

# The Power of Informal Networks: A Perspective of Two Studies

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## INTRODUCTION

The terms ‘dissemination of information’, ‘information needs’, ‘information seeking’, and ‘information sharing’ are usually connected with library science. However, these concepts go beyond the field of librarianship. These concepts are now considered elements of ‘information behaviour’. Information behaviour has been defined as “the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking, and information use. Thus, it includes face-to-face communication with others, as well as the passive reception of information” (Wilson 2000: 49). Many organizations provide value for customers by facilitating the dissemination of information. They do so by strategically utilising their knowledge about customers’ information seeking and needs, and information and communication technology in support of networks of self-organizing employee teams.

During the 1990s, a number of companies attained dramatic competitive advantage by creating comprehensive, complex communication and information networks. The increasing efficiencies and speed of information and communication technology (ICT) enabled these companies to remain flexible and adaptable to change, and also to make accurate predictions and minimise risk. Tucker, Meyer, and Westerman (1996) explain that the impact of technology on such business organizations has resulted in them being referred to by various names such as “modular”, “cluster”, “perpetual matrix” or “network” organizations.

In the military, Network Centric Warfare (NCW) is an attempt to translate this business concept of the 1990s into military practice. The NCW has emerged as the umbrella under which the implications of information and communication technologies and the connectivity they enable for military operations and organization, are argued and assessed (Army, 2003). One of the tenets of NCW is that a robustly networked force leads to increased information sharing (Directorate of Future Warfighting 2004). In this paradigm, the focus seems to be on hardware, bandwidth, and electronics, and yet the human, and his or her behaviour within the networked environment, is a crucial element. An important, yet often overlooked aspect, of NCW-related behaviour is information seeking.

The sharing of information lies at the core of NCW<sup>1</sup> — shared information leads to improved quality of information, which in turn leads to enhanced shared situational understanding<sup>2</sup>. The role of information behaviour in NCW is, therefore, paramount. Atkinson and Moffat (2005) state that the sharing of information is based on trust developed through social interaction, and shared values and beliefs. In line with Wilson’s (2000) definition of information behaviour, the human, not technology, is the node in such interactions, and this node is more than just a link; it is a bond between the players that has developed from mutual trust. Therefore, a significant component of a person’s information environment is the relationships he or she can tap into for various informational needs.

This paper focuses on how people gather and share information in environments characterised by high levels of uncertainty and high tempo. It will draw on the research outcomes of two separate, yet interrelated, studies that highlight the role of informal networks as a crucial source of information. In this sense, the paper looks at information behaviour in the context of the military organization. The understanding of factors impacting on human information behaviour is of particular importance to the military where the speed and quality of decision making in operational situations determines mission effectiveness.

The first study, which investigated Social Learning within the Australian Defence Organisation (ADO), was conducted during 1999 through to 2002 by a research team of the Defence Science and Technology Organisation (DSTO) in Australia.

The immediate aim of that research was to understand the issues inherent in building learning, adaptive, and sustainable organizations. The long-term objective, however, was to develop frameworks that would support the development of information systems to guide and enhance organizational learning and facilitate knowledge management. In the context of that study, social learning was defined as learning occurring within a group, an organization, or any cultural cluster and it includes:

- the procedures that facilitate generative learning – learning that enhances the enterprise’s ability to adjust to dynamic and unexpected situations and to react creatively to them; and
- the processes and procedures by which knowledge and practice are transmitted across posting cycles, across different work situations and across time (Warne, Ali, and Pascoe 2003).

This paper will refer specifically to the processes and procedures by which knowledge and practice are transmitted as they directly relate to human information behaviour.

The second research project conducted by this same DSTO research team<sup>3</sup>, during 2003 through to 2006, focused on the human dimension of future warfighting (HDoFW) and examined broad psychosocial issues that need to be considered to fully exploit NCW and other future operating concepts. Interviews were conducted with one hundred Australian Defence Force (ADF) personnel returned from deployment to the Middle Eastern Area of Operation (MEAO)<sup>4</sup> (HDoFW Research Team 2006).

In both studies predominantly qualitative research methods (semi structured interviews) were used to collect data. In the social learning study, the interviews and ethnographic observations were supplemented by a quantitative survey to collect data and to validate qualitative findings (for full details of the research methodology see Warne, Ali, and Pascoe 2003; HDoFW Research Team 2006). The data was analysed using qualitative software NVivo and Leximancer.

In drawing out the outcomes of these two research projects, this paper focuses on a predominant theme that emerged from our data—that people continue to use social sources as a primary means of gathering and sharing information in high uncertainty and high tempo environments.

## INFORMATION SEEKING AND SHARING: FINDINGS OF THE TWO STUDIES

Given the role of information in military organizations and military operations, it is interesting to note that very little research appears to have been conducted on information behaviour in the military<sup>5</sup>. A quick Google search<sup>6</sup> of various terms highlights this point:

Search terms	Results
“Information systems” and “military operations”	5,030, 000
“Information use” and “military operations”	78 600
“Information seeking” and “military operations”	41,400
“Information behaviour” and “Information behavior” and “military operations”	32

These results are especially interesting in light of what information behaviour actually is: “the totality of human behaviour in relation to sources and channels of information” (Wilson 2000: 49).

Given the lure of technology and the current fervour about what it can achieve, a noteworthy point was made by Kruse and Adkins (2005:1) that almost every worthwhile achievement or development is the result of group effort because, after all, humans are born collaborators and social animals. Furthermore, despite the opportunities provided by technology, key elements for innovation and advancement are the sharing of information and knowledge and the willingness to cooperate. In this respect, warfare is no different from other endeavours.

The findings from both of our research studies clearly point to relationships playing a key role in people’s behaviours, and it is the quality of their networks of interconnected relationships that determines opportunities for sharing information, or places constraints on information seeking. There are numerous factors that underpin these relationships and, in turn, underpin people’s information-seeking and information-sharing behaviours. There are three factors that repeatedly emerged from the research findings: trust, informal networks, and the development of common identity, as shaping human information behaviour. This paper will focus on these factors.

**TRUST**

Effective and efficient exchange of information underpins the success of military activities because accomplishing military goals, particularly in operational contexts, requires collective action and cooperation. However, in the warfighting context, where information can be highly sensitive and when the potential recipient is largely unknown, individuals are not always willing to provide requested information, or to volunteer information. As might be expected, therefore, trust building was seen by most study participants, in both of our research projects, as an essential activity for information sharing.

The term ‘trust’ generally refers to positive expectations held by one party (individual or group) about the actions or intent of another when there is some degree of risk involved. For example, Mayer, Davis, and Schoorman (1995:712) define trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party”.

In other words, we trust another person to the extent that we believe they will act beneficially (or at least not detrimentally) towards us if we choose to engage them in some form of cooperation and when cooperating involves some degree of risk (see Gambetta 1988; Mayer, Mollering, Bachmann, and Lee 2004). Thus, trust is especially relevant when there is uncertainty or ignorance as to the motives and actions of others. When these can be predicted with absolute certainty, trust is not required. When they cannot, as in most ‘real world’ circumstances, a degree of

trust is necessary to make human action and interaction possible (Simmel 1964; Costigan, Ilter, and Berman 1998; see also Ali et al 2004).

In both of research studies, our participants identified trust as critical to Australian-US/coalition cooperation and jointness within the ADF. In fact, trust was one of the most frequently mentioned factors in the HDoFW study. People spoke about trust as the glue that kept human networks and interconnections aligned and it was also seen as an underlying foundation for collaboration:

*... if you can build up a rapport very quickly and get to know them and they get to trust you and you trust them, it becomes a lot easier...*

The findings of our research into social learning revealed that employees who were feeling assured about themselves and their value to the organization were more likely to be motivated, reliable, and to have loyalty to the organization. Of importance here is that our interviews and observations clearly highlighted that the willingness to share information, knowledge and ideas with others is precipitated from this loyalty (as is higher productivity and higher staff retention). These relationships are depicted in Figure 1 below (Ali et. al, 2002).

**COMMON IDENTITY**

Studies into the impact of information sharing on various aspects of organizational life suggest that information sharing promotes common identity and mutual trust (eg, Schein 1993 and Phillips 1997). Interestingly, our study findings into social learning in military organizations (Ali et al. 2002; Warne, et al. 2003) indicate that it is common identity and trust that foster willingness to seek and share information. In line with systems thinking (Senge, 1992), common identity requires a shift from seeing ourselves as separate to seeing ourselves as connected to, and part of, an organization or its sub-units.

For NCW, developing common identity is an important issue because the core effort of NCW is to develop and distribute superior situational awareness, common understanding of the commander’s intent, and common identity to synchronise operations and activities (Ahvenainen 2003). In the HDoFW study the extent to which developing a common identity impacted on information sharing was well illustrated by looking at the role of embedded, liaison or exchange officers (HDoFW Research Team 2006). Our interviewees frequently spoke of the critical role played by liaison, exchange, or embedded personnel. Whilst the presence of these personnel was vital in many ways, most important was their role in the provision of information and the development of situational awareness. For example, many of our interviewees spoke of how ADF personnel embedded in US Headquarters became critical nodes in the ADF’s understanding of US plans and activities.

Likewise, having US personnel embedded in ADF Headquarters paid similar dividends in terms of information behaviour and, in turn, interoperability. The following account of the value added of having an American officer embedded within a RAAF unit illustrates this point:

*He knew our system. He knew what we didn't know about working with an American wing in combat. So he was kind of critical to helping the guys through the labyrinth of what's different...the exchange positions are absolutely critical to your interoperability.*

As common identity grew, through fostering of informal networks by exchange or embedded personnel, the access to information and other resources became more available:

*...our American officer ... was working hand in hand with us all day, every day, and he literally became part of the Australian team – [these] personal relationships that allowed us to get pretty much what we needed.*

Specifically, achieving ‘seamless’ interoperability necessitated a more sophisticated form of interaction. In describing this, one of the interviewed officers drew a sharp distinction between ‘liaison’ and ‘embedded’ personnel:

Figure 1. The role of trust in organizations

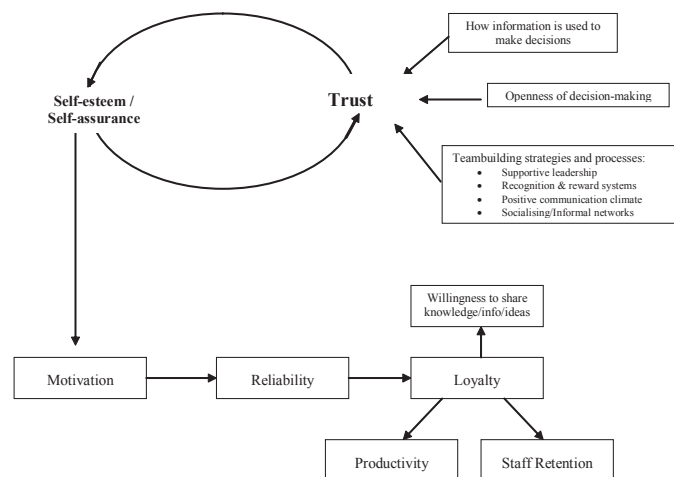
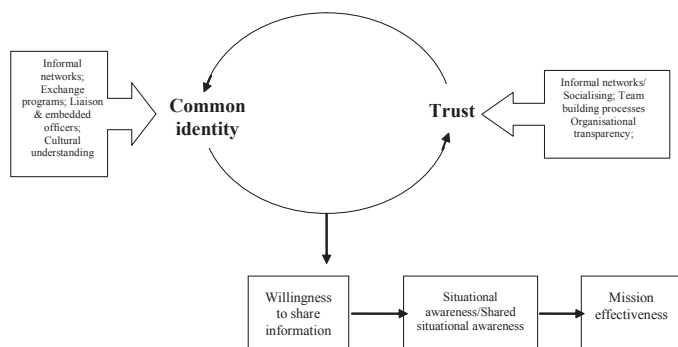


Figure 2. The role of trust and common identity for mission effectiveness



...the value of having not liaison officers, but embedded staff officers in an international headquarters... [is that they] develop an intimate knowledge of the American and British planning processes, the way they execute an operation. And having that knowledge meant that we could integrate directly into their team... as opposed to being someone who sat in the back of the office and answered questions.

These examples clearly show that developing common identity, relationships, and trust paves the way for information and other resource sharing. This is particularly important in operational or disaster situations where information is critical to decision making and actions that follow.

Figure 2 provides a diagrammatic representation on the relationship between trust and common identity (which our data suggests is a recursive one), and the impact on willingness to share information via the development of common understanding. Figure 2 also depicts that information and knowledge sharing enhances shared situational awareness, which in turn impacts on decision making and ultimately on mission effectiveness.

## INFORMAL NETWORKS

The HDoFW interview data clearly indicates that in addition to the formal networks provided by exchange or embedded officers programs, the informal networks that people established were crucial in the development of trust and common identity. They also provided a further set of conduits for information seeking and sharing (HDoFW Research Team 2006).

### i. The Role of Socialising in Building Informal Networks

In both our studies, almost all the interviewees said that establishing a personal connection was crucial for a productive working relationship and for trust building. Scholars use the term *social capital* to refer to human relationships that make organizations work effectively. They explain that healthy social relationships in organizations build trust, make people learn faster and be more productive and creative (Prusak et al 2001; Ehin 2004). Of importance here is that our interviewees reported that the sharing of information was sometimes impeded by a lack of trust arising from barriers associated with rank, position, service or force affiliation, and the perceived expectations that go with those barriers. Therefore, discovering non-work related commonalities allowed them to relate to each other on more than an instrumental basis. Socialising was perceived as a vehicle for developing wider networks, and therefore it enabled people to get to know each other.

...even with the little bit of rapport that we had, the results were astounding ... The socialisation did contribute a lot to the success of our mission.

In the social learning study, the majority of respondents indicated that work-related social activities lead to a greater sense of team spirit and thereby positively contributed to the willingness of information exchange. These social activities were not seen as frivolous functions but as core activities that are ultimately task-oriented. As one of the respondents put it:

...it is important and we do, we have time out where we go for coffee and to chat, it's team building and getting to know each other; and I think that's really important because you need to get to know the personalities on your team.... We talk about work things when we're having coffee, but it's joking and fun.

Informal social gatherings were seen by both studies' participants as an opportunity to get to know each other, build trust and stronger relationships and, more importantly, share knowledge. Many interviewees told us that during such informal social gatherings they learn more about what is happening in other areas of the organization than through formal channels, and they increase their matrix of informal connections, as illustrated by the following quote:

...social gatherings are necessary because they provide an opportunity for face-to-face talking and to find out what are the important issues on people's minds at the moment.... If you didn't have those social gatherings, you would just see the range of issues that they were dealing with, but you wouldn't really know what was important to them or what they were particularly worried about...

The participants in both of our studies pointed out that developing these connections and networks paid dividends in promoting interpersonal trust and paved the way for subsequent information and resource sharing:

So I'd go up and have a chat with them and then I'd find out more of what they did. So when the boss would come up and say, "Look, you know, we need to know about this and this", [so I'd say] "Yeah, I know this guy ..."

### ii. The Role of Informal Networks in Managing Handovers

In the military, frequent changes in postings and job rotation are natural occurrences. How quickly and effectively a new person assimilates into a new job is, to a large degree, determined by the quality of the handover. Our interviewees said that during handovers they were not after 'procedural things' as these are fairly standard; instead they were after

...getting to know and getting to feel what the organisation is, who the personalities are, and really getting a feel for the culture in the organisation...

When personnel were asked what they look for during a handover, the frequent answer was a list of contacts that one officer can pass to another. This 'invisible college' provided a trusted source of information for things which do not appear in organizational charts or in formal policies and procedures. These informal networks cut through formal reporting procedures and could jump start many initiatives. Additionally, they were seen as essential for day-to-day business and for information and knowledge sharing. Those who did not get the chance for a handover relied heavily on informal networks and contacts for pre-deployment information gathering and to find out as much as possible about their posting and what might lie ahead.

...from an informal process. A friend of mine - I was taking over from a friend of mine, who was already there, so I rang him over there to find out exactly what was going on...

The results of both our studies clearly indicate that tasks were accomplished more efficiently as a result of the informal networks of relationships that were formed across functional groups, multinational forces and agencies. Furthermore, these informal networks enhanced the quality and timelines of shared information which, in turn, contributed to overall mission effectiveness.

## CONCLUSIONS

Military operational environments and emergency management require that critical and timely information comes from known and trusted sources. Information seeking, therefore, is a prominent and crucial activity in any military operation and more so in a NCW environment because of the reliance on timely and relevant

information for individual and team situational awareness. Although technical developments in information and communication technology facilitate speedier and wider sharing of information, they do not reflect the information seeking behaviour that people engage in.

The results of our studies demonstrate that information sharing and people's willingness to disclose information is shaped by the building of trust and the development of common identity that occurs through informal networks and relationships. This research points to the informal networks being a precursor for development of trust and common identity. In addition, analysis of numerous disasters that occurred in the last few years demonstrate that quality of response depends not so much on quality of planning or even equipment, but on the quality of human networks that are formed to provide relief (Denning 2006).

The effectiveness of military operations, or for that matter management of any emergency situation, requires collaboration between many players. A shift from co-existence to cooperation cannot occur without informal networks since it is through these networks that trust and common identity are cultivated. And the result is not only more coordinated planning, but also a greater pool of knowledge to draw upon. Therefore, the power behind informal networks and the significance of human interaction for information sharing and gathering must be taken in account in the planning of communication strategies in military settings. More research into this area is still needed to fully understand why typical 'command-and-control' approaches and technological solutions do not always provide the desired result.

Although the research subjects and settings are military, the study findings have much wider applications. Organizations that need to quickly respond to a changing environment need to harness the knowledge of many diverse players and in doing so must not underestimate the power of informal networks for information and other resource sharing. There is a need to better understand what gives rise to such networks and how to facilitate their functioning without sabotaging formal plans and decisions. Furthermore, the implications of this research for any organization are that it is essential to understand human information behaviour first and how people use technology before investing into technological solutions.

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## REFERENCES

- Ahvenainen, S. (2003). "Backgrounds and Principles of Network-Centric Warfare", Course of Network-Centric Warfare for Post-Graduate Students, National Defence College.
- Ali, I., Pascoe, C., Warne, L. (2002) "Yet Another Role for Team Building and Work Motivation - Enabler of Knowledge Creation and Knowledge Sharing", In proceedings of the 7th International Command and Control Research and Technology Symposium, Québec City, 16<sup>th</sup> to 20th September, 2002, Tracks/pdf/119.PDF, <http://www.dodccrp.org/Activities/Symposia/7thICCRS/>
- Ali, I., Warne, L., Bopping, D., Hart, D., & Pascoe, C. (2004). "Organisational Paradigms and Network Centric Organisations", *Journal of Issues in Informing Science and Science and Information Technology*, 1, 1089-1096
- Army, Department of Defence. (2003). *Network Centric Warfare - The Army Approach* DRAFT. Canberra, Army. Dept. of Defence
- Atkinson, S., & Moffat, J. (2005). *The Agile Organization*. Washington, DC: CCRP Publication Series.
- Costigan, R. D., Ilter, S. S., Berman, J. J. (1998) "A Multi-Dimensional Study of Trust in Organizations". *Journal of Managerial Issues*, 10, 303-317.
- Cross, R., & Parker, A. (2004). *The hidden power of social networks*. Boston: Harvard Business School Publishing Corporation.
- Daft, R. L. and A. Y. Lewin. (1993). "Where are the theories for the 'new' organizational forms? An editorial essay", *Organization Science* 4(i-vi).
- Denning, Peter (2006) "Hastily formed networks", *Communications of the ACM*, 49(4).
- Directorate of Future Warfighting (2004), *Enabling Future Warfare: Network Centric Warfare*, ADDP-D.3.1. Canberra, Australia. (March) ISBN: 0-642-50184-X.
- Ehin, C (2004) "Hidden Assets: harnessing the power of informal networks", Springer Science Business Media Inc, NY.
- Gambetta, D. (1988). "Can we Trust Trust? *Trust: Making and breaking cooperative relationships*", D. Gambetta, Oxford: Blackwell.: 213-237.
- Human Dimension of Future Warfighting (HDoFW) Research Team (2006), "The Transition from Network-Centric Warfare to Networker-Centric Warfare: Outcomes of the Human Dimension of Future Warfighting Task". DRAFT DSTO Client Report, December 2005, Canberra.
- Kruse, J. & Adkins, M. (2005). "The Technology Trap". *PROCEEDINGS*, August 2005, 59-62
- Mayer, R., Davis, J., & Schoorman, E. (1995). "An integrative model of organisational trust". *Academy of Management Journal*, 20(3), 709-734.
- Mollering, G., Bachmann, R., Lee, S. H. (2004) "Understanding Organizational Trust-Foundations, Constellations, and Issues of Operationalisation". *Journal of Managerial Psychology*, 19, 556-570.
- Phillips, R. A. (1997). "A Stakeholder Theory and Principle of Fairness", *Business Ethics Journal* 7(1): 51 to 66.
- Prusak, L. et al (2001) "How to Invest in Social Capital". *Harvard Business Review* 2001; June: 86 - 93.
- Sarma, A. and A. van der Hoek. (2004). "A Needs Hierarchy for Teams." ISR Technical Report: UCI-ISR-04-9, Department of Informatics, Donald Bren School of Information and Computer Sciences, University of California Irvine
- Schein, E. H. (1993). "On Dialogue, Culture, and Organizational Learning." *Organizational Dynamics* 22(2): 40-51.
- Senge, P. M. (1992). *The fifth discipline: the art and practice of the learning organisation* Sydney: Random House.
- Simmel, G. (1964) *The Sociology of Georg Simmel* (K.H. Wolff, Trans.) New York, NY: Free Press
- Tucker, M. L., Meyer, G. D., Westerman, J. E. (1996). "Organizational Communication: Development of Internal Strategic Competitive Advantage." *Journal of Business Communication* 33(1): 51-69.
- Warne, L. Ali, I. Pascoe, C (2003) "Team Building as a Foundation for Knowledge Management: Findings from Research into Social Learning in the Australian Defence Organisation", *Journal of Information & Knowledge Management*, Vol. 2(2): 93-106.
- Warne, L., Ali, I., Bopping, D., Hart, D., Pascoe, C. (2004). "The network centric warrior: The human dimension of network centric warfare", *DSTO Report CR-0373*, Defence Systems Analysis Division, ISL, Defence Science and Technology Organisation, Department of Defence, Edinburgh, S.A. (Approved for Public Release).
- Wilson, T. D. (1999). "Models in information behaviour research." *Journal of Documentation*, 55 (3), 249-270.

## ENDNOTES

- <sup>1</sup> For an overview of the current literature on the role of information sharing in NCW see Warne et al 2004
- <sup>2</sup> Also known as Network Enabled Operations (NEO) and a number of other variations on this theme.
- <sup>3</sup> This team, formerly of the Joint Systems Branch, is now a part of the Integrated Capabilities Systems Branch of DSTO.
- <sup>4</sup> This area is that region bordered by Iraq, Pakistan, and Afghanistan.
- <sup>5</sup> Two notable studies that do address information behaviour in the military are Prekop, P. (2002). "A qualitative study of collaborative information seeking", *Journal of Documentation*, 58(5), 533-547, and Sonnenwald, Diane H., & Pierce, Linda, G. (2000). "Information behaviour in dynamic workgroup contexts: interwoven situational awareness, dense social and contested collaboration in command and control". *Information Processing and Management*, 36, 461-479.
- <sup>6</sup> Conducted on 3 October 2006

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