Dynamic Dyads: Sharing and Creating Knowledge

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In today's competitive market, it is essential to maximize employees' efficiency through job structure and knowledge exchange. This phenomenological study explores the lived experience of sharing and creating knowledge in teams of two. Data was collected through in-depth interviews with four dyadic teams.. Data analysis revealed four major themes and eleven sub-themes. This paper focused on one, shared space, which provided the most insight into dyadic relationships. Implications for research and practice are also discussed.

Keywords: Teams, Knowledge sharing, Knowledge transfer

In the modern organization employees are being encouraged to work smarter, not harder. Maximizing the efficiency of employees through job structure, knowledge management and exchange (White 2004) is essential in today's highly competitive business market. Due to competition, work loads and technology, many modern organizations have adopted the concept of teams to get work done (Brown & Eisenhardt, 1998). The current literature on teams and teamwork suggests that team structure is still widely used and continues to gain popularity. There are potential benefits to teamwork (Collis & Porras, 1994) such as enhanced creativity and the merging of social knowledge, and cultural orientation with tacit knowledge (Wing, 2001). Yet, there are also challenges with team structures such as social loafing (Karau & Kipling 1995) and the "romance of teams" (Allen & Hecht, 2004; West, Brodbeck & Richter, 2004). To that end, this study was conducted to explore how knowledge gets shared and created in a team of only two members, also known as a dyadic partnership.

The Problem

A review of the literature suggests that the existing research on teams, while well documented, appears to have limited focus. Teams of two, to date, have been explored primarily from the gender perspective (Coy, 2001; Karakowsky & Miller, 2002; Sweeney, 1999), in other words, focusing on the interaction between the two genders based on their distinctive characteristics (Balderson & Broderick, 1996; Graves & Elsass, 2005). Other research on teams has mainly focused on training small groups (Goodstein, 1979; Gustafson, 1981; Meadows, 1980). Evidently, while there are ample studies on small groups or larger teams, very little attention has been given to teams of two. There is a need for a better understanding of the dynamics of professional teams of two because such teams exist and are relied upon to carry out various missions in organizations. Furthermore, given the limited human resources available, organizations may become more efficient resources by taking advantage of teams of two instead of larger size teams.

Second, while current literature on larger teams suggests that there are benefits to working in teams (Guzzo & Dickson, 1996). However, it also suggests that a certain "romance" may exist (Allen & Hecht, 2004; West, Brodbeck & Richter, 2004) Romance, in this sense, refers to "something that lacks basis in fact." (Webster, 1994, p. 1016). Applied to teams, the term "romance" refers to a discrepancy between the belief held by managers that teams are effective and the deficit in empirical evidence that teams are more productive than independent individual efforts. As evidenced by some research larger teams may not be the best way to do work. (Larson & LaFaso, 1989; Parris & Vickers, 2005). If so, then what alternative ways are available to meet the need for information sharing, to capitalize on the benefits of social interaction and the synergy of co-creation of knowledge? There is very limited information available to provide us much needed insight into dyadic partnerships.

Finally, while there is much literature on teams and teamwork, there is limited amount of research on the acquisition of knowledge by teams (Argote, 1999), and even less on teams of two. The way that teams acquire, integrate and create knowledge has become a topic of interest for research, yet this phenomenon remains relatively unexplored (Anand, Clark, & Zeller-Bruhn, 2003).

Purpose and Research Questions

The purpose of this study was to explore professionals' lived experience with knowledge sharing and knowledge creation while working in a dyad. In this study, a dyad is defined as a team of two equal professionals. A professional refers to someone who is "exhibiting a courteous, conscientious, and generally businesslike manner in the workplace" (Webster, 1994, p. 930). Two questions guided this inquiry.

1. How do partners in a team of two share their knowledge?
2. How do partners in a team of two create knowledge?

Theoretical Framework

This study draws theories from three bodies of literature: teams and teamwork, knowledge management, and social constructionism. Chaos theory was also reviewed as a framework to explain the complexity of dyadic interaction.

Teams and Teamwork

There are different types of teams (Katzenbach, 2005) such as steering, planning, process improvement, self managed (Decker, 1997), and cross-functional (Mohamed, Stanosky & Murray, 2004). Most teams are defined by the purpose they serve and formed to manage tasks such as communication and learning in their own way (Clutterbuck, 2003). Studies have been conducted to examine occupational roles based on gender that may influence team dynamics (Karakowsky, McBey & Chuang, 2004). In addition to team membership, there also exists research on the concept of working together in teams. Studies on trust (Chowdhury, 2005), collaboration (West, Tjosvold, & Smith, 2003) and performance (Landis, 2001) have provided important insight into how teams function.

Knowledge and Knowledge Sharing in the Organization

The concept of knowledge has been explored and defined by a number of researchers. For example, Swanson & Holton (2001) define knowledge as "the intellectual mental components acquired and retained through study and experience" (p. 208). Davenport and Prusak (1998), describe knowledge as "a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information (p. 5). Cook and Brown (1999) discuss the traditional view of knowledge as having an epistemology of possession. In other words, what people know is something they *possess*. Cook & Brown (1999) contend that knowing as action requires an epistemology of practice as well. Therefore, they portray four separate types of knowledge: explicit, implicit, individual and group. Each of these categories is considered distinct and separate from each other. Alvesson (2001) states that "knowledge is a slippery and elusive concept, and every discipline has its own secret realization of it. Problems of interpretation haunt every attempt to use the concept effectively, such as that even basic typologies that talk about say, formal versus tacit knowledge actually can be quite meaningless in certain contexts" (p. 864). Snowden (2002) proposes that "knowledge is seen paradoxically, as both a thing and a flow requiring diverse management approaches" (p. 100). Cook (1999) argues that 'knowledge' is different from the act of 'knowing'. Stacey (2001) noted that "knowledge is not a 'thing', or a system, but an ephemeral, active process of relating. If one takes this view no one, let alone a corporation, can own knowledge. Knowledge itself cannot be stored, nor can intellectual capital be measured, and certainly neither of them can be managed." (p. 15) Two people who work together on a project share a dynamic, not static, relationship that mirrors what Stacey (2001) describes as an "active process of relating" (p. 15). For the purpose of this study, knowledge will be defined according to Polanyi's (1958) seminal theory that describes two different levels of knowledge which are mutually exclusive (Sveiby, 1997). He explains, "Knowledge that is about an object or phenomenon that is in focus-focal knowledge. Knowledge that is used as a tool to handle or improve what is in focus-tacit knowledge" (Sveiby, 1997, p. 2). Tacit knowledge can be highly pragmatic, difficult to articulate, and is usually shared through conversation and shared experience.

Knowledge has also been explored in the context of organizations. Argyis and Schon (1996) proposed that an organization can be a "holding environment" (p. 12), in other words, knowledge can be held in the mind of the individuals, the files of the organization or physical objects that members use references for knowledge. The modern organization has placed increasing emphasis on knowledge (May, 2005). Peter Drucker (1999) first coined the term "Knowledge Worker" in the 1960's, referencing the challenges of the emerging knowledge society (May, 2005). A knowledge worker is one who works primarily with information or one who develops and uses knowledge in the workplace. While there is much written about teams and teamwork, there is a limited amount written on the acquisition of knowledge by teams (Argote, 1999) which can effect team performance (Edmondson, 1999). The way that teams acquire, integrate and create knowledge has become a topic of interest for research yet remains relatively unexplored (Anand, Clark, & Zeller-Bruhn, 2003).

Social Constructionism

The study embraced the perspective that people construct meanings from their interactions with others. These subjective meanings are negotiated and formed over time through the personal interpretations and understandings of

the individuals (Cresswell, 2003). The social constructionists contend that categories of knowledge and reality are created by social relationships and social interactions. In this line of thinking, meaning is created socially through interactions with others. As defined by Katzenbach (1993), "a team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable. (p. 14). Teamwork, then, implies cooperative and coordinated effort by individuals working together in the interests of their common cause" (p. 1). As Slife and Williams (1995) noted, "this way of knowing does not occur within an individual at all. It occurs in the relations among individuals as they converse and negotiate and share their world with one another." (p. 82). Therefore, it is legitimate to infer that teams of two are dynamic, not static, and that learning occurs between the members of a team.

Chaos Theory

Chaos theory served as a sensitizing framework for this study due to the fact that interactions between professionals in dyads are dynamic. The essence of dynamic means "continually productive" (Webster's, 1994, p. 361). When information is generated in teams, there exists a non-linear pattern of information creation that can be explained with chaos theory. Chaos theory studies non-linear dynamic systems and "promises to be a useful conceptual framework that reconciles the essential unpredictability of industries with the emergence of distinctive patterns" (Levy, 1994, p. 167). As described by Ditto and Munakata (1995), Chaos theory has no standard definition, but rather, possesses a number of features. One of these features is implied sensitivity to an initial condition. This "butterfly effect" allows the possibility that even the slight perturbation of a butterfly flapping its wings can dramatically affect whether sun or cloudy skies will predominate days later. If humans create their knowledge through social constructivism, their realities could then be very different from one another. Thus the initial conditions vary, which, according to chaos theory, creates a subsequent variance in experience. A great deal of this has to do with communication and the way dyads share information. Nonaka, Toyama & Konno (2000) describe a spiral of knowledge in which knowledge is created through a non-linear spiral. This may appear random, but in reality it is chaotic or has hidden order (Ditto & Munakata, 1995). Research reveals the use of chaos theory in social sciences, including Human Resource Development (Bolstorff, 1998; Ditto & Munakata, 1995; Gregersen, 1993; Murphy, 1996).

Research Design

Phenomenology

To address the two research questions, this study adopted a phenomenological design. Phenomenology captures the importance of the individual experiences of people as conscious human beings (Cresswell, 1998) and explores how people make sense of their world (Patton, 2002). It is a useful methodology for "investigating human experience and for deriving knowledge from a state of pure consciousness" (Moustakas, 1994, p. 101). This approach allowed for a depth of investigation into the phenomenon of how a team of two professionals create and share knowledge in the work setting.

Sampling

Criterion-based sampling method (Patton, 2002) was used to identify four teams of two for this study. A flyer was posted at a local Chamber of Commerce describing the study and the sampling criteria. Each team had to meet the following criteria. First, the teams must have worked together for a minimum of one year. A related question that surfaced from the participants was whether they have to work together on a daily basis. We clarified that it was not necessary and two of the four teams for this study did work together on a daily basis. Second, the two members of the team must be in mutual agreement that the relationship is platonic. Third, the team members must be professionals that have a perceived sense of equality in the organization. We adopted Young's (2004) definition that a professional is "a skilled practitioner, an expert as opposed to an amateur. A professional has ethics, adheres to standards-his or her own as well as the profession" (p. 22). Therefore, we deliberately excluded partners in a romantic relationship or married, the mentor/mentee relationship, the supervisor/subordinate relationship, virtual teams, and sports team.

Teams that met the criteria were randomly selected to participate. Of the research participants, five were male and three were female. Two of the teams had members that were both male and one of the teams both were female. Only one team represented a male-female grouping. All participants have some college education and most had a Bachelor's degree or higher. They all are Caucasian although this was not deliberate selection. The years of experience the participants had in their particular field ranged from 6 to 30 years, with the average of 12 years. Each of the teams represents a different industry, including the school system, not-for-profit agency, mental health organization and an emergency response medical team. The participants were all employed in the southeast region of the United States.

Data Collection and Analysis

Data was collected primarily through individual and team interviews. Two rounds of interviews were completed with each round lasting between 45 to 60 minutes. The individual interviews were conducted first, followed by team interviews. An interview guide consisting of eight open-ended semi structured questions was made available for the participants' preview prior to the actual interviews. The same set of questions were used to guide individual and team interviews. With participants' written consent, all interviews were audio taped and later transcribed verbatim by the researcher. For confidentiality, each team was labeled with a letter (A to D) and each participant was identified as a number (1-8).

After the data were transcribed, the participants had an opportunity to review their individual and team interview data to ensure accuracy. We followed phenomenological analysis procedures to analyze data. Specifically, we followed the processes of data reduction. After locating the personal experience or attached to the phenomenon the phrases were inspected for what might be revealed as recurring features. The statements were all treated with equal value. The data was examined for repetitions and extraneous information and clustered into themes identifying significant phrases that occurred relative to the phenomena under study. Color coding was used to organize the data...

Findings and Discussion

Through the data analysis it became evident that the partners believed that many factors contributed to how knowledge was shared and created within their dyadic team structure. Four major themes and eleven sub-themes were identified and summarized in Table 1.For the purpose of presentation, longer direct quotes are italicized and separated.

Table 1. *Findings of the Study*

Major Themes	Sub-themes
1. Shared space	• Shared time • Shared ideas • Shared physical space
2. Active Process of Relating	• Process • Learning • Non-verbal
3. Sensitivity to Initial Conditions	• Experience • Skill
4. Support	• Task-specific • Emotional • Collegial

The first major theme is Shared Space. The sub-theme of shared time emerged as space on the clock or time in the day. This was represented in the data quite literally by how much time in the work day the partners spent together. The sub-theme of shared ideas emerged when the participants spoke of "head space" and "having the same thoughts". This led to a discussion of shared goals and ideas. The sub-theme of physical space related to the participants sharing an office or a vehicle related to performing their work. Within the theme of Active Process of Relating participants explained how they shared information. They revealed, among other things, that the process involved mutual participation. Learning from one another was a sub-theme that surfaced continually in the data as the dyadic partners not only exchanged information, but also challenged each others' ideas and learned from that experience. Another sub-theme that emerged was the use of non-verbal communication. All four teams noted that they used some form of non-verbal communication. The teams used non-verbal cues for convenience such as situations that required them to communicate across a room or to reduce stress in a high anxiety situations, such as caring for patients. The third major theme Sensitivity to Initial Conditions has two sub-themes... Of the many variables associated with dynamic change there is the idea of initial conditions. Each dyadic member enters with their own perception of the world around then, essentially, their own reality. A great deal of what the participants shared regarding this was in relation to varying experience and skill. Participants spoke of experience as what they knew, not necessarily from formal education but rather, from having "been there". A skill was defined by the participants as something that team member know how to do. Skills can be acquired formally or informally and can be explicit or implicit within the team. The skill referred to by participants could be a competency based component of their profession or something entirely unrelated. All team members commented on their partner's skill level through observing work the partner had done or work they had done together. The fourth theme derived from the

individual and team interviews is Support. Each of the team members indicated that they supported each other as a reflection of teamwork. The three sub-themes were task support, emotional support and collegial support. Task specific support was about helping each other out with a particular task and related back to experience and skill. Emotional support was evident as participants shared how they reassured one another during their work day. Each of the teams alluded to, or spoke outright, regarding their feelings about their partner. Collegial support conveyed insight into the job, verification and advocacy. Due to space limitations this paper will focus only on one major theme, Shared Space. Such focus is also due to the fact that this theme provides the most insight into the topic under study.

Shared Time

    The importance of sharing time together was made prominent by the participants during the interviews. They all expressed that they felt they knew more about their partner through shared time. They also indicated that the time they spent together was enjoyable and beneficial. The following quotes are representative.

    We don't have a lot of time and we don't see each other a lot outside of (name of organization) but I know what her children are doing... but we don't spend hours sitting talking and dwelling because we don't have time during the day. (Team B: Participant:3)

    We have our time when we sit down and talk and a lot of our sharing comes then when we sit down and talk-a lot of our information sharing comes with that. (Team C: Participant 6)

    It's nice to know that the time we have scheduled for a lunch meeting or some other thing- we're just going to talk about this little idea-and you know that that's going to be kind of fun to throw around and maybe it'll come to naught and maybe we'll just walk away saying " well, we poked enough holes in that idea that we know it'll never float and let's just go back to square one or you walk away saying " you know I really got something out of this" I look forward to the time we work together. I find it relaxing and invigorating and also let's me now that things are happening and moving forward.(Team D: Participant 7)

With the exception of one team, the participants noted that the time together existed because they planned for it. Three of the teams clarified that due to busy schedules they often spent time together while doing other things: "Usually it is when we are walking down the hall or eating at lunch or a few minutes before the kids come in" (Team A: Participant 2).

Shared Ideas

    The concept of shared ideas was prevalent in this study, especially in the realm of goals. While the definition of team may vary, the common element is people working together to accomplish a goal. Most teams are defined by the purpose they serve (Katzenbach, 2005). This was evident in the interview data. The teams interviewed had varying purposes yet each member was aware of the common purpose of the team. Two of the teams spoke at length about sharing ideas although they freely admitted that they might have had completely different means to that shared end. The teams attributed their cohesiveness to the fact they learned, over time, that they really were striving to reach the same goal.

    Although it looks like it is very loose I thin we both have a pretty good idea of what we want to get out of it when it is finished.

    I think that ultimately we both want the same result so when someone comes forward ith an idea we tend to kind of feed off of it and sometimes things work very quickly.

    It took a few weeks to pin down what we wanted to do and we really haven't gotten specifics pinned down yet, but we have a general plan. (Team D: Participant 8)

Shared Physical Space

    Sharing physical space was directly mentioned by three teams and alluded to by a fourth team. Two of the four teams shared personal stories related to being very close to each other within physical space.

    We have the benefit of sharing office space and being able to talk about what is going on in our own specific arena with the knowledge levels that we might bring in, different seminars or workshops that we might go to, or kids that he is dealing with or that I am dealing with. The free flow of information that exists because of shared office space is great but what is also great is that we are our own people doing our own jobs. (Team C)

    The major theme and sub-themes of shared space provided the most insight into how teams of two share and create knowledge. The first sub-theme, shared time, revealed that two of the four teams spent most of their day together. Depending on work scheduling, the participants might spend 7.5 to 12 hours together a day. These teams were assigned to be together in a shared space and only left each other briefly, if at all, during the day. These teams talked about what it was like when the other half of their team was absent and how such absences affected their work day. The literature supports that team members are impacted when team members change (Harrison, Mohammed, McGrath, Florey, & Vanderstoep, 2005). A third team elected to work together on most projects.

During that time they would spend the entire day working together, however, when not involved in projects they shared office space. They revealed that even when they were not collaborating on a specific project, they still talked about their work and this often overlapped on to projects they were working on independently. They felt as though they were still cooperating together. This finding was also consistent with the extant literature that proximity is vital to the sharing and creating of knowledge (Nonaka, & Konno, 1998; Oerlemans, Meeus, & Boekema, 1998).

Conclusion and Recommendations

A new finding in this study is that many of the emerging themes were intricately woven together and difficult to delineate. The literature supports that it may not only be the physical proximity of the team members that promotes sharing, or transfer, of knowledge (Oerlemans, Meeus, and Boekema, 1998). Rather, it may rest upon the physical proximity *and* the type or level of knowledge that is being shared. In this study, the lines between the ideas of shared physical space, time and ideas became blurred. This also occurred with the research questions. While the research questions began as separate inquiries during the study, it became apparent that there was a merging of the *sharing and creation of knowledge*. The participants revealed that first they shared and then, if the opportunity or need arose, they created and then they returned to sharing/transferring knowledge. This happened repeatedly over time and was not necessarily linear. Nonaka and Konno (1998) posited that "Ba," or "organic ground for knowledge creation" (p.53) can be thought of as space for the transfer and/or conversion of tacit knowledge to explicit knowledge and within that process new knowledge is created. This supports the common thread revealed in this paper, that is, sharing and creating of knowledge occur within the context of shared space. Based on this finding, our first recommendation is to further explore the concept of space. Space has been frequently thought of as time in the day or physical space, yet an expanded view of space as the realm of ideas and goals, as disclosed in this study, would enrich our current understanding of this notion. A second recommendation is to examine the arrangements of variables related to working in a dyadic relationship. This paper discussed only shared space but even within that smaller portion of a larger study, it is evident that the sub-themes of time, physical space and ideas are each interrelated and, just as in this study, do not have clear lines of distinction. There are many other intricate combinations yet to be considered.

Contribution to HRD

Findings of this study contribute to the field of Human Resource Development in two ways. The first is work design. HRD professionals have influence and authority over the way work is designed in an organization (Brockbank & Ulrich, 2005) and the way that work is assigned can facilitate the best use of the organizational resources. The greatest resource of any organization is the people who are employed there. Examining who does the work and why it is organized in a certain way is extremely important. The decisions to assign tasks to teams of two instead of an individual or even a larger group is one that must be made deliberately. Dyadic relationships pose an interesting opportunity because many of the elements associated with larger teams are present with teams of two. However, teams of two can present an opportunity to streamline work and capitalize on the benefits of social interaction and the synergy of co-creation of knowledge without imposing some of the complications associated with larger teams such as "social loafing" (Karau & Kipling, 1995). Second, findings of this study speaks to the importance of examining not only the varying facets of teams of two but how the variables merge and intertwine to create altogether new experiences for the employees. Factors such as shared time *and* physical space, physical space *and* ideas/goals, shared time *and* goals should be considered as significant and worthy of the attention of Human Resource Development professionals.

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