

Is there a problem when transferring tacit knowledge by email within distributed groups in an organisation?

Initial research-in-progress report

Author: Abosede Adegbola

Postgraduate student on Masters in Strategic Management, Dublin Institute of Technology

Abstract

This article is a work-in-progress report of a study that plans to explore the transfer of tacit knowledge electronically within distributed groups, i.e. groups of geographically dispersed organisational members who carry out the majority of their activities through information technology. With many organisations becoming international and global, there is an increasing need for Distributed Groups (DGs) and individuals to communicate with each other within those groups. Technology allows people and teams to work together at different locations and also allows the transfer of Tacit Knowledge (TK) within DGs in an organisation. The study will specifically investigate (a) possible problems that could be encountered when tacit knowledge is transferred by email or electronically mediated in DGs. (b) identify the problems and (c) make recommendations based on the findings.

Keywords: knowledge management; knowledge creation; tacit knowledge; geographically distributed groups; communication theory; organisational knowledge creation; spiral of knowledge creation

1. Introduction and Statement of the Problem

This study has been encouraged by the work of Michael Polanyi (1966) where he clearly explains that the transfer of tacit knowledge is based on the premise that we can transfer tacit knowledge effectively only when the receiver has the intelligence, prior knowledge and understanding to capture the knowledge being transferred:

“Can it not be argued, once more, that the possibility of teaching these appearances by practical exercises proves that we can tell our knowledge of them? The answer is that we can do so only by relying on the pupil’s intelligent co-operation for catching the meaning of the demonstration. Indeed, any definition of a word denoting an external thing must ultimately rely on pointing at such a thing. This naming-cum-pointing is called “an ostensive

definition”; and this philosophic expression conceals a gap to be bridged by an intelligent effort on the part of the person to whom we want to tell what the word means. Our message has left something behind that we could not tell, and its reception must rely on it that the person addressed will discover that which we have not been able to communicate.” Polanyi (1966: 5-6).

The argument then is that tacit knowledge transfer requires that the knowledge being sent has to be clear in order for the recipient of knowledge to understand it. The onus then falls on the sender of this message to ensure that the message is very clear and the recipient can make sense of it based on their own intelligence and prior knowledge and understanding. This is even more difficult when tacit knowledge is transferred electronically, hence the necessity for this study. This then brings the issue of “motivation” into the concept of tacit knowledge transfer.

Tacit Knowledge by its nature is highly “personal” and hard to formalise, thus making it difficult to communicate or share with others, Nonaka & Takeuchi (1995). Sternberg (1994) and Nonaka (1991) argue that tacit knowledge has a cognitive dimension. Ravetz (1971) suggests that tacit knowledge becomes so embedded in the individual that it seems entirely natural. Desouza (2003:88) used the interview method of data collection and this gave an opportunity to probe further questions with the interviewees. The research found that ICT solution was not sought to foster tacit knowledge transfer and the key reason being that the programmers and engineers had a hard time explaining things in words, “they would rather demonstrate how it is done...”.

The assertion by Nonaka & Takeuchi then queries the motivation of the sender in the first place. The explicitness by the owner of the tacit knowledge when transferring tacit knowledge can be affected by how motivated they are in the first place. If they are not that motivated, then the message being transferred will be weak and comprehension on the part of the receiver of the knowledge will be affected.

With many organisations becoming international and global, there is an increasing need for Distributed Groups (DGs) and individuals to communicate. Technology allows people and

teams to work together at different locations and also allows the transfer of Tacit Knowledge (TK) within DGs in an organisation.

There is a wealth of literature that has examined the impact of, and the factors facilitating and impeding, successful collaboration using various information technologies in geographically Distributed Groups both within and across organisational boundaries: Johansen 1988; Galegher, Kraut & Egidio, 1990, Huber, 1990; Jarvenpaa & Ives, 1994; King Rice, Majchzak, Malhotra & Ba, 1998. Much of this work focuses on benefits and costs to individuals and companies from the use of such technologies, on the process gains and losses of using them, and on what work is best performed electronically as opposed to face-to-face. However, very few studies have examined the transfer of Tacit Knowledge (TK) through emails/electronic technology in a complex environment where groups are distributed and separated geographically in the same organisation.

This study will investigate the possible problems that could be encountered when tacit knowledge is transferred electronically, particularly by email, and based on the findings give some recommendations to organisations on what they can do to avoid future problems in this area. The study will also build on previous work that have been carried out on globally dispersed groups and communication within this group, as well as examine the previous work that have been carried out in the theory of communication specifically.

1.1 Research motivation from my personal work context

Part of the motivation to do a research in this area is the personal work experience of the author whereby I have been able to master important and relevant information relating to my job role over time and have not been able to explain the reason behind it. In addition, I find that it is difficult to share this valuable knowledge with colleagues because it is “personal” and “natural” to me. This experience is a very good example of what Nonaka & Takeuchi (1995) asserted that tacit knowledge by its nature is highly “personal” and hard to formalise, thus making it difficult to communicate or share with others. Sternberg (1994) and Nonaka (1991) argue that tacit knowledge has a cognitive dimension and Ravetz (1971)

suggests that tacit knowledge becomes so embedded in the individual that it seems entirely natural and intuitive.

2. Purpose of the Study

The purpose of this study is to address the gap between how tacit knowledge is transferred from the sender within distributed groups of an organisation using electronic technology such as email and how this knowledge is received by the recipient. The aim of the study is to draw from theories of knowledge management, tacit knowledge and communications theory to explore the issue of intent of the sender and the interpretation by the recipient of the knowledge being transferred by email or intranet. How can the sender explicitly transfer TK through emails or intranet and ensure that there is no misunderstanding of the content of the email by the recipient? Polanyi (1966) suggests that knowledge is personal, “we can know more than we can tell”. He explained that knowledge is internally processed and embodied in one’s self (in Gourlay, 2002). This suggestion by Polanyi brings to mind the possibility of a problem in transferring TK through emails or intranet, for example, because knowledge is personal it is difficult to transfer.

3. Research Question

The main research question that the study seeks to ask is:

Is the transfer process and content of tacit knowledge (TK) affected in any way when sent by email within distributed groups?

There are sub-headings arising from the research questions below, as follows:

1. Is there a tendency for TK to be misinterpreted by the receiver when transferred through emails?
2. Is the intent of the sender lost when transferring TK through emails?
3. Is there any evidence that emails mediate the knowledge transfer process?
4. Can TK be transferred by email explicitly from the sender to the receiver in an organisation?

5. Is there a likelihood of vital knowledge being lost in the process of transfer of TK by email?
6. Is Internalisation of TK impacted in any way when transferred through emails?

4. Literature Review

4.1 Geographically Distributed Groups

Globalisation and continuous improvement in technology has necessitated the need for Geographically Distributed Groups in many organisations (GDGs). The term Geographically Distributed Groups can be used interchangeably as “Dispersed Group/Teams” “Virtual Teams” or “Distributed Teams”. Getting a group of people to work successfully as a team - communicating effectively, establishing trust, sharing the load, and completing tasks on time - is difficult even when the team members are all in the same location. When team members are spread out in various locations, it presents new obstacles for the organisation.

Mohrman (1999) describes GDGs as group of individuals in different locations and often in different business units or companies who share accountability for a product, service, or collective function or task, and who are interdependent in carrying out their accountabilities and thus must work collaboratively to accomplish them. Sessa *et al.* (1999) identify the importance of electronic technology in transferring information amongst GDGs. They identify GDGs as groups whose members are dispersed across distance and time and are linked together by some form of electronic technology and physically interact with each other rarely or not at all.

Kossler and Prestridge (2004) defined GDGs as groups who have members who are not in the same place; they come from different countries, cultures and time zones. Carmel (1999) notes that globally distributed Information Systems development projects are projects consisting of teams working together to accomplish project goals from different geographical locations.

GDG was looked at from another perspective as an effective response to the needs for remote enterprises to have a local presence in global markets, to be flexible and responsive, and to enjoy substantial cost advantages and around-the-clock working (Boutellier et al., 1998; Grimshaw & Kwok, 1998; Gorton & Motwani, 1996).

Axtell, Fleck, & Turner (2004) have another dimension to GDG. They described them as a group of people striving toward a common goal, dispersed in many locations, and communicating with each other predominantly by way of information and communication technology (ICTs). GDGs are characterised by the fact that members communicate with each other mainly through information and communication technology (Axtell *et al.*, 2004; Gibson & Gibbs, 2006). This can be put in another way: lack of face-to-face meetings is a typical feature of GDGs.

Nemiro (2002), note that GDGs are groups of geographically dispersed organisational members who communicate and carry out their activities through technologies – telephones, fax machines, email, videoconferencing or groupware.

4.2 Knowledge Management

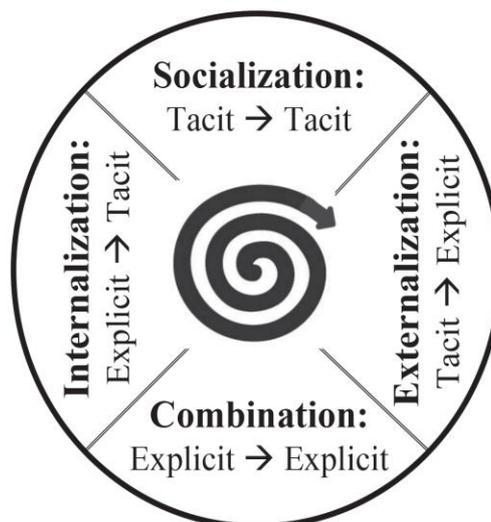
A lot of work has gone into the study of knowledge management in general and tacit knowledge. Nonaka (1994) defines knowledge as being “justified true belief” and consider knowledge as “a dynamic human process of justifying personal beliefs as part of an aspiration for the truth”. De Witt and Meyer (1998) describes knowledge as that which constitutes all the know-alls including know-how, know-what, know-that, know-why and know-when.

Companies are increasingly realising that knowledge is often produced and shared as a by-product of daily interactions with customers, vendors, alliance, partners and even competitors. Nowadays, to achieve success, managers and specialists need to effectively apply knowledge to successfully conduct information-intensive operations and management activities, (Chen & Pang, 2010; Liu & Wu, 2008; Zhuge, 2002). Studies have shown that

precise and timely knowledge support is an important mechanism for increasing both productivity and work effectiveness (Kingston & Macintosh, 2000; Liu & Lin, 2008, 2012).

Organisational knowledge is created through a continuous cycle of interaction between an epistemological and an ontological dimension of knowledge, also referred to as the spiral of knowledge creation (Nonaka, 1994; Nonaka & Konno, 1998). The spiral of organisational knowledge creation has four elements of interaction between tacit and explicit knowledge: socialization, externalization, combination, and internalization (SECI). In each of the four phases, existing knowledge is converted into new knowledge. While each of the four elements of knowledge conversion can create knowledge autonomously, the theory of organizational knowledge creation centres on the dynamic and continuous interaction between the elements (Nonaka, 1994). **Exhibit 1** shows an enhanced graphical representation of Nonaka's (1994) model.

Exhibit 1. Enhanced Model of Organizational Knowledge Creation (Nonaka, 1994)



4.3 Tacit Knowledge

Polanyi (1958) first famously defined tacit knowledge as the unspecifiable process of knowing-in-action that is impossible to articulate and communicate to others. He also notes that “We know more than we can tell” (Polanyi, 1967:4). One of the characteristics of tacit knowledge is that it is difficult to write down, to formalise (Nonaka, 1991). “Tacit Knowledge consists of that knowledge which cannot be expressed explicitly and which cannot be communicated or taught to others through the verbal and mathematical articulation of words, numbers, diagrams and other symbols” (Polanyi, 1959, 12-13). Zander & Kogut, (1995) note that tacit knowledge is difficult to teach and Orlikowski (2002) talks about tacit knowledge being a form of knowing that is inseparable from action because it is constituted through doing.

Nonaka (1991), Grant (1993) and Spender (1993) based their arguments on the premise that TK occupies a central role in the development of sustainable competitive advantage, while Grant (1993) and Sobal and Lei (1994) note that TK is one of the most critical resources of the firm. They justified and argued that because of the ability of competitors to quickly acquire some types of resource, it is difficult for those competitors to replicate the resources that are not easily transferable. They explained that TK is the most strategically important resource of the firm.

4.4 The Theory of Communication

The main focus of this work-in-progress report is the transfer of tacit knowledge using technologically mediated interfaces. This is an important research area as any medium of communication that does not involve face-to-face conversation leaves room for misunderstanding and the intent of the sender not being conveyed to the receiver properly. The theory of communication is very important to this study, in that it clearly looks at the research questions and their relationship to the area of study. Scholars and literature have much to say with regard to what happens when a message is sent by the sender and how it is received by the receiver and what happens in between the process of sending and receiving.

In discussing communication, Hinds and Kiesler (2002) explain that it is important for writers of email messages to be more explicit in forming messages because they do not have feedback from the audience during the composition process. The long delays between sending a message and receiving a reply often mean that linguistic context is not well preserved. Unlike the email, the real time nature of face-to-face conversation improves the prospects for repairing misunderstanding and other problems. They suggested that for messages to be interpretable, writers may need to reintroduce quotations from previous messages into the body of the message itself.

Franco *et al* (1995) used the “second-guessing” theory to describe what happens when emails are misunderstood. “Second-guessing” theory suggests that evaluations of messages - and therefore comprehension - will be closely linked to the receiver’s evaluation of the sender. This theory holds that people believe messages are biased, so they constantly “second-guess” the sender’s intentions to try to get a truer version of the communication.

To discuss the intent of the sender and the interpretation of the receiver, Weaver (1948) in his information theory wrote:

“Relative to the broad subject of communication, there seems to be problems at three levels. Thus it seems reasonable to ask, serially:

LEVEL A. How accurately can the symbols of communication be transmitted? (The technical problem.)

LEVEL B. How precisely do the transmitted symbols convey the desired meaning? (The semantic problem.)

LEVEL C. How effectively does the received meaning affect conduct in the desired way? (The effectiveness problem.)”.

Weaver also notes that the technical problems are concerned with the accuracy of transference from sender to receiver of sets of symbols (written speech), or of a continuously varying signal (telephonic or radio transmission of voice or music), or of a continuously varying two-dimensional pattern (television). The semantic problems are

concerned with the identity, or satisfactorily close approximation, in the interpretation of meaning by the receiver, as compared with the intended meaning of the sender. Weaver explains that the effectiveness problems are concerned with the success with which the meaning conveyed to the receiver leads to the desired conduct on his part.

5. Methodology

The purpose of this study is to determine whether the transfer process and content of TK is affected in any way when sent by email within distributed group in an organisation. The data collection that will be used for the study is a qualitative method. Qualitative research studies things in their natural settings, attempting to make sense of, or to interpret phenomenon in terms of the meanings people bring to them (Denzin and Lincoln, 2000).

Further studies of qualitative research reveals different methods of primary data-gathering using the interview, some of which are in-depth/unstructured, structured and semi-structured. For the purpose of this study, a combination of semi-structured and in-depth interview methods will be used. The reason for this is that they allow for variation in the questions to be asked. This means that some questions may be omitted in particular interviews given specific organisational context that is encountered in relation to the research topic. The order of questions may also be varied depending on the flow of the conversations. On the other hand, additional questions may be required to explore the research question and objectives given the nature of events within particular organisations Saunders *et al.* (2008).

In addition to the above, using semi-structured and in-depth interview will give an opportunity for some questions that can help to get important information from the interviewees such as 'how does that happen', 'what causes that?', 'who is involved?', 'what influences that?'. By answering these questions, the interviewees can start eliciting more particular, precise reasons for their responses. This is a digging process whereby layers are removed to reveal what is beneath towards the core and this process is called the 'onion' metaphor. Delving into the reasons for any response given by the interviewees is like

peeling an onion, layer after layer, the interviewees get to the detail, details that could not have readily surfaced without prompting, digging and probing.

Respondents

Six respondents that work in GDGs from six different organisations will be interviewed. It is expected using the onion approach as discussed earlier will assist in getting very important and relevant information from this respondents that can be developed further.

6. Conclusion

Due to lack of research in this area, there is the necessity to develop a study that examines how well tacit knowledge can be transferred electronically from the sender to the recipient. Although the discipline of knowledge management has been around for a long time, it is only recently emerging as an organisational tool used to gain competitive advantage.

From a social change perspective, this study has the potential of affecting management both strategically and in practice. Strategically, tacit knowledge capture is critical when an issue of knowledge continuity arises or due to other concerns with groups and the organisation as a whole. In practice, it is tied to the concern that critical knowledge capture is fairly vague to individuals as it requires the continuous education of staff on the importance of knowledge sharing and encouraging employees to share knowledge is not a particularly easy task because of the prevalence of the *Knowledge is power paradigm* (Dzekashu & McCollum, 2014).

It is important for organisations however, to ensure that great importance is attached to whatever form or ways they intend to transfer tacit knowledge and that their employees appreciate the importance of passing this valuable knowledge among themselves in a very effective way.

References

- Ambrosini, V., & Bowman, C., (2001). Tacit Knowledge: Some Suggestions for Operationalisation. *Journal of Management Studies* 38:6
- Blackburn, T., Garstenauer, A., Olson, B., (2014) A Knowledge Management Based Approach to Quality Management for Large Manufacturing Organizations *Engineering Management Journal* 26:4, 47-58
- Bjorn, J., Lorenz, E., & Lundvall, B., (2002). Why all this fuss about codified and tacit knowledge?. *Industrial and Corporate Change*, 11:245-262
- Britten, N., (1995). Qualitative Research: Qualitative Interviews in Medical Research *BMJ*: 311:251
- Brzozowski, A., Jalosinski, K., Paliszkiwicz, J., Pietrzak, M., (2015) "A Case Study of Strategic Group Map Application Used As A Tool For Knowledge Management". *Journal of Computer Information Systems* 55:2, 68-75
- Chartterfee, S. (2014). Managing Constraints and Removing Obstacles to Knowledge Management. *The IUP Journal of Knowledge Management*, XII: 4.
- Chen, H.H. & Pang, C., (2010) Organizational Forms for Knowledge Management in Photovoltaic Solar Energy Industry, *Knowledge-Based Systems* 23:8, 924–933.
- Denzin, N., & Lincoln, Y. S. (1994). *Introduction: Entering the field of qualitative research*. In N. K. Denzin, N., & Lincoln, Y. S. 2000. *Introduction: The discipline and practice of qualitative research*. In N. K. Denzin & Y. W. Lincoln (Eds), *Handbook of qualitative research* (2nd ed.): 1-28. Thousand Oaks, CA: Sage
- Desouza, K. C. (2003). Facilitating Tacit Knowledge Exchange. *Knowledge Management – Communications of the ACM* 6: 6
- Desouza, K.C. (2003). Barriers to effective use of Knowledge Management Systems in Software Engineering. *ACM* 46: 99-101.
- DiCicco-Bloom, B., & Crabtree, B. F., (2006). The Qualitative Research Interview. *Medical Education*. 40:314-321
- Dzekashu W. G., & McCollum, W. R., (2014). A quality Approach to Tacit Knowledge Capture: Effective Practice to Achieving Operational Excellence. *International Journal of Applied Management and Technology*. 13:52-63
- Hansen, M.T (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44:82–111,

Hill, L. E., Von Ende, E. T. (1994), Towards a Personal Knowledge of Economic History: Reflections on our Intellectual Heritage from the Polanyi Brothers, *American Journal of Economics and Sociology* 53:1, 19.

Hinds, P. J., & Kiesler, S. (2002). *Distributed Work*. U. S. Library of Congress Cataloging

Jensen, A. R. (1993). 'Test Validity: versus "Tacit Knowledge"'. *Current Dimensions in Psychological Science*. 1:9-10

Kingston, J. & Macintosh, A., (2000) Knowledge Management through Multi-Perspective Modelling: Representing and Distributing Organizational Memory, *Knowledge-Based Systems* 13:2–3, 121–131

Liu, D.-R. & Lin, C.-W., (2012) Modeling the Knowledge-Flow View for Collaborative Knowledge Support, *Knowledge-Based Systems* 31:41-54.

Liu, D.-R. & Wu, I.-C., (2008) "Collaborative Relevance Assessment for Task-Based Knowledge Support," *Decision Support Systems* 44:2, 524–543.

Maalej, W., & Happel: H., (2008). A Lightweight Approach for Knowledge Sharing in Distributed Software Teams. *PAKM 2008, LNCS. Springer, 2008*

Nonaka, I., & Konno, N., (1998). The Concept of "Ba". Building a Foundation for Knowledge Creation. *California Management Review*. 40:3, 40-53

Nonaka, I. & Takeuchi, H. (1995). *The Knowledge Creating Company*. Oxford University Press, NY.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5:1, 14-37.

Nonaka, I. (1991) "The Knowledge-Creation Company". *Havard Business Review* 69:6, 96-104

Polanyi, M. (1962). *Personal Knowledge, Towards a Post Critical Philosophy*. London: Routledge and Kegan Paul.

Polanyi M. (1976). 'Tacit knowing'. In Marx, M. H. and Goodson, F. E. (Eds), *Theories in Contemporary Psychology*, 2nd edition. New York: Macmillan, 330-44.

RAO, H. (1994). 'The Social Construction of Reputation': Certification Contests, Legitimation, and the Survival of Organizations in the American Automobile Industry: 1895-1912. *Strategic Management Journal*, 15: 29-44

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business \Students* (5th ed.). Essex, England: Pearson.

Sessa V. I. Hansen M., Prestridge S. & Kossler, M., (2007). *Geographically Dispersed Teams: an Annotated Bibliography*. Library of Congress Cataloguing. U.S

Sternberg, R. J. (1994) 'Tacit Knowledge and Job Success'. In Anderson, N. and Herriot, P. (Eds), *Assessment and selection in Organisations: Methods and Practice for Recruitment and Appraisal*. London: John Willey, 27-39

Turnage, A. K. (2007). Flaming Behaviours and Organisational Conflict. *Journal of Computer-Mediated Communication*. 13: 43-59

Weaver, W., (1948). *The Mathematical Theory of Communication*. Chicago. U.S. University of Illinois Press.

Yin, K. B., (2011). *Qualitative Research from Start to Finish*. N.Y. The Gullford Press

Zhuge, H., (2002) A Knowledge Flow Model for Peer-to-Peer Team Knowledge Sharing and Management, *Expert Systems with Applications* 23: 23–30.