Work Role Similarity and Work Familiarity between Members: A Tripartite View of Social Identity towards Knowledge Contribution in Organizations

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Abstract

Knowledge sharing within an organization allows it to develop a competitive advantage over its rivals. However, sustaining and motivating members of knowledge sharing groups to contribute knowledge is a challenge for many organizations. To address this problem, organizations have implemented new knowledge sharing tools such as Wikis to facilitate knowledge contribution, although these have had varying success possibly due to the importance of social identity in knowledge sharing behavior. This study examines how similarity in work roles and work familiarity between members affect various dimensions of social identity they individually perceive, and in turn, affect knowledge contribution. Field data gathered from a knowledge intensive organization provide evidence that similarity in work roles and work familiarity have a strong influence on social identity, which in turn affects knowledge contribution.

Keywords: Similarity, Familiarity, Social Identity, Knowledge Contribution, Organizations.
INTRODUCTION

The importance of social identity in group member participation, both in and out of organizations has long been recognized by researchers and practitioners (Back, 1951). Social identity refers to the collective member identification within an interacting group, and can be perceived by both members and non-members (Henry, Arrow, & Carini, 1999). It represents an individual’s self-concept attached with value and emotional significance based on membership with a social group (Tajfel, 1978). Since membership to a group can occur based on one’s perception, attraction or dependence on a group, it can be viewed as a tripartite model consisting of three sources – cognitive, affective, and behavioral (Henry et al., 1999). Cognitive identity refers to the extent one categorizes oneself as a member of a group. Affective identity is concerned with the extent one identifies with the group as a result of the affective bonds one has with the group members, while behavioral identity is defined as the extent one identifies with the group as a result of being subjected to common fate, and behavioral interdependence or the need to coordinate actions to achieve group objectives.

Organizational knowledge presents an added area of competitive advantage, as organizations able to make better use of their organizational knowledge are better placed than their rivals in the marketplace (Gnyawali, 1997). The sustained contribution of useful knowledge by members of knowledge sharing groups is essential. According to researchers and practicing managers, social identity is recognized as being critical to the performance of a group and a sense of belonging to the group among other indicators (Yoo & Alavi, 2001). Social identity is critical because it determines how well the group functions as a whole and how much members align themselves with the group beyond their own self-interests. The effect of social identity on contribution to the community is thus considerably significant as it might not be in one’s best interests to contribute knowledge that gives one a potential edge over others (Wasko & Faraj, 2005). In particular, we examine whether the differences in these various dimensions of social identity can lead to the contribution of different types of knowledge, for example, whether the cognitive dimension leads to more contribution of a particular type of knowledge than the other two dimensions.

Interpersonal similarity, which refers to the degree to which two people share certain characteristics, is another well researched concept. It is based on homophily theory (Lazarsfeld & Merton, 1954) which posits that as individuals tend to be attracted to other individuals more similar to each other. Another theory that posits a similar line of reasoning is the similarity-attraction paradigm (Newcomb, 1961). These theories have been found to be applicable in many contexts, ranging from interview assessments to friendship (Goldberg, 2005) (Secord & Backman, 1964). There are also many dimensions of similarity between individuals, ranging from demographic similarity, to deep similarity and also experiential similarity, in which two individuals have gone through a similar significant experience (Suitor, Pillemer, & Keeton, 1995). For this study, we focus on similarity in work roles. In the organizational context, performing similar work might mean being assessed by others in a similar manner, and sharing the same problems and dependencies. Having similar work roles in the organization might prompt members to more easily identify with one another, since they share similar job responsibilities and problems, and possibly outcomes.

Work Familiarity between members is the degree to which two members have worked together. The more two members have worked with each other, in the same projects, the more they will relate to each other based on past experiences and become more aware of their skills. Work Familiarity between members can lead to greater group communication and performance as a whole. We propose that this is achieved through the forging of a stronger social identity which leads to the above group outcomes and performance. (McKenna, Green & Gleason, CartWright & Zander, Utz from (Ren, Kraut, & Kiesler, 2006))

We integrate these theories to examine their effects on the various dimensions of social identity and subsequently on members’ knowledge contribution, hence posing the below research questions:

RQ1: What are the effects of Work Role Similarity and Work Familiarity between Members on Social Identity?

RQ2: What are the effects of Social Identity on Knowledge Contribution?
THEORETICAL BACKGROUND

2.1 Homophily (Work Role Similarity)

Homophily theory (Lazarsfeld & Merton, 1954) posits that individuals who are similar are more likely to develop supportive relationships with each other. Other similar theories such as the attraction-similarity paradigm expands on this further, to posit that two parties who are similar to each other are more likely to be attracted to each other (Byrne, 1971; Newcomb, 1961). Many studies have been conducted based on the above hypotheses, with many finding strong empirical support for them on various dimensions. These dimensions include demographics such as age (Feld, 1982), gender (Ibarra, 1992), race (Mollica et al, 2003) and status (McPherson & Smith Lovin, 1987), as well as attitudes (Santee, 1976; Touhey, 1974), experience (Suitor et al., 1995), and needs (Seyfried & Hendrick, 1973).

In the workplace, work role similarity can be viewed as an extension of status homophily since work roles in the organization are a form of ascribed status (Lazarsfeld & Merton, 1954). Extending this concept to the workplace, one’s position, whether formal organization position, or informal social network position, can affect things such as obtaining of task-critical information, approval, performance and performance ratings.

For organizational knowledge sharing groups, members’ work roles can indicate their likely connections and their access to resources. This also indicates the job responsibilities and problems they are likely to have. Work roles are also more visible to other members and hence, it is easier for members to identity those with similar work roles in the group.

2.2 Work Familiarity

Work familiarity can be viewed in terms of familiarity with work processes and work tools, or as familiarity with colleagues at work. In this paper, we focus on work familiarity as the degree of familiarity with regards to other colleagues, in particular how many prior projects they have worked together on since they are often required to interact with each other as part of these projects. Work familiarity with regards to other colleagues is important as it serves as an indicator of prior history and affects how much they are aware of each others’ strengths and expertise, how attracted they are likely to feel towards each other, as well as how much they trust and feel comfortable with each other. This is significant for group identity and knowledge sharing, as dyads with high work familiarity are more likely to have mutual trust that has been built up over time, as well as are likely to understand each other’s expertise in certain areas. These can affect group identity in terms of whether they are likely to be more attracted to each other due to prior experience (positive), and also in terms of how much they view each other as being in the same category.

2.3 Social Identity (Three Dimensions)

Social identity and its related concepts have effects on group performance, member satisfaction, group outcomes among others. (Henry, Arrow et al, 1999)

Henry’s tripartite model of social identity (referred to as group identity in his paper) was adapted in this study. In particular, we examine three dimensions of group identity: Cognitive, Affective and Behavioral.

2.3.1 Cognitive

The cognitive dimension that Henry’s model referred to is essentially that of self categorization of members such that they see themselves as belonging to the group which is detailed in self-categorization theory (Tajfel et al, 1971) in social identity literature. This is similar to common identity theory, in which members of a group are attracted to the group as a whole and see the group’s goals as important, rather than due to attraction to certain members of the group (Ren et al., 2006). Self-categorization theory posits that an individual’s social identity is affected by his/her belonging in various social categories, as well as his/her own personal views of these categories (Deaux et al, 1995). As such, in a group, if members share similar rather than dissimilar social identities in terms of their memberships in various social categories, group identity is positively affected (Ethier & Deaux, 1994, others).
2.3.2 Affective
The affective dimension of social identity refers to that of cohesion (Festinger et al., 1950), which is the force that convince members in a group to stay in the group (Henry et al., 1999). This includes interpersonal attraction between group members as well as the ability of the group to further the goals of its members. Interpersonal attraction is a known antecedent of behavior and attitudes. It is also indicative of common bond theory, in which member’s loyalty or attraction to the group stems from their attraction primarily to certain members in the group, and not to the group as a whole (Ren et al., 2006).

2.3.3 Behavioral
The behavioral dimension of social identity refers to interdependence both in outcome and in their actions. Outcome interdependence involves shared outcomes for members of the group as well as common fate and hence, driving members to work together in order to achieve the outcome they desire. The other aspect of interdependence that Henry et al proposed is the need for members to coordinate their actions, in order to achieve group goals. In this study, we consider both of these to provide a more comprehensive understanding.

2.4 Knowledge Contribution
Knowledge can be classified into two types in the organizational context, namely product knowledge, and expertise knowledge (Constant, 1994). Product knowledge viewed as belonging to the organization and not part of oneself, includes general project information and progress updates, while expertise knowledge viewed as part of oneself, includes advice and expertise, information sources and referrals (Constant, 1994). The difference in how employees perceive these two types of knowledge as part of themselves or their organizations, also affect how willing and easily they share such knowledge with others. Determining how best to manage each type of knowledge is a challenge for organizations, as it affects how effectively it can draw upon the knowledge it possesses. Another challenge is motivating members to share such knowledge (Wasko & Faraj, 2005), with factors such as organizational culture, and trust between members playing a part.

RESEARCH MODEL

3.1 Work Role Similarity
We have defined Work Role Similarity as the Similarity between two members’ stated work roles in the organization for this study. Members who are similar to each other in work roles are more likely to see themselves as belonging to the same category or group, since they can identify more with each other and that they are both of equal status and hence, the other party’s role will not render one’s role as less desirable.

When similarity in work role is high, the cognitive dimension of social identification between two parties is likely to be high, since both parties are likely to view each other as being in the same category. When work role similarity is low, the cognitive dimension is likely to be low.

Hypothesis 1a: The Cognitive dimension of Social Identity increases as Work Role Similarity increases.

Attraction-similarity paradigm studies show that when two parties are similar to each other on various aspects, in this case, work role, they are more likely to communicate with each other and develop relationships with one another. They are also more likely to develop interpersonal attraction for one another. Hence,

Hypothesis 1b: The Affective dimension of Social Identity increases as Work Role Similarity increases.

When two parties perform similar work roles in the organization, it is likely that they will both experience similar outcomes and common fate. This is due to how organization policies often similarly affect members in similar positions, and also because these members are more
likely to rely on knowledge from members in similar work roles as them, since such knowledge is likely to be more readily applicable or relevant to their work.

**Hypothesis 1c: The Behavioral dimension of Social Identity increases as Work Role Similarity increases.**

### 6.1 Work Familiarity between Members

Work Familiarity between members refers to how well members know each other. For our study, we operationalised Work Familiarity between members as prior working history. We posit that as work familiarity between any two members increase, they are more likely to view themselves as being in the same category, since they are more likely to be aware of each other’s similarities and are more likely to share certain frames of reference or experiences with each other. Hence, when work familiarity between any two members is high, we expect the cognitive dimension of social identity between those two members to be high.

**Hypothesis 2a: The Cognitive dimension of Social Identity increases as Work Familiarity between Members increases.**

More directly, as work familiarity between any two members increase, they are more likely to feel attracted to each other, since they know each other more. They may have a certain level of trust and have shared personal information with each other as they become more comfortable with one another. Hence, the affective dimension of social identity between two members is likely to be high when work familiarity between those members is high.

**Hypothesis 2b: The Affective dimension of Social Identity increases as Work Familiarity between Members increases.**

Work Familiarity between two members is also likely to have an impact on how dependent they are on each other. Greater work familiarity might be due to a need for such work familiarity, whether due to sharing of outcomes and common fate or a need for coordination of actions. As such, when work familiarity between two members is high, the behavioral dimension of social identity between those two members is likely to be high.

**Hypothesis 2c: The Behavioral dimension of Social Identity increases as Work Familiarity between Members increases.**

### 6.2 Social Identity and Knowledge Contribution

Knowledge contribution is examined as the type of knowledge contributed and the frequency of contribution. The type of knowledge is important as increasing frequency of irrelevant knowledge does not benefit knowledge sharing group members and the organization and might lead to overflow of information and categorization problems. Frequency of contribution is vital, since too little knowledge contributed means less incentive for others to contribute to the group and lead to less identification with the group’s goals.

When the Cognitive dimension of social identity is high, there is increased participation in the group as members identify with the group and align their own interests with the group. Members are more likely to contribute their knowledge in the case of knowledge-sharing groups, since the goal is to exchange knowledge for the good of the organization. Also, there is likely to be higher knowledge contribution, since when the Cognitive dimension is high in a group, similar to Common identity groups, generalized reciprocity is practiced (Ren et al., 2006), meaning members are willing to help each other, even if they had not benefitted from a member’s help before. This further encourages knowledge contribution by all members.

**Hypothesis 3a: Product Knowledge Contribution increases as the Cognitive dimension of Social Identity increases.**
Hypothesis 3b: Expertise Knowledge Contribution increases as the Cognitive dimension of Social Identity increases.

When the Affective dimension of Social identity is high, participation in the group is likely to be higher, as members continue to contribute, even if their participation is aimed at a smaller subgroup within the group. Since the information is still accessible by other members, this kind of specialized reciprocity is not without its merits, and can lead to greater knowledge contribution albeit from a smaller pool of members. In such cases, if the members that others are attracted to play active roles as contributors and group champions, they can increase knowledge contribution by encouraging others to participate and contribute.

Hypothesis 4a: Product Knowledge Contribution increases as the Affective dimension of Social Identity increases.

Hypothesis 4b: Expertise Knowledge Contribution increases as the Affective dimension of Social Identity increases.

A high Behavioral dimension of Social Identity means that group members are highly interdependent upon each other. This means that there is likely to be increased communication and sharing of information and knowledge between members in part due to necessity. In knowledge sharing groups, these exchanges of information and knowledge can lead to increased contribution by group members, indicating higher knowledge contribution.

Hypothesis 5a: Product Knowledge Contribution increases as the Behavioral dimension of Social Identity increases.

Hypothesis 5b: Expertise Knowledge Contribution increases as the Behavioral dimension of Social Identity increases.

METHODOLOGY

4.1 Sample
Our field study was conducted in the technology and software development divisions of a large manufacturing company. The respondents were from 3 different work teams spread over 8 countries who participated in the study. The overall response rate was 77%, with 34 respondents out of a possible 44. The average organizational tenure of the respondents was 5.1 years (ranging from 0.5 to 27 years). Due to attrition and missing values, the resulting sample size used in the analyses for the study was 25.

4.2 Procedure
Preliminary interviews with the staff were conducted in order to obtain qualitative data as well as to customize information for the survey tool. Preliminary data regarding the company’s structures, information processes as well as tools and technologies used from the interviews were incorporated into the design of a customized survey relating to the measures under investigation. The customized survey was then implemented as a web-based survey tool co-developed with another researcher working on the same research site.

4.3 Data Collection and Measures
Work Role Similarity. We asked the respondents to indicate their main work role in the company in terms of which activity they engage in primarily (e.g. Designing Solutions, Developing Solutions, Testing Solutions, Managing and Approving). These roles were adapted from our preliminary interview data. We then computed the similarity in work roles through a one mode matrix network (Wasserman & Faust, 1994) by mapping the relationships between people and people based on this similarity and finding out first how each participant shared the same role as the other respondents and then obtaining the mean.

Work Familiarity between Members. We asked the respondents to indicate how many projects or teams they have worked with each particular respondent previously (e.g. 0 to more
than 10). We then computed the level of familiarity of each respondent with the other respondents based on the respondents indicated responses by using the mean obtained from a one mode matrix network (Wasserman & Faust, 1994), which maps the relationships between people and people based on a certain attribute, in this case, the number of shared projects they worked together on.

**Control variables.** Group membership and organizational tenure was controlled for. Groups in our study have varying numbers of members and different structures. This can affect work familiarity in terms of how many people in the group one can be familiar with as well as how project oriented the groups are in their structures. Changes in group membership due to restructuring and movement across groups can also confound the results if it is not controlled. Organizational tenure was also controlled as employees who have been employed longer tend to have more opportunities to participate in projects, hence being able to work with and become familiar with more people, as well as to contribute their knowledge.

**Cognitive.** Respondents indicated whether they viewed the group as being part of who they are, and how different they saw themselves from the other members of the community (as adapted from (Henry et al., 1999)). The questions were aimed at understanding to what degree respondents saw themselves as being in the same category as the other group members.

**Affective.** Respondents indicated how much they enjoyed interacting with members of the group as well as their general liking towards members of the group (Henry et al., 1999). These showed the extent respondents were interpersonally attracted to the other members.

**Behavioral.** Respondents were asked to indicate the extent to which they believed members of the groups need to contribute in order to achieve the group’s goals, and the extent they felt the group could achieve more than what a single member could achieve (Henry et al., 1999).

**Knowledge Contribution.** For each type of knowledge contribution (Product and Expertise), respondents were asked to indicate the frequency by which they shared information with other work colleagues using the various mediums for the quantity aspect of knowledge contribution, as well as the type of information they shared with others. The mean was obtained for the frequency of knowledge contributed for *General Project Information, Technical Information and Progress Reports*, constituting Product Knowledge (Cummings, 2004)(Constant, 1994), while another mean was computed for *Advice and Expertise, Information Sources, and Referral to Others*, constituting Expertise Knowledge.

### 4.4 Analytical Procedure

We used partial least squares (PLS) invented by (Wold, 1975), a technique for structural equation modeling (SEM) (Haenlein, 2004), for our analysis of our research model. Constructs were modelled using reflective indicators according to (Chin, 1998) and (Haenlein, 2004). SmartPLS 2.0 (M3 Release) was used to run our PLS analysis.

### RESULTS

#### 5.1 Measurement Model

All constructs except for Cognitive Identity are well above the recommended threshold values. Composite Reliability scores for most constructs except Cognitive Identity are also above the recommended threshold value of 0.70 (Chin, 1998). Except behavioral and cognitive identity, the Cronbach alpha values of the other constructs are well above the threshold value of 0.70 (DeVellis, 2003). Communalities for all except 1 construct exceed the threshold of 0.50 (Chin, 1998). 1 Most of the indicators except for three2 load on to

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1 Due to space constraints, the table of coefficient results indicating measurement model reliability was not included. This can be obtained from the authors.

2 Due to space constraints, the factor and cross loadings tables were not included. These can be obtained from the authors.
their own constructs and with values exceeding 0.70. For Cognitive identity, despite below-threshold loadings, indicators loaded very strongly compared to other indicators. Most of the indicators load higher on their own constructs compared to other indicators. Most of the indicators correlated well with their corresponding construct, with the exceptions loading adequately. From our analysis, we conclude that it is reliable and adequate for our study considering the small sample size.

5.2 Structural Model Results

As seen from Figure 2 below, our structural model could explain 28.01% of the total variability of Cognitive Identity, 19.33% of Affective Identity, 3.12% of Behavioral Identity, 60.51% of Product Knowledge Contribution and 41.58% of Expert Knowledge Contribution. Figure 2 also summarizes the path coefficients and their significance from bootstrapping.

We found adequate support for our research model in this study. Hypotheses 2a and 2b regarding were supported, implying that Work Familiarity between Members has a positive effect on Cognitive and Affective Identity. Hypotheses 3a, 3b, 4a and 5a were also supported, indicating that the various dimensions of Social Identity have positive effects on Product and Expertise Knowledge Contribution. Hypotheses 1b and 1c, were not supported as the path coefficients were not of the expected sign (positive).

DISCUSSION AND FINDINGS

6.1 Discussion of Findings

This field study shows that work familiarity between members are positively related to both product and expertise knowledge contribution via cognitive and affective identity. However,
the proposed effect of work role similarity on the various dimensions of social identity did not have the expected positive direction, but yielded a negative but significant relation on affective identity and behavioral identity. While generally work role similarity and work familiarity may seem to go together, it need not always be the case especially in organizations nowadays, that require a complementary mix of work roles in teams for various projects. This implies being less similar in work role will result in higher levels of affective and behavioral identity, both of which lead to higher levels of product knowledge contribution. One plausible explanation for this unexpected finding is that while sharing work roles can help in communities of practice, people may view those with similar work roles, especially in the organizations, as their direct competitors. The negative relationship with behavioral identity can be explained by the way most teams are organized such that work needs to be coordinated with people who are performing other. In our study based on software development and support teams, this is generally the case, since developers take charge of projects, and need to coordinate with designers, testers and users to complete their work, hence relying greater on knowledge from those with different roles.

Looking at the various paths from work role similarity and work familiarity to product or expertise knowledge contribution via social identity, we can identify two significant paths.

Path 1: Work role similarity is indirectly related to product and not expertise knowledge contribution via affective and behavioral identity.

Work roles and expertise are often related and confused with each other, but generally being in a particular work role leads to a certain expertise in that area. Hence, employees performing similar work roles tend to share common expertise as well. Our findings show that having a similar work role and expertise, on the contrary might mean that such employees see less need to contribute expertise knowledge, since they may assume that such knowledge is overlapping and intuitive for those with the same expertise, and instead product knowledge might be more useful or required, such as progress reports on shared projects.

Path 2: Work Familiarity is indirectly related to product and expertise knowledge contribution via cognitive identity and affective identity.

Work familiarity between members in terms of number of prior projects worked on tends to create a greater awareness of the group and the part one plays in it leading to cognitive identity as well as greater attraction to members in the group due to possibly greater interaction. This can lead to greater product knowledge and expertise knowledge contribution since employees are more likely to contribute to the group and help group members in general, as well as more likely to help members whom they are more familiar with, although such knowledge can also be shared with the group in general on mediums like the Wiki.

6.2 Limitations and Future Research

Our study has several limitations. Firstly, the subjects are all from one organization. Organization culture and working environment can affect the applicability of the results. Secondly, our field study is limited to mostly subjects involved in the technology departments in the organization. Thirdly, the sample size in this study is rather small, hence results are not conclusive. Fourthly, privacy and organizational constraints limited the collection of data and the survey design. Fifthly, differences in results from positive or negative prior work experiences affecting work familiarity were not examined in this study. Finally, longitudinal data was not collected so causal relationships could not be established. Future research could be conducted to test the applicability of the findings to other firms. One challenge for future research is adapting the same constructs for other firms, while further examining positive/negative work experiences and their effects on work familiarity.

6.3 Implications
One important implication for this study is that it opens up the “black-box” between sharing similarity in work roles and work familiarity with other members, and their subsequent effects on knowledge contribution. This study shows that the above two individual attributes do not affect knowledge contribution directly, but through social identity. Another important implication is that it suggests there are certain dimensions of social identity that lead to different types of knowledge contribution, and attempts to gain a finer-grained understanding of how social identity affects knowledge contribution through its different dimensions and the types of knowledge involved. This study suggests that work role dissimilarity or complementarity rather similarity might provide more benefits for knowledge contribution in organization groups involved primarily in technology work adding on to previous literature positing that complementarity and dissimilarity can be beneficial for groups. (Hinds, Carley, Krackhardt, & Wholey, 2000)

For practitioners, assigning employees sharing work roles to groups can be considered in a new light, since the results suggest that it is not always beneficial in terms of knowledge contribution for employees in the group to have similar work roles. This can affect the formation of specialized expert groups, since they do not necessarily exhibit strong identity and greater knowledge contribution. Work familiarity between members and its beneficial effects on identity as well as knowledge contribution suggests that managers and practitioners might be better off introducing more stability and less changes to established groups in terms of their members instead of constantly rotating nowadays to increase knowledge contribution.

6.4 Conclusion

In conclusion, this paper contributes by providing a greater understanding of the effects that work role similarity and work familiarity have on social identity and how social identity can affect knowledge contribution in groups. The importance of similarity and familiarity of members in groups have been examined in literature related to group identification as well as group performance, although there has not been much consensus on whether similarity and familiarity are necessarily beneficial. This paper investigates their effects on product and expertise knowledge contribution and whether they are mediated by social identity. This paper suggests that similarity in work roles is not always beneficial for product knowledge contribution due to its effect on certain dimensions of social identity (affective and behavioral), while work familiarity between members can lead to both product and expertise knowledge contribution via different dimensions (cognitive and affective respectively).

References


