

**Social exchange, social capital and information sharing in online environments:  
lessons from three case studies**

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production*

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## Abstract

This paper covers the themes of exchange theory, social exchange theory and social capital as related to information and knowledge sharing in online environments. It presents findings from three cases where individuals were encouraged to share information online in the expectation that this would lead to new knowledge creation. The work presented aligns with that of others who have recognized that social exchange theory may be deployed as an innovative means of analyzing economic and non-economic transactions between individuals and organizations (Bignoux, 2006, p. 619). The findings both inform, and raise questions, about motivating information sharing in online environments with reference to both the provision of incentives to participate, and the management of social capital. From the analysis of the three case studies it is concluded that the degree to which information may be exchanged in online environments relies more heavily on the extent to which actors are socially integrated with one another than it does on other factors such as investment in technical infrastructure, dedicated staffing or financial incentives for information sharing. Thus these findings indicate that those who hope to enhance information sharing practice online need to pay more attention to the means by which they make it possible for potential participants to build relationships of trust with one another, and less attention to the design of formal incentive structures.

**Keywords:** incentives; information sharing; knowledge creation; social exchange theory; social capital

## 1. Introduction

The aptitude and willingness of individuals to share information is recognised as a

capability crucial to knowledge management and organizational learning. The level of sharing impacts the efficiency with which new knowledge is created, transmitted, stored and further shared. In 2001 Hall first proposed that that social exchange theory might provide a suitable theoretical framework to account for information sharing behaviour in online environments (Hall, 2001; Hall, 2003). Empirical work conducted in a large, distributed corporation provided some evidence to support the view that the concepts of social exchange theory might be applicable in a knowledge market. However, in this case the parallels with *exchange* theory, as related to broader metaphors from economics, were more easily drawn (Hall, 2002). Further research into online information sharing behaviour - this time in a non-corporate environment where the blogging behaviours of undergraduate students were examined - was conducted to explore whether interactions might be motivated differently where participants are not paid employees of any particular organization. A third case – here focused on information behaviours amongst a group of Masters students whose programme of study mainly comprised virtual courses – adds further insight to our understanding of the role of social exchange theory as an explanatory factor of information sharing behaviour in online environments. Together, the findings from these three cases raise questions about motivating information and knowledge sharing, particularly with respect to the design of incentive systems and the management of social capital within groups.

## **2. Exchange, social exchange, information sharing and social capital**

Hall (2003) provides a detailed account of social exchange theory and its possible application in information science research. Social exchange theory is an extension of exchange theory, the main tenet of which is that individuals make choices from a

range of options on the basis of assessing which offers the best value for the lowest cost. Here economic resources are bought and sold according to contractual obligations. The main actors are participants who form relationships to trade resources and currency. There are three main types of exchange structure: (1) *direct* or *restricted*, where two actors trade with one another with an expectation of reciprocation; (2) *generalized*, where a number of actors belonging to a group trade with one another and paths of reciprocation are less easily defined; and (3) *productive*, where individuals engage in exchange for the purposes of achieving a joint output. It has been argued that exchange theory does not lend itself to application in the study of information assets because such resources cannot be controlled by traditional market mechanisms (Wu, Hsu & Yeh, 2007, p. 328). *Social* exchange also refers to the trading of goods by individuals and groups of people in the same types of exchange structure, but in this case these actors share lasting social bonds and maintain high levels of trust (Hsu, Yu & Yen, 2007, p. 156; Widén-Wulff & Ginman, 2004; Wu, Hsu & Yeh, 2007, p. 328). They are known to one another through long-term dependent relationships. In addition, the resources that they exchange are often more highly valued than their market cost, and mutual obligation of trading partners is less clearly defined than is the case in straightforward economic exchanges (Bock & Kim, 2002, p. 16).

In the social sciences, researchers from three domains have exhibited a particular interest in social exchange theory: (1) anthropologists researching practices of gift giving; (2) behavioural psychologists concerned with learning processes; and (3) sociologists considering power relationships, commitment and affective ties. Less evident in the literature, are studies which have explicitly adopted the ideas of social exchange theory and linked them to the sharing of intangibles such as information and

knowledge. This is not to say, however, that the concepts of social exchange theory are irrelevant in the domain. Rather, there is a body of work that implies the importance of social exchange, but without acknowledgement of the theory per se. In library and information science, for example, it has been recognised that there is much scope for arguing that social exchange theory might explain practices related to a number of prominent research themes such as: processes of scholarship; scholarly communication; citation analysis and trust; information sharing across networks; and acknowledgements and gift giving (Cronin, 1995).

Likewise, the concepts of social capital have attracted the attention of researchers in the social sciences: for example, its role in underpinning the development of intellectual capital has been formalized (Nahapiet & Ghoshal, 1998) and developed (Adler & Kwon, 2000). The primary drivers of this interest relate to the rise of the knowledge-based organization (Lesser, 2000). They thus have relevance to information scientists who explore how social networks may offer organizational advantage through the exploitation of the stock of shared resources accessed through relationships (Tymon & Stumpf, 2003). In particular, knowledge sharing challenges are seen to be underlined in the dimensions of social capital. Recent work in the domain of information science has used social capital as a framework for the analysis of information behaviour (Widén-Wulff & Ginman, 2004; Widén-Wulff, 2007), and this has been further extended (Widén-Wulff, Ek, Ginman, Perttilä, Södergård, & Tötterman, 2008 in press). Yet to be explored in detail, however, is the relational dimension of the social capital framework with specific reference to social exchange theory as applied to information sharing practice in online environments. The case studies described in this paper may be seen as a starting point for an exploration of these themes. The analysis of the findings gives an indication of the conditions

amenable for the improvement of information sharing practice in online environments. This, in turn, may later provide pointers for the support new knowledge creation.

### **3. Case A: corporate environment**

In 2002 social exchange theory was proposed as a framework for exploring the mechanics of information exchange in Setting A: a large, international, professional services company. At the time of the study the company was dependent on complex technological platforms, largely focused on its intranet, for information sharing online. Efforts to encourage deployment of the intranet for this purpose were led by the company's knowledge managers, assisted by a number of intranet content producers whose roles mainly comprised handling contributions from "professional" staff for uploading to the system. There was an understanding in the company that high levels of information sharing using the tools provided in this environment would attract reward at appraisal time.

Conditions for social exchange are strongly linked to the relational dimension of social capital, for example: actors share social bonds; they maintain high levels of trust; and they are known to one another through long-term dependent relationships. Therefore, provided that it could be shown that online information sharing in this setting relied on social exchange, it followed that social capital might be considered as a driver of the intranet as a tool for knowledge management. It was anticipated that examination of online information sharing practice in Setting A would facilitate exploration of the role that social capital plays as a foundation for new knowledge creation and, by association, any resultant improvements in product and services delivery.

In-depth interviews with twenty UK knowledge management staff in Setting A provided an opportunity to establish the extent to which social exchange theory could explain dominant information sharing practice in the company's online environment, which had been deliberately set up for this purpose. An environment for exchange was in evidence: provision of an exchange structure was indicated in the establishment of the platform on which exchange was meant to take place, and there was organizational interest in the company becoming a workplace in which open knowledge sharing was the norm (for example, in the company's *Values charter* it was stated explicitly that it supported the open and proactive sharing of knowledge). Exchange resources were also evident: the main commodities were information and knowledge assets, and the main currency for which they were traded was anticipation of financial reward at appraisal time. The exchange actors in this case were the "professional" staff who traded through knowledge managers and intranet content producers, who in turn acted as brokers.

However, findings from the analysis of interview data revealed that it would be difficult to argue that this environment encouraged *social exchange*. Most notable were the main actors' difficulties in building long-term dependent relationships based on trust that could be put to good effect in the online environment. For example, in the majority of cases the brokers felt distant from the staff that they were meant to support. This distance was both physical and notional, with a large number of the knowledge management staff based in a centralized function removed from the main business units of the company, and often regarded as administrators performing "non-professional" functions, rather than playing strategic roles that would contribute to the company's business development. Even those knowledge management staff located within the business units struggled to build relationships with others. They were

largely desk-bound, whereas the “professional” staff were often away from the base, frequently changed roles, and regularly switched teams according to business needs. It was difficult for the knowledge management staff even to keep track of who was where in such a fluid staffing structure, let alone establish and grow strong relationships with those whose online information sharing practice they were hoping to improve. The dominant strategies for gathering contributions to add to the online resource illustrate how the knowledge management staff compensated for their social distance from the main actors. Although they were not subject experts themselves, they had to identify useful content and ask (and/or often nag) others for it: it was rare that any of the main actors would automatically, or proactively, offer up resources to enlarge the intranet resource. As a consequence of this, the quality of material that it was possible to make available online was dubious: had this been an environment for *social* exchange, the resources would normally have been highly valued, as explained above.

It cannot, however, be argued that social exchange was irrelevant to information and knowledge sharing in this company. An important distinction needs to be made between the different economies for information exchange in this setting. Whereas the “official” information economy was centered on the company’s intranet, there existed “grey” and “black” information economies, based mainly on off-line communication by telephone and in meetings amongst actors in clique relationships, which – when considered together - formed the corporate grapevine. It was clear that it was in these circumstances that valuable socially-motivated information and knowledge exchange took place, mainly as a synchronous person-to-person exchange. As one interviewee put it: “[People are] much happier just to pick up the phone and go and see somebody”. Another explained “[Because] it’s all geographically distinct... your

business issues are best dealt by discussing in real time, real space". As a supplement to this, privately shared online resources were held, accessible to small, closed groups – much to the frustration of the company's knowledge brokers: "I find time and time again that - within teams – people develop their own templates... They store them on their own section of [the shared] drive... So they have their *own*, as opposed to *universal*, knowledge-sharing environment."

Consideration of the exchange economy that developed around the intranet deployment provides some explanations as to why this off-line practice had not transferred to the online environment. The first issue was the system provided for online information sharing. From its launch, apparent technical problems served as a disincentive for using the intranet, regardless of any potential benefit. Translated into economic terms, the investment in market infrastructure was inadequate. Perceptions of the platform were applied to the information content that it held. As a result, resources available online were undervalued, regardless of their quality. This may indicate trades descriptions problems with the "goods", and that the economy did not value information resources as its main currency. A perceived lack of genuine organizational interest in online information sharing was also a problem: despite management proclamations otherwise, it was generally believed that there was greater career advantage in hoarding, rather than sharing information online. The lack of obvious sanctions for such behaviour could be framed in economic terms as inattention to adequate regulatory frameworks in the market place, as could poor engagement on the part of senior staff be viewed as a failure of product endorsement. Similar parallels can be drawn with reference to the treatment of information and knowledge assets. Refusal to contribute content on the grounds that it was confidential, sensitive and/or of limited interest to a wider audience might be

perceived as restrictions on the trade of particular goods. Equally the difficulties experienced by potential partners in building relationships can be equated to trade barriers. These factors thus confirm that there was, indeed, an exchange environment in this setting for online information sharing, but they also reinforce the view that it was an environment that supported exchange, rather than *social* exchange.

#### **4. Case B: educational environment 1 - undergraduates**

The second case focuses on blogging practice amongst students taking a third year undergraduate module offered at a UK university in 2007. The students were expected to post blog entries on topics related to the themes of the module as part of their course work over the course of a semester. Of particular interest for this study was that the students were obliged to post at least one comment on two different blogs of other class colleagues each week. It was suspected that established friendships might influence information exchange in commenting practice, and thus point to the applicability of social exchange theory as an explanatory factor of information sharing in this particular online environment.

Five data sets were analyzed to establish the influences on information exchange amongst the student actors. These were:

1. *Student “proximity” data* (all students): these provided details of the official “location” of each student in terms of degree programme, tutorial group for the module, and course work team for the assessed group work for the module.
2. *Main blog entries* (all students): these included individual reflections on information sharing in the blogging environment, and statements of motivations to participate.

3. *Comments on main blog entries* (all students): the content of actual exchanges; patterns of reciprocation in commenting practice.
4. *Survey of student ties* (35 students): this established levels of acquaintance/friendship both at the start and at the end of the module.
5. *Interview data*: in-depth interviews with three students who were able to provide commentary on the preliminary findings of the research project.

A number of possible influences on information exchange were identified. These were: existing relationships at the start of the module; a desire to reciprocate; and hard and soft external rewards for participation. Each of these is discussed in turn below.

In order to assess the impact of existing relationships on the propensity to share information online through comments, the commenting practice of a sample<sup>1</sup> of the 595 student pairs was checked for levels of reciprocation. Here “reciprocation” was understood as “A comments on B’s blog and B comments on A’s blog at any point during the module”. The findings are summarized in Table 1 below.

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<sup>1</sup> The sample comprised student pairs where the level of friendship was agreed. All 44 student pairs who agreed that both members were “friends” were included, as were all 17 “acquaintances”. Since the majority of students were strangers to one another, a sample of 45 “stranger” pairs was included for analysis.

**Table 1: Relationships and reciprocation**

	“Friend” pairs (n=44)	“Acquaintance” pairs (n=17)	“Stranger” pairs (n=45)
<b>No reciprocation</b>	48%	94%	96%
<b>A little reciprocation</b> no pattern	27%	6%	4%
<b>Some reciprocation</b> a pattern is evident	2%	0%	0%
<b>Much reciprocation</b> a strong pattern is evident	23%	0%	0%
<b>Total</b>	100%	100%	100%

The data in the table shows that students who were established in friendship pairs were more likely to reciprocate comments online than those who were not. When the data presented in summary form in Table 1 were matched against the student “proximity” data it was discovered that the highest levels of reciprocation activity were between students on the same degree, in the same tutorial group and, in some cases, in the same course work team. Further evidence of established friendships supporting reciprocation was found in the students’ main blogs entries, as illustrated in the comments below:

- “The only comments I have received are from people that I know and I think it is the same for other students. I do the same as well. I only send comments to people I know. “
- “In the first week I posted comments only to [my friends’] blogs to get comments from them on my own blog.”
- “I have tried to comment on as many blogs as possible. However, it is so much easier to comment on my friends’ blogs since I understand their thinking better”.

These data in combination therefore suggest that proximity leads to friendship, and this encourages socially-motivated information exchange. This, in turn, may reinforce the feelings of proximity and friendship.

Reciprocation per se was also examined as an explanatory factor for commenting practice. There was evidence in the data to support this. Some blogs hinted at the possible existence of a gift economy in this online environment. Other motivating factors were rewards related to reputation, local “fame” and status (soft rewards) and marks (hard rewards). Examples of comments related to these motivating factors are given in Table 2.

**Table 2: Other motivations to provide comments**

Motivation to participate	Student comments
<b>Reciprocation per se (A gift economy?)</b>	<p>“One thing I do feel when someone comments on my blog I feel obliged... to comment [on theirs].”</p> <p>“[I am] a bit disappointed with the turn-out of comments on my blog site as I tried to harass people to post comments but I guess it didn’t work... If I posted more on other people’s blogs, perhaps I would have gotten a few more comments.”</p>
<b>Soft rewards of reputation, local “fame” and status</b>	<p>“I was more likely to comment on blogs which I found particularly interesting, reflective and thought-provoking... which were a little lengthier, and it was clear that the person had put some time into thinking about [what they had written].”</p> <p>“We were all aware that everyone was meant to comment on another two blog entries. Therefore you didn’t want to be seen as the one who had been left out, or less popular... receiving a comment almost acted as a stamp of approval. It was rewarding to know that the blog had actually been read by someone [and] the time and effort to write the blog entries had been worthwhile.”</p>
<b>Hard rewards of marks</b>	<p>“I did try to get a good mark with my blog, but I also tried to make a blog that was different.”</p> <p>“I definitely don’t think I would have created blogs and posted comments had it not been part of the course work specification.”</p>

With regards to the hard reward of marks, three levels of participation were evident:

1. *Students were conscious of the mark, yet still making an effort:* information exchange in the online environment was worth more than the mark alone.
2. *Reluctant participation:* participation with an eye on the level of mark to be achieved.
3. *Minimal effort:* sole interest in participating was to gain a mark.

From the analysis of data in this setting it can be seen that social incentives, i.e. maintaining friendships, reciprocating favours, and the provision of soft rewards, are powerful determinants of information sharing activity in an online environment. In

this case, social exchange theory – which predicts that exchanges take place more readily between friends than between strangers – is applicable. This has implications for course design, especially in cases where teaching staff would like to encourage dialogue for each student across a broad range of contacts.

## **5. Case C: educational environment 2 - postgraduates**

Case C was developed as part of larger project that examined the structural, communication and relational dimension of social capital with reference to group information behaviour in organizations<sup>2</sup>. Social networks and structures, identity, and trust were considered key aspects that determine motivations for the sharing of information in groups. Although the focus of the work as a whole was social capital (and not an examination of social exchange theory as an explanatory factor of information sharing, as was the purpose of the work conducted for cases A and B above), findings from the study provide further evidence of how conditions for social exchange help support information sharing in online environments.

Membership of the case study population in Case C comprised six students enrolled in a special adult education programme in Library and Information Science (LIS) offered by a Finnish university. All students held undergraduate degrees, and had gained several years of work experience in different fields. Their goal in taking this programme was to gain an MSc as a higher degree that included LIS and Information Technology (IT) as the main subjects of study. Programme delivery was planned so that courses could be taught mainly in a virtual environment. This suited the geographically dispersed student cohort, and was especially attractive to those who had on-going work commitments.

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<sup>2</sup> Other cases considered in this study were from the financial and biotechnology industries. These have previously been reported elsewhere (Widén-Wulff, 2007).

It has been established above that social exchange is applicable in socially-bonded groups where individuals who know and trust one another through long-term relationships exchange resources in predominantly generalized exchange structures. In addition, the resources exchanged are often valued more highly than their “cost”. Consideration of the relational dimension of social capital in the student cohort in Case C also provided an opportunity to explore the data collected and findings through the lens of social exchange theory. Group identity, behaviour and engagement were evaluated on the analysis of answers to 31 survey questions which had been formulated on the basis of an assessment tool originally developed by Tyler and Blader (2001). Those surveyed had a largely homogeneous view on the group identity: they all described this to be strong, supported by a feeling of fellowship. Strong group identity was evident in reports of the ease with which individuals would share their problems and triumphs, and were willing to help one another when the need arose. It had been shaped by the fact that all the members were in a similar situation as mature students with several years of work experience. They all belonged to a tailor-made programme that offered specific tools for individuals to maintain contact over distance (such as the virtual course environment, Blackboard and Lotus Learning Space) in the time periods between physical course meetings. This group identity contributed to engagement: it encouraged individuals to remain motivated in periods when they felt that it was difficult to complete their studies. As far as trust was concerned, high levels were experienced within the group. It was initially shaped in the face-to-face class meetings and then transferred into the operation of the virtual course platform. In short, then, it was evident that the group members were well-integrated socially in trusting relationships.

The extent to which the propensity to share information online was motivated and/or supported by characteristics of social exchange as exhibited above is worth consideration. With regards to sharing information online, the students felt that this was achieved effectively, with the course platform offering the main channel for such activity. Group work and discussions within the course platform were seen as most important forms of collaboration, whilst the study planner (which contained details of the study program, course dates, contents, literature) were regarded most highly as sources of formal course information. Exchanging information and helping fellow students came to group members naturally. Despite the high levels of support offered, individuals did not expect direct reciprocation in return for the help that they were able to give. However, feeling supported by others motivated the desire to offer support in the future. This illustrates the contention that general reciprocation is a “mechanism that induces partners to remain socially indebted by inhibiting complete payment” (Bignoux, 2006, p. 621). Exchanging information online was seen as route to a number of individual benefits, the most important of which was to contribute to the achievement of individual goals through access to information, means of collaboration, and a social network. Of particular interest was that engagement to help and share information was mainly restricted to the membership of this specific group: members were not interested in helping others from outside their immediate circle, such as new students.

The sense of a strong group identity, in an environment where individual students could rely on mutual trust and support, were key aspects to online information sharing in Case C where personal resources could be brought to a collective attention on demand. It can be summarised that the students perform so-called generalised

exchange where the exchange happens in forms of trust rather than direct or productive exchange. They trade social bonds within the group, maintaining a high level of trust, and from these exchange structures they expect support in the future. That the privileges of group were not extended beyond the confines of the group adds to the argument that this case illustrates social exchange in action.

## **Conclusions**

It is clear from these three cases that the exchange of information in online environments is highly dependent on social relationships. Case A shows that heavy investment in technical infrastructure and dedicated staff resources, along with proclamations on the value of online cooperation with financial rewards on offer, are unlikely to be effective if the individuals charged with managing content do not enjoy trusting relationships with those expected to supply information content. Proximity emerges as a strong theme. In Case A the information brokers were too far removed from the source of high-value information for the online resource that they serviced. In Case B, time spent in shared classes accounted for friendship ties. These, in turn, yielded the highest levels of online information exchange. In Case C, trust in the online environment was first established and grew from face-to-face interactions. In addition, Case C actors were unwilling to share the benefit of their strong relationships with group outsiders. Further evidence of the importance of social factors is demonstrated in the power of social incentives to information share, as opposed to hard rewards, such as the expectation of financial compensation in Case A and the straightforward award of a mark in Case B. As earlier studies have shown (for example, Bignoux, 2006; Ripeanu, Mowbray, Andrade & Lima, 2006) the extent to

which social exchange theory can explain information sharing behaviour in online environments depends on a complex mix of factors. These include the social capital shared amongst actors, the level of trust on which this is based, the potential for reciprocal transactions, and the management of incentives structures.

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