WHAT IMPACT DOES SOCIAL MEDIA HAVE ON KNOWLEDGE TRANSFER?

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Abstract

Knowledge management and knowledge transfer is vital to the long-term success of any organization. Social media is connecting people in a way never before possible. Previous research has concluded that knowledge transfer is more likely to take place between individuals in an organization who have built a relationship with each other. In parallel, social media is compared to Roger’s Diffusion of Innovations Theory and his Technology of Acceptance Model. This thesis contains the results of focus groups conducted with engineers from an international aerospace corporation and examines the likelihood of knowledge transfer taking place based on social media relationships. This study finds that personal relationships are vital in transferring knowledge when connections are made through social media.
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Chapter 1: Introduction

Importance of Study

Organizations large and small rely on sharing knowledge between colleagues, departments, and divisions within an organization (Nelissen, Wenneker, & Van Selm, 2008). In spite of general agreement that effective knowledge sharing is an essential component of any successful organization, many organizations continually fail (Luo, Slotegraaf, & Pan, 2006). Organizations focus on knowledge sharing programs, initiatives, and tools in an attempt to coerce their members into sharing knowledge (Argote & Ingram, 2000). These attempts, although often well thought out, are not successful and leave many organizations in jeopardy of losing one of their most valuable resources, knowledge (Burgess, 2005). Effective knowledge transfer is essential to the long-term survival and growth of any organization (Teece, Pisano & Shuen, 1997).

Knowledge transfer is both the sharing and receiving of knowledge between two or more individuals (Nelissen et al., 2008). Another explanation is that knowledge is gained and transferred when two or more members co-learn or discover something together (Huysman and De Wit, 2003). Some knowledge is transferred naturally through many events in an organization. Organizations attempt to make all knowledge available for future members by recording, cataloging, and creating tools to access stored knowledge. Currently, technology is the backbone of knowledge transfer and knowledge management for most organizations.
Technology has changed the way organizations implement knowledge transfer programs because it has allowed for more storage, better cataloging and most importantly improved search capabilities. Just as computers have allowed people everywhere to database photos, music and documents on their personal computers and even cell phones, organizations have created databases of knowledge and designed software portals through which knowledge can be retrieved.

Knowledge is also transferred casually through social media. Social media is a relatively new implementation of information computer technology. Social media websites such as Myspace, Facebook and Twitter have seen tremendous growth over the last decade and boast hundreds of millions of users. With people voluntarily connecting with others, sharing information and building a web of interconnected messages, knowledge is being stored. Sophisticated algorithms have also been created to search and catalogue stored knowledge all in an attempt to make it easier to find.

**Statement of the Problem**

Just as social media has impacted communication among its users, organizations can implement similar social media tools in an attempt to increase the quality and quantity of knowledge transfer between their members. Many studies are currently examining the impact of social media on populations. Many of these studies examine the quality of social media based communication, the impact social media has on relationships, and the impact social media has on
marketing. The purpose of this study is to determine the impact social media has on knowledge transfer.

**Definition of Terms**

- Diffusions of Innovations: a theory that attempts to understand the spread of technology or innovation through cultures
- Knowledge management: the storage and organization of knowledge
- Knowledge transfer: the act of sharing or accessing knowledge
- Information and Communication Technology (ICT): the integration of technology with communication
- Social media: web based software capable of connecting people

**Organization of Remaining Chapters**

In the next chapter of this study is a literature review about knowledge transfer, social media, organization initiatives and the role of ICT. The third chapter explains the methodology behind a study on knowledge transfer and social media in a large organization. Chapter four contains the results of the study conducted along with a section discussing those results. Finally the fifth chapter concludes with a statement of limitations and recommendations for future research.
Chapter 2: Literature Review

Philosophical Assumptions

Carl Rogers said, “When in doubt, listen” (Griffin, 2009). Rogers studied people and their experiences to try to understand various truths and considered personal experience to be the absolute authority. To assist in understanding experiences he presented three conditions for relational health which can be applied to research methods. Each condition allows understanding and furthers our ability to arrive at the appropriate truth being experienced.

Condition number one is Congruence, or the alignment of a member’s inner feelings with their outer representation. The second condition is Unconditional Positive Regard, which if employed allows an observer to experience positive feelings toward a group member. The final condition is Empathetic Understanding, or the ability to experience another’s worldview (Griffin, 2009). When combined these three conditions allow a researcher the best opportunity to know an organization member’s experience.

In order to understand the impact social media has on knowledge transfer, it is necessary to understand the experiences of organization members. Empathetic understanding helps members to further their ability to interact, share knowledge, and find a shared truth. Furthermore the overall relational health of those participating in knowledge transfer can affect the outcome of that transfer.

All organizations have the same opportunity provide ICT to allow all members to form new relationships. Interaction between humans increasingly takes place through ICT and due to expanding global connectedness,
opportunities to participate in knowledge transfer are innumerable. In order to understand and accept the experiences of organizational members it is imperative to follow Rogers’ model.

Knowledge

Organizations large and small understand the importance of sharing knowledge between colleagues, departments and divisions within an organization (Nelissen et al., 2008). In spite of general agreement that effective knowledge sharing is an essential component of any successful organization, many organizations continually fail (Luo, et al., 2006). Organizations focus on knowledge sharing programs, initiatives, and tools in an attempt to coerce their members into sharing knowledge (Argote & Ingram, 2000). These attempts, although often well thought out, are not successful and leave many organizations in jeopardy of losing one of their most valuable resources, knowledge (Burgess, 2005). Effective knowledge transfer is essential to the long-term survival and growth of any organization (Teece et al., 1997).

Knowledge is a necessary resource for organizations and is managed by most organizations in a similar manner as other important resources (Dyer & Nobeoka, 2000). This means that knowledge needs to be tracked, controlled and inventoried regularly, even though it is not practical to do so (Huysman & de Wit, 2003). There are two types of knowledge that concern an organization, implicit knowledge and tacit knowledge. Implicit knowledge is documentable and tacit knowledge is gained through experience. In general, implicit knowledge is what is mostly discussed in literature concerning the subject of knowledge transfer.
Unless specifically mentioned the discussion of knowledge transfer in this literature review doesn’t include tacit knowledge, sans one section dedicated to the subject of tacit knowledge and its impact on social media.

This literature review contains four main sections. The first section focuses on knowledge transfer and discusses the following topics: the importance of knowledge transfer, the impact employee rotations have on knowledge transfer, and a comparison of knowledge transfer tools versus the importance of people. The second section discusses the role of ICT in academia and gives three examples of ICTs use as a method of knowledge transfer among student peers. The third section examines the existing literature pertaining to the use of ICT and social media as method of maintaining knowledge in business organizations. The final section applies the Diffusions of Innovations Theory as a method to observe the rate at which technology and ICT will be adopted as a continued means of transferring knowledge.

**Knowledge Transfer**

Knowledge transfer is vital because knowledge that is unshared cannot benefit an organization and can easily be lost. The loss of knowledge can be more expensive than the loss of physical inventory or even people (Argote & Ingram, 2000). When a member of an organization leaves that organization, knowledge they have gained has the potential to disappear from that organization and end up with a competitor if the departed member joins a competing organization. If the organization is able to extract the information before the departure of a key member, than the organization is positioned to compete even as members leave.
The extraction process is called knowledge transfer and can happen in many different ways.

Pan and Wang (2010) found that people, who transfer from another organization, whether internal or external, had a positive influence on the overall knowledge transfer of an organization. Not only did the new member benefit from the knowledge they gained, but also the entire organization participated in higher level of transferring knowledge through the process of training the new member. Knowledge is passed to a new member during the first couple of months with an organization. Similarly, knowledge is transferred when an organization rotates members between job functions.

Rotations can be an effective method of managing knowledge in a compact organization without spending large amounts of money on initiatives, software or knowledge management departments (Dyer & Nobeoka, 2000). Within an organization sharing roles or rotating between roles can bring about similar results as compared to bringing a new member to the group. Tacit knowledge often exists under the radar and is unique to the member who performs a certain function (Foos, Schum & Rothenberg, 2006). It is only discovered when a new employee attempts to perform the duties of the employee they replaced. In the case of a planned rotation the previous employee can be contacted and tacit knowledge sharing can take place with little to no impact to the organization. If rotations are designed and executed well and planned in advance, the result can be effective knowledge transfer. Furthermore, rotations help an organization become two or even three people deep in one job function or area. Transferring
knowledge between sites, divisions and sectors through rotations is more difficult as physical distance increases (Almeida & Kogut, 1999). Rotations are one way to focus on people as a method to transfer knowledge in an organization.

When people with the knowledge leave the organization any knowledge that wasn’t transferred is lost to the organization. Explicit knowledge can be gathered and documented throughout the time an individual has membership in an organization. The effectiveness of knowledge transfer to another employee or to a database varies based upon the organizations ability to facilitate the exchange. If a member does leave an organization the captured knowledge can be disseminated to the replacement. Although organizations spend time and effort in training members, cross training and debriefing employees, the curriculum, in most cases, cannot be narrow enough to include tacit knowledge gathered on the job.

**Knowledge Transfer Problems**

Riege (2005) explores a number of possible reasons why a member might hoard knowledge. In some instances members think that hoarding knowledge strengthens career advancement. Other members might not share knowledge in order to avoid showing weakness and to hold on to power. Some members might not participate in sharing knowledge as they are worried about impacting job security. Riege (2005) also notes that knowledge may also be held back by front line managers in order to not appear more knowledgeable then their superiors, fearing they may not be promoted. In addition to member’s being reluctant or
unmotivated to share knowledge, other systemic barriers may hinder knowledge transfer in organization.

No tool or initiative is capable of providing long-term solutions to communication problems, therefore organizations that focus on people instead of tools are most likely to benefit over time (Burgess, 2005). Studies have found that up to one third of knowledge transfer initiatives have not only failed to produce marginal results, but also failed completely (Burgess, 2005). Leaders know they would like an increase in the amount of knowledge transfer in an organization, but they do know how to execute an effective knowledge transfer program. As previously stated by Burgess (2005), knowledge transfer is about the people, not the tools or the methods. Organizations spend time and money building or buying databases capable of storing large amounts of knowledge only to have the effort wasted due to lack of participation from members. Organizations that foster an environment, in which members are self-motivated to transfer knowledge with colleagues or even databases, may be successful as the focus is put on people over tools.

**Classroom Collaboration and ICT**

Educators have adopted new ICT in support of fostering collaboration and classroom learning (Parker & Chao, 2007). As new technology and new data basing techniques have emerged, many educators have been quick to adopt and implement change. Grant (2008) used an ICT tool called a wiki to help his students collaborate on an interactive project. Although the purpose of the exercise was to help students learn the skills necessary to operate within modern
organizations, important facts about the effect of collaboration on an individual’s work were also observed. Collaboration is a form of knowledge transfer as knowledge is transferred as people work together to accomplish a task. Students who participated in the wiki were more likely to care about the work they were performing as they knew it would be available to a larger audience for review (Grant, 2008; Parker & Chao, 2007).

Organizations could implement similar sharing ICT to help foster an environment where employees motivation to perform is based on the knowledge that colleagues will have access to their work. Furthermore, a sharing site such as a wiki could be used as a place for mandatory peer review to take place and improve the overall quality of work being generated. The key is to put in place initiatives that are not only sustainable and effective but also personable. Collaboration in the classroom is a model for organizations to look for examples of what works and what doesn’t in terms of sharing knowledge.

Knowledge transfer through collaboration can also be increased in the classroom when students rotate through the role of instructor (Fredrick, 2008). Knowledge transfer in education often includes a student teacher relationship and the negative connotation from that relationship can impact a student’s willingness to collaborate. A student may interpret the student teacher relationship to be authoritarian and reject the instructor’s knowledge sharing attempts.

Authoritarian relationships within organizations could also be a contributing factor when a leader’s knowledge sharing attempts fail (Wu, Lin, Hsu, & Yeh, 2009) and as indicated in the previous section, members of an
organization may withhold knowledge out of fear of showing management they have more knowledge.

Organizations could implement knowledge transfer initiatives that allow for one group member to lead or peer review other’s work on a rotational basis. As each member cycles through a unique leadership role each member will have the opportunity to share knowledge with peers through collaboration. Leaders who facilitate the transfer of knowledge as one of the team members as opposed to team leader may see success in fostering a culture of knowledge sharing.

Buechler (2010) examined the effect of implementing a blog in an attempt to foster collaboration among students. The blog didn’t require students to be collaborating at all times, but when they did work together they were successful in making informed decisions. The blog, as a collaboration tool, mirrors the experience of students using the wiki, in that students took more responsibility over their ideas when they knew their work would be available to a wider, Internet-based, audience (Buechler, 2010). Also like the wiki, the collaboration that took place was a form of knowledge transfer.

Managing Knowledge with ICT

ICT as a tool can only affect knowledge transfer to the degree to which the members of an organization use the tools available to them (Van der Hooff, Weyers, Peters & De Lange, 2005). Lee, Goh and Sumant (2010) point out however, that it is unthinkable to conduct business without the assistance of ICT in managing knowledge. Furthermore, Lee et al. (2010) suggest that ICT is perceived to be rather useful because it has the ability to promote sharing,
improve process flow, and provide multiple methods of obtaining knowledge.

Alavi and Leidner (1999) posit that ICT can act as a catalyst in implementing any knowledge management program. Again, although ICT is viewed as potentially useful, this doesn’t mean that ICT alone can guarantee collaborative knowledge sharing. Organizations that create a culture of openness and transparency help to promote knowledge transfer on multiple levels (Burgess, 2005).

Nelissen et al. (2005) reviewed the difference between explicit and tacit knowledge as it relates to the knowledge sharing process. Explicit knowledge is documentable such as: diagrams, schematics or statements of work. Tacit knowledge cannot be documented and is gained by experience and shared through trusting relationships (Argote & Ingram, 2000; Roberts, 2000). Foos, et al. (2006) suggests that tacit knowledge is “participation and doing.” The distinction between explicit and tacit knowledge is important because both types of knowledge need to be considered when designing and implementing a knowledge transfer strategy. Social media is a foundation for building personal relationships through the use of ICT (Brown, 2011). As personal relationships are formed through social media and then combined with ICT’s ability to store information explicit knowledge can be transferred and captured. Through interpreting the literature about knowledge transfer it is suggested that social media is a vehicle for tacit knowledge to become explicit knowledge (Nelissen et al., 2005).

**Diffusion of Innovations Theory**

Although knowledge transfer will continue to be an essential focus for organizations and educators, the human factor will remain the most important part
of knowledge transfer. The tools that ICT can provide for transferring knowledge will continue to increase in user simplicity while providing more complex solutions for transferring knowledge, storing knowledge and collaborating. Going forward, the areas of research surrounding social media, not as a tool, but as a basis for human connectivity will help explore its impact on knowledge transfer. ICT is only successful when the members of an organization buy into that particular ICT method. If the ICT is too complicated or unreliable, collaboration is unlikely to happen.

The Diffusion of Innovations Theory predicts the speed at which new technology spread through cultures. ICT tools that are available today will continually be replaced as technology matures and innovation thrives. Everett Rogers modeled five factors that measured the likeliness of adopting a new technology based on over 500 studies. His model for examining adoption rates of new technology are: Relative Advantage, Compatibility, Simplicity, Trialability and Observability. Roger’s model is applicable in determining the adoptability of using social media as an effective means of transferring knowledge (Katona, Zubcsek & Savary 2011). Technology is improving at a very rapid rate, but the fundamental technology (i.e. high-speed Internet, silicon microprocessors and high capacity compact batteries), that paved the way for computers and smaller ICT devices such as cellphones or tablets is stable. Roger’s model helps demonstrate the effectiveness and process of ICT implementation. Furthermore, Roger’s model can be used to compare and contrast general ICT and social media as tools for transferring knowledge.
Summary

The use of social media in facilitating knowledge transfer is a new field of research, however the concepts identified in this literature review conclude that tools are secondary to people. However, as demonstrated by the group of students using a wiki to communicate and collaborate, ICT, if implemented appropriately can become more valuable in the knowledge transfer process. Collaboration is a form of active knowledge transfer and social media and ICT can lead to collaboration as people connect with each other. People should be the focus when implementing any knowledge transfer initiative, but tools are now essential in this modern age of multi-national corporations and distance learning.

Social media (a type of ICT) has brought about the ability for members of an organization to use ICT to store and transfer knowledge as if they were sitting next to each other. As demonstrated by the literature strong relationships are necessary to increase knowledge transfer, whether the interactions are taking place in person or through ICT. Social media may be the avenue for fostering an effective knowledge management initiative that includes both ICT, and both types of knowledge, explicit and tacit (Chan & Chow, 2008).

As demonstrated in the literature, knowledge transfer initiatives are worthy of careful consideration and planning. Many different types of ICT can be used to implement knowledge capture in an organization, but social media may be an effective ICT to not only capture knowledge but facilitate the transfer for knowledge. The purpose of this study is to observe the impact and perceptions social media has on knowledge transfer.
Chapter 3: Scope and Methodology

Research focusing on knowledge transfer and research focusing on ICT as a communication tool are vast. Most of the research examined in the literature review section consist of not only qualitatively gathered information but also include results from surveys conducted to accumulate information about the specific study or theory presented. The research discussed in the literature review however, doesn’t delve into survey or focus group method research in light of the hypothesis or theory explored here.

Therefore, in keeping consistent with the methods of research used to support this thesis, focus groups were conducted as the next logical step in furthering the research about social media’s impact on knowledge transfer and the Diffusion of Innovations theory. A focus group is the study of the interaction and dialogue between group members and seeks to understand decisions and attitudes held by members (Rubin, Rubin, & Piele, 2005). Participants discussed the impact of social media and other ICT on knowledge transfer initiatives as part of focus groups. The facilitator led the discussion in the direction of the five factors affecting adoption rates as modeled by the Diffusion of Innovations theory.

The survey method was also considered as a complement to focus groups, or as a separate individual research method for adding to the existing foundation of research on this topic. However, in order to design survey questions appropriately it was determined that focus groups were required to provide a baseline to reference. Future studies employing the survey method will be able to draw upon the results of these focus groups, and to help design relevant survey
questions to continue research in the field of social media’s impact on knowledge transfer and adoption rates of technology within organizations as outlined in the Diffusion of Innovation theory.

Scope

In focus group research the interaction between the members of each group studied are as important as the words they use to communicate with each other. In defining the scope of this study it is worth mentioning that the members of each group participated in knowledge transfer during the focus group sessions. The interaction took place on a personal level and both explicit and tacit knowledge were transferred. Serious consideration was given to the idea of designing a focus group research method that incorporated elements of social media. However, the role of facilitator was deemed pertinent in collecting data through not only content analysis, but also through ethnographic analysis. The ability to collect ethnographic data through social media was not apparent and was therefore abandoned.

The scope was limited to male and female engineers and was conducted within a manufacturing organization, focusing on defense and aerospace products. Engineers were the only group identified to participate in the focus groups, because engineering knowledge transfer is currently difficult across physical locations. Social media specific ICT used to transfer knowledge can have a greater impact on this segment of the population than other segments that don’t experience the same difficulties in transferring implicit and tacit knowledge. Engineers were selected based on availability and also desire to participate in the
focus groups. No other criteria were used to select focus group participants. Each focus group consisted of two to four participants and participant’s location varied across the country; however, some focus groups consisted of members from the same site.

**Design**

Three of the focus group discussions were conducted in person and one discussion took place through a conference call. Each focus group consisted of three to four participants. The participants were spread across the United States, and although it may have been of value to conduct all focus groups in person, it was not practical in this instance. The facilitator initiated the interaction of the focus group that took place over the conference call and a preamble was read once all focus group members had connected (Appendix A). The facilitator asked each person to limit talking over other people and asked that the conversation stay on topic for the duration of the call.

Focus groups that took place in person were held in a small conference room with a table around which participants sat. The facilitator provided food and beverage for participants as an incentive for participation. After the facilitator called the meeting to order the same preamble read to tele-participators was read to those in attendance. After the facilitator read the preamble the discussion began. The facilitator had a series of questions to ask each focus group (Appendix B). The questions were all covered by each group and helped give continuity to the discussions.
In each instance the facilitator took notes and the focus groups were also recorded as all participants gave permission to do so. The facilitator focused not only the exchange of words but also the facial expressions, body language and physical emotions displayed by participants. The facilitator listened very carefully for verbal queues when carrying out the conference call focus group.

**Sampling**

Contact with potential participants took place in person or by phone and was supplemented with email. Participants were all volunteers and required their manager’s approval to take part in the focus group. An informational letter containing the purpose of the focus group and an explanation of potential risks, benefits and protocols was distributed to all potential candidates and their direct manager (Appendix C).

To coordinate meeting times a calendaring tool already in use by the organization identified open times for holding discussions. Each of the four discussion group meeting lasted between 45 minutes and 1 hour in length. In every situation the researcher was the facilitator of the discussions.

**Data Analysis**

Data analysis of each discussion group recording and analysis of notes taken during discussions was completed. Key words and repeated phrases were counted and catalogued in a spreadsheet. Any thoughts or ideas that weren’t clearly understood or deconstructed during the focus group discussion were set aside. As necessary group members were contacted to seek clarification of a participant’s intent.
An analysis of tone and emotion by the author helped to assess the engagement of each participant in the focus group discussions. In addition, focus group discussions that took place in person allowed the author’s notes to include references to other non-verbal cues.

**Ethical Considerations**

No hard copies of data that reference names or group members were kept after the focus groups met. All hard copies were scanned and destroyed and all scanned records and emails were stored digitally in an encrypted format. Group members signed an authorization form that grants the author permission to use the data broadly across other research as long as personal identity is not disclosed.
Chapter 4: Results

Participants of focus groups shared many similar viewpoints about the subjects of knowledge transfer, the importance of building relationships and also the lack of participation in using organizational tools. Participants disagreed about how relationships are best formed and often disagreed along generational lines. Some participants were very sure of their answers, not only speaking boldly, but also portraying confident body language and eye contact. A few participants didn’t have as strong opinions or had not yet formed opinions on the subjects covered. Participants who were less sure of their answers were more reserved in speech volume and spoke from a defensive posture.

The Current State of Knowledge Transfer

Although participants didn’t have the same level of confidence and knowledge of the subjects discussed, each person played an important role in understanding the current state of knowledge transfer in the organization and helped to highlight the different levels of engagement regarding knowledge transfer in this organization. The fact that not all organization members actively participate in knowledge transfer with the same intensity as their peers illuminates the challenges the organization faces in continuing to implement an effective knowledge transfer strategy that will inspire all to engage.

All participants mentioned using common ICT for sharing knowledge: including corporate email, corporate instant messaging services and corporate cloud based document storage tools. A few participants reported using other ICT not used by all participants, these tools are: the corporate wiki, Microsoft
SharePoint; a Facebook like corporate web service and screen sharing. When asked why some of these other tools with many features that are familiar to users of Facebook aren’t used more widely, an engineer who has been with the company for only a few years said he doesn’t start posting information to a new tool until he sees others using the tool:

- You only get out of it what other people put into it and until you reach that critical mass where you’re getting enough value out of the system to add your own to it and then improve the overall value of the system, you’re not really going to have a self sustaining database.

Another participant echoed similar comments and stressed that he wasn’t sure what role social media type ICT has in a corporation because he hasn’t seen any of the corporate initiatives work.

**Relational Comfort and Knowledge Sharing**

All participants acknowledged that they are more comfortable sharing knowledge with somebody with whom they have developed a relationship. However, there wasn’t consensus on whether or not a meaningful relationship, worthy of knowledge sharing, could be built and maintained solely over ICT. A female engineer who has been with the organization for approximately ten years said she has to meet the person face-to-face before she feels comfortable enough to share knowledge. Multiple people said once a face-to-face meeting has taken place and that a relationship has begun to form it can be maintained and even
strengthened over ICT. A participant who joined the organization in the last six months summed it up by saying:

_The more you know a person the more you share._

Another participant took it one step further and pointed out that not only is the amount of knowledge transfer affected by the relationship but also the type of knowledge is dependent upon the strength of the relationship. An engineering manager with twenty plus years experience advised that communication methods and knowledge transfer methods he uses are based on the type of relationship he has with a person. In some cases he may pick up the phone, or he may send an email or he may get up out of your chair and physically approach the person. In some cases he will get on an airplane to either maintain an important relationship or repair a relationship or to form a new relationship. No participants mentioned they would use email or messenger to try to improve a broken relationship; instead specifically mentioning they would pick up the phone or go in person.

Even though there was a consensus about what types of knowledge can be transferred through ICT there was disagreement about the strength of relationships formed through ICT alone. When asked if relationships formed entirely through ICT could be strong enough to make you want to share information, the engineering manager who has been in the work place for 20 plus years said:

_I may be more old school. If I don’t know the person and haven’t met them, then I’m a little more hesitant on what information I will share._
Another participant talked about the strong relationships he has formed through online gaming with people he has never met face to face. Furthermore he stated that how comfortable he feels even after a couple of sessions with people who are otherwise strangers.

**Knowledge That Transfers**

Of those members who agreed that relationships could be formed over ICT to a degree in which knowledge transfer was possible, had concerns about the types of knowledge that could be transferred. All participants commented that it is easy to transfer implicit knowledge over ICT, but it is nearly impossible to transfer tacit knowledge. An engineer who has been with the organization for two years spoke about the difficulties he would encounter if he were trying to mentor high schools students on robot building over ICT as opposed to in person:

> A lot of it is testing the device and running it through the course and seeing where it hangs up. And then me troubleshooting what is the problem and saying, okay, it hung up here...and without being there physically with them you wouldn’t be able to diagnose the problem at all.

The female engineer who has been with the company for about ten years did explain that depending on the familiarity of the relationship formed you could in fact give detailed instruction over the ICT, especially video chat.

Most of the participants have observed peers hoarding knowledge in their time in this organization. Similar to the previous research discussed in the literature review, members of an organization who hoard knowledge are
perceived to be protecting their job or trying to demonstrate a power over their peers. All participants denied participating in the hoarding of knowledge for the aforementioned observed behaviors, however all participants admitted withholding knowledge from peers with which relationships had not yet formed.

Participants who have been involved in training new group members agreed that knowledge transfer increases as part of the new employees training program. The engineer who has been with the organization for two years stated that during his training process he kept in contact with the member who trained him, even though the member was no longer in the same site or sector. The relationship and knowledge transfer continued for two years at which time the member returned.

**Discussion**

According to the results of the focus group discussions conducted, social media can be used as means for forming relationships and creating a culture of knowledge transfer. Furthermore, similar to evidence discovered during the literature review, organizations spend time and money to introduce tools in an attempt to improve or increase knowledge transfer. As explained by Arogte and Ingram (2000), efforts exerted by organizations are focused on implementing new ICT as an effective means of improving communication. The findings of this study also show that, although organizations spend money and invest time in tools, many of the tools go unused (Luo et al., 2006).

Organizational transfers help to improve knowledge transfer in a group. Focus group participants reported sharing knowledge with new organization
members freely and believed a new member opened knowledge transfer among all organization members. Organizations can spend little money, compared to introducing a new knowledge transfer tool, by implementing rotations. A rotation program not only improves overall knowledge transfer, but also has other beneficial side effects (Pan and Wang, 2010).

In the course of exploring the concept of knowledge hoarding during the focus group discussions, it became apparent that no participant willingly admitted to participating in not sharing knowledge. The evidence presented in the literature review concludes that organization members hoard knowledge for a number of reasons. These reasons include: power, job insecurity, attempts to not appear smarter than management and other systemic barriers. Focus group participants may be expressing the Third Person Effect by not acknowledging they themselves participate in knowledge hoarding. Third Person Effect as explained by Davison (1983) posits that people underestimate the effect external influences have on them. Focus group participants denied participating in information hoarding after hearing some of the reasons why a person might hoard knowledge.

Tools are not more important than people when implementing knowledge transfer program. All participant of focus group discussions admitted that the relationship were more important than any other factor when considering who and what to share. Burgess’s (2005) claim that organizations that focus on people over tools will benefit the most over time is also substantiated by this study.
In comparing the results of focus groups to Rogers’ Technology Acceptance Model, social media meets all the requirements of each of the five factors that predict technology acceptance. ICT based social media 1. Demonstrates a *Relative Advantage* over previous technology, 2. Continues general *Compatiblity* with existing technology, 3. Increases *Simplicity* and availability, 4. Contains repeatable *Trialability* and 5. Is strengthened by constant *Observability*. Although ICT will continue to improve and therefore improve social media, new similar tools will not deviate from meeting the requirements of diffusion as outlined in the Diffusion of Innovations Theory.

However, not all participants match Roger’s model exactly and it appears from the study that some influences affect the extent to which technology is adopted. Participants less familiar with building relationships through ICT were less comfortable than participants who routinely build relationships through ICT with sharing knowledge with new acquaintances. In comparing the comments of those comfortable as compared to those who are uncomfortable, the divide is seemingly created by generations.

This study shows that social media has an impact on overall knowledge transfer and like other studies applying communication theory to social media, technology continues to shape communication perspective. Knowledge management is an important part of organizations that is continually being revised based on technological advances. Although social media and knowledge management are affected by technology, the ability to create community through these technological advances is still not fully understood. The results of this study
can be used to further understand if community can really be built in a digital world.
Chapter 5: Conclusion

Limitations of the Study

Limitations of this study include focusing solely on the engineering discipline as it relates to knowledge transfer. Also the study covered multiple knowledge transfer initiatives being maintained in parallel because the organization examined has yet to settle on one solution. Distributing a survey to the engineering population focusing on one ICT knowledge transfer initiate in the future could provide a better comparison to the Diffusion of Innovations theory as opposed to the general comparison conducted in this study in which general ICT was compared.

Another limitation in this study was the lack collecting participants’ demographic information. Preliminary data from the study seems to conclude that members will participate in social media based knowledge transfer differently based on generational divides. The study did not determine if members who work at the same physical location are more likely to see success in transferring knowledge over social media as they have more opportunities to build relationships.

Finally, the participants were not asked to assess their own level of social media based knowledge transfer technology acceptance based on levels of the Diffusions of Innovations Theory. Providing opportunities for participants to give feedback on Roger’s model would give a better understanding of the relevance of social media in this culture. Information about the relevance of Roger’s model currently could also discovered.
Recommendations for Further Study

Further research in the area of social media and knowledge transfer could focus on the effect one’s generation has on knowledge transfer through social media. Focus group data collected in this study demonstrated a sharp division in knowledge transfer willingness over social media based on the generation of participants perceived by the author. Again the survey method could be used to collect information to better understand the challenges facing organizations in implementing broad knowledge transfer initiatives.

The survey method could also be used to measure the willingness of organizations to accept technology based on Roger’s model. A self assessment of how each of the five factors of the Technology Acceptance Model is rated based on a standard scale could further define the impact social media has on knowledge transfer.

Conclusions

Knowledge management and knowledge transfer will continue to be an important topic of research because of the value knowledge has to an organization. ICT will continue to improve and impact the way in which knowledge is shared, stored and transferred, however, the impact of the relationship between transfer participants has on the type and amount of knowledge an individual is willing to share will stay constant based on the findings of this study.
References


Appendices

Appendix A: Preamble

Thank you for your participation in this focus group study. Over the next hour we will discuss a number of topics all relating to knowledge transfer, social media, types of knowledge and challenges facing engineers in this organization. Although your participation is voluntary professionalism and courtesy to your peers is appreciated and expected. Each of you will have an opportunity to share your thoughts and ask follow up questions as part of the discussion.

To keep the conversation on target and to keep time I will be asking a series of questions. The format of the discussion will be mainly open and I will only interrupt to move the conversation to the next question or to bring the group back to the topic.

Knowledge is an important resource to organizations and managing the storage and transfer of knowledge is a challenge faced every day. Through the use of computers and other technology the storage and transfer of knowledge has become easier, but certain challenges still exist. There are two types of knowledge. Tacit knowledge is learned by doing, and Explicit knowledge is easily stored for later retrieval (schematic/drawing).

The consensus in the academic world is that knowledge is more likely to be transferred when personal relationships have been formed. Social media is relatively new platform for building personal relationships across distance. The question that I hope to answer from this study is “what impact does social media have on knowledge transfer?”
Appendix B: Questions

1. What organization provided tools do you use to transfer (store) knowledge today and are there tools available that you don’t use?

2. What social networking or social connecting tools are available?

3. What impact does your relationship with a co-worker have on the amount of knowledge you are willing to share?

4. Would you feel comfortable sharing knowledge with somebody based on a relationship created through social media?

5. What limitations exist on the types of knowledge you are able to share via Information computer technology?

6. Can tacit knowledge only be shared if you are in the same physical location as the person sharing the knowledge?

7. What limitations are there on the type of knowledge you are willing to share?

8. What challenges prevent knowledge from being transferred between sites?

9. Do you have a tendency to hoard knowledge to protect your position?

10. Are you more likely to share knowledge when training a new group member?

11. What weaknesses does this organization have in their knowledge transfer initiatives?

12. How do you convince your peers to share knowledge with you and how do they convince you to share knowledge with them?
Appendix C: Informed Consent

With the approval of your company, Michael Showalter will be conducting a voluntary focus group study. This study is part of Mr. Showalter’s graduate studies at Gonzaga University and not at the request of your company’s leadership team. The result of these focus groups will lead to a greater understanding of the challenges facing the transfer of engineering knowledge across sites and sectors. This research will include one-hour focus groups with two to four participants. During the focus group discussions participants will be encouraged to freely share their own opinions while answering a series of questions.

Your participation in this study is voluntary and you may discontinue participation at any time without penalty. All answers will be kept anonymous and confidential. Results of this research will be made public but no names or identifying characteristics will be mentioned.

With your consent the interview will be audio recorded for transcription purposes. You will be given a copy of the transcription to confirm what you have said. The recording will then be destroyed. Transcribed data will not have your first name associated with it and no other personal information will be recorded.

The risks to you as an employee and participant are minimal and there is no cost to participate.
Appendix C: Informed Consent (continued)

I, _______________________, agree to participate in this focus group. The study has been thoroughly explained to me and my questions have been answered to my satisfaction. I have read the description of this project and give my consent to participate.

____________________________  ________________

1. Participant’s Signature        Date