginning the early stages of develop a Personal Learning Network:

- a. What tools [to] use
- b. Who [to] connect with
- c. How you want to learn
- d. When you want to learn (2007, p. 1)

When a teacher begins to develop a Personal Learning Network, Waters (2007) suggests critical points of advice to assist the novice in becoming comfortable while simultaneously making contributions to the Personal Learning Network experience:

- a. Start slowly and find mentor(s) to help you
- b. Use the same username across tools

- c. Share as much as you take
- d. Ask as much as you answer
- e. Try new tools before you decide they're not worth the time
- f. Comment on other people's blogs
- g. Lifelong learning is the key (2007, p. 1)

The goal of these steps presented by Waters is to help teachers become familiar with the Personal Learning Network and use it to support learning. Successfully using a Personal Learning Network in the classroom can help teachers direct students on how they would like the student to use it in learning. For example, when Davis (2009) used a Personal Learning Network in her classroom she found that the students' Personal Learning Networks "content changed based on the student's current course work. When [Davis] assign[s] a term paper, the students comb the Web to sign up for information that will feed into their personalized Web page to construct a PLN for that topic. When they get a new project, they assemble another page" (2009, p. 1).

Richardson (2008) lists the following advantages for using a Personal Learning Network. This list is not limited to an educational perspective but includes other factors that should be considered professionally and from a global citizen's standpoint:

- Networked – They'll need an "outboard brain" – is quite simply a student's ability to store sources of knowledge, however, not within their own brain. Thompson (2007) discusses how the storage of facts and information in his head are blurred between being connected to the grid and the uses of various search engines to retrieve answers. Being connected helps in the storage of information for retrieval to the learner.

- **More Collaborative** – Individuals are going to need to work closely with people to co-create information – More collaboration is perhaps one of the biggest adjustments to meet the needs of learners today. Collaborative learning provides peer-to-peer teaching and learning and helps evaluate information based on importance or relevance.
- **More Globally Aware** – Collaborators may be anywhere in the world – More globally aware allows for learners to collaborate and learn not only from the students in their class but also around the world. Making learning authentic provides another element to learning that enriches the student's experiences.
- **Less Dependent on Paper** – Right now, educators are still paper training their students. Less dependence on paper means that both teachers and students have to understand that research is not only done in books and assignments are not only completed on paper. There is an array of tools available to both teachers and students that allows for extensive research without opening a book. Networked Learning creates the opportunity of turning in assignments where the teacher has to collect a sheet of paper.
- **More Active and More Connected** – To their communities, to their environments, and to the world. This is important because students should be domestically and globally active and aware of what is going on in the world around them. It will assist in molding better and smarter world citizens.
- **Fluent in Creating and Consuming Hypertext** – Basic reading and writing skills will not suffice – Fluent in creating and consuming hypertext is the ability of

reading and understanding the wealth of information available electronically but being able to add to this information with thoughtful and innovative ideas.

- Editors of Information – This is something students should have been learning all along but is even more important now. A 21st Century skill involves the ability to evaluate information and be able to check the validity of it as well. Not all data is good information and not all good information is the knowledge needed to support and inform.

These eight advantages from Richardson are important when considering what a student can learn when using a Personal Learning Network. It does not allow for learning to stop once the students leave the classroom but encourages becoming lifelong learners in and out of the classroom. Teachers must remember that most learning is informal (Cross, 2009). Most learning happens outside the controlled environment of a classroom. Upon implementing Personal Learning Networks into the classroom, teachers should encourage students to use their Personal Learning Networks outside the classroom as well.

Individualized Learning

Individualized learning is categorized as the opportunity for any person of any age to move through a subject at his/her own learning speed, without worrying about the constraints of a classroom (Fertig, 2008.; Hope Academy, n.d). Individualized learning involves setting up learners to excel academically at their own pace through using technology (Fertig, 2008). Individualized learning shifts instructional methods from teacher-centered instruction to student-centered learning, moreover, preparing and guiding the learner towards a most successful learning environment.

Individualized learning contains implications for Personal Learning Networks that can be easily described by the characteristics offered by Greenway and Vanourek:

One of the key differences [about individualized learning] relates to time and learning. In a traditional classroom, time is fixed and learning is variable (that is, classes are held for a set period of time, and when the bell rings the amount of learning that has occurred varies, sometimes dramatically, by student). In a virtual classroom, learning is fixed and time is variable (that is, the lesson continues until each student achieves mastery. (2006, p. 39)

The mere fact that time can be a variable in the individualized environment provides a new dimension in learning because the learners have time to consult information resources and subject matter experts. That is, learning in an individualized learning environment can be enhanced by networking through a Personal Learning Network as the collection of resources and people in a learner's Personal Learning Network acts as a mentor to the student.

Learners have differing circumstances for completing coursework through a Networked Learning situation. Creating a Personal Learning Network is one strategy for collecting and using information. While the course objectives are fixed, learners can use Personal Learning Networks as research tools to retrieve, evaluate, and organize this information over time.

Curricular Applications

The discussion on curricular applications will take place in the framework of staff development and how educators can connect to other educators to share thoughts and ideas for improving their own knowledge and instruction. This process includes

implications about how Networked Learning and Personal Learning Networks can improve the achievements of students in content areas.

Networked Learning can be used in the support and development of educators. This is recommended for educators, instructional designers, and those influential in the learning of students (Joyce & Showers, 2002). Networked Learning and Personal Learning Networks are terms to help guide these innovative ways to facilitate staff development. Liberman states “Teachers have been considered as passive receivers of perspective programs, given little time or incentive to integrate these new programs in their classroom practice” (2000, p. 226) or the guidance or support to implement and maintain these instructional strategies.

As the demand in education changes or the types of instructional methods are developed (collaboration, critical thinking, citizenship, technology, and career development) there will be a greater claim to expand the uses by the teachers of Networked Learning as well (Goodyear et al. 2004). Hicks states "... Facebook allow[s] for multi-tasking, as [it is] highly organized and highly structured. There is nothing more boring for students then sitting at their desks writing pages of notes, at least this way there is an opportunity for engagement and excitement.” (2007, p. 1).

Networked Learning and Personal Learning Networks provide opportunities for a plethora of engaging activities. Engaging activities can help set the stage for learners to become intrigued and motivated about the activity. An example of the uses of Networked Learning in the classroom is presented by Cooper (2009) in his Clean Watersheds project. This project “Promotes social networking between environmental teachers, students, businesses, and area experts (Cooper, 2009, p. 1). Using Google Earth Pro, participants of

this project will collect data on Watersheds to ensure stability and perhaps improve the health of the Watersheds. Essentially, through the use of the social networks students will improve and protect national watersheds. These approaches encompass Networked Learning by allowing the learner to use Web 2.0 tools and experience learning through their networks.

Networked Learning as a Motivator

Considering the content and infrastructure of Networked Learning, the question remains: How should Networked Learning be used to create a motivating learning environment? Learners are the key component to these systems, established on the concepts of learners knowing how to learn and learners becoming lifelong learners. This section will include information on motivational factors and implications from reviewed literature on motivating the learner to become a successful student. This section will include a look into motivation in education and the theories and strategies used in the proper development of motivation.

Networked Learning and Personal Learning Networks can support a motivational learning environment. Motivation can provide the learner with the additional confidence necessary to facilitate superior learning methods. Wlodkowski states that “motivation is important not only because it apparently improves learning but also because it mediates learning (2008, p. 6). The quality of students learning can be increased through proper uses of motivation. There are two types of motivation a learner can demonstrate, intrinsic and extrinsic motivation. Intrinsic motivation is apparent when a student “engages in actions for their own sake and without coercion...” (Alderman, 2004, p. 247). On the opposite end, extrinsic motivation “occurs when students engage in activities for external

reasons...” (Alderman, 2004, p. 247). Networked Learning and PLNs can help establish an environment conducive to intrinsic and extrinsic motivation. Intrinsic and extrinsic motivations create an independence and freedom for the motivation to learn (Ryan & Deci, 2000). Ryan et al. point out that the learner determines intrinsic and extrinsic motivation, based on factors that are comfortable to them (2000, p. 65). Keller explains motivation and its impact on instructional design: “Motivation was generally established by deprivation; that is, by assuming learners would have some perception of a *need or desire* that would be fulfilled by the rewards to be gained from learning” (2007, p. 83). There are rewards to be gained from learning. Keller (2007) suggests that a need or desire to learn can come for other influences besides level of instruction. Keller’s idea of rewards as being a need or desire has a correlation to intrinsic and extrinsic motivation. That is, intrinsically students can be motivated by the challenge or self-gratification of learning or extrinsically students are motivated by special privileges or grades (Alderman, 2004). Nonetheless, this need or desire can be fostered in a learning environment by applying Networked Learning and Personal Learning Networks.

Some authors mentioned how using Networked Learning and Personal Learning Networks invokes taking ownership of learning, pursuing individual goals and being highly motivated (Epcke & Meech, 2008; McCollum, 2009). According to Epcke and Meech, "Personal Learning Networks are systems that help learners take control of and manage their own learning. This includes providing support for learners to:

- set their own learning goals
- manage their learning; managing both content and process
- communicate with others in the process of learning

- and thereby achieve learning goals” (2008, p. 1).

Essentially, the items presented by Epcke and Meech, establish a learning environment that creates a motivational atmosphere that is embraced by the learner and, as the authors suggest, helps students manage their own learning. Pintrich, Marx, and Boyle (1993) explain that three points lead to motivating behaviors due to several characteristics including using prior knowledge and past experiences but more importantly ownership of learning. Remembering that the learners are the key component, it is important to provide them with a sense of ownership in their learning (Chen. 2003). Chen implies that because of the various learning strategies that takes place during collaboration the learners take more ownership of their learning and in the process are much more motivated. Motivation is a factor that seems to influence educator’s uses of a Personal Learning Network in the classroom, both individually and collaboratively.

CONCLUSIONS AND RECOMMENDATIONS

The developing trends of Networked Learning and Personal Learning Networks continue to have an effect on education and learning environments. These innovations help shape the perceptions of educators and how they view learning. This literature review sought to answer five research questions and study the effects of Networked Learning and Personal Learning networks.

Networked Learning

Networked Learning is a system used to fit the needs of 21st Century learners. This system provides learners with an approach for seeking data, information, and knowledge in a world where learning is not limited to a classroom. Networked Learning, in essence, provides opportunities for a connected world to help nurture each individual's knowledge attainment. Networked Learning facilitates producing connections between people and information as well as supporting one another's learning through various techniques of communication.

Personal Learning Networks

Personal Learning Networks provides social interactions created by the learner in the process of becoming a lifelong learner. PLNs include people or information sources that are used by the learner to accomplish goals. In a constantly changing world of learning, technology, and resources PLNs provide the tools necessary for learner success.

Influence of Networked Learning and Personal Learning Networks

The introduction of the Internet allowed a user to search for information. The Web has progressed to level 2.0 which provides an interactive exchange of information between web users. This creates a world of shared information, data, knowledge and

guidance. When there is a connection between learners in a learning community the interactions encourage common learning bonds. Networked Learning and Personal Learning Networks have a place in education's future. Students should not be confined to only a classroom for learning. There is a whole world of information and resources available that students can access and teachers should do their best to promote access to these resources. As already stated, Networked Learning can shift the instructional focus from the teacher to the learners. The learner is placed in more of a leading role of their learning while having the opportunity for diverse activities and an increase in self motivation.

Curricular Applications

This section illustrated ways in which Networked Learning and Personal Learning Networks can be applied in the classroom. The examples included the social interactions necessary to create a community of learners and establish a learning network. Essentially, the activities provided a foundation for creating a Personal Learning Network. Networked Learning and Personal Learning Networks as instructional tools in the content areas of K-12 education would benefit student learning. Furthermore, the research that went into this section reflected two themes: a) how the concentration on the teacher and teacher development can improve instructional methods and b) information on the learner and the learning that can take place outside the school setting including real life examples.

Motivational Factors

When including the motivational influence of using Networked Learning and Personal Learning Networks, teachers can prepare students to be proficient lifelong learners. Learners can either be intrinsically or extrinsically motivated. More

importantly, providing the learner with ownership of the learning leads to further motivation and student success in learning. Essentially, this section illustrated a form of engagement that placed the learner in control of their learning. Through the use of Personal Learning Networks students were able to develop and maintain their PLN and sustain these connections with SMEs and their learning and their learning communities.

Recommendations for future use of Networked Learning and Personal Learning Networks as instructional media include using social networking as an educational strategy for student learning. More research should be done into how social networking is changing educational practices as student and instructor roles are beginning to blur.

Another recommendation would involve exploring examples of student-centered learning as a way to improve student learning in an educational environment through the strategies discussed under Networked Learning. Considering the motivational impact of Networked Learning and Personal Learning Networks and how learners can develop a sense of ownership of their learning would be useful for further research to determine how this changes the learning process.

The process for implementing Personal Learning Network use in the classroom curriculum needs to be studied. What documented cases of PLN are being used in the classroom and what successes and failures accompany them? This is an important concept when considering the use of a PLN in the classroom. Questions include: Are teachers actually implementing them in the classroom and how are students using them? Are PLN helping to improve student learning?

Next, research should be completed into transformative reflection on the implementation of Personal Learning Networks. Teachers are taught to reflect on their

lessons and activities to make improvements to them. It would be enlightening to see how a teacher's PLN evolves over time to fit the needs of the students within various activities or lessons.

Lastly, research on the evolution of the Personal Learning Network is an essential topic for education. This discussion should be done with the idea of how students' Personal Learning Networks progress over time as students matriculate through the k-12 system.

In summary, as the world changes and the line dividing teacher and learners begins to blur it is important to identify the strategies that continues the progress of learning and maturation. Through using Networked Learning and Personal Learning Networks, learners are now able to support one another's learning and the flow of information. Technology has set the path to support an individual's learning. This approach enables the learner to be more than storage houses of information. It prepares learners to be consumers, creators and connectors we take our place as global citizens.

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