

December 2001

Contributing Valuable Knowledge to a Knowledge Management System

Peter Marks
University of Pittsburgh

Scott McCoy
University of Pittsburgh

Peter Polak
University of Pittsburgh

Follow this and additional works at: <http://aisel.aisnet.org/amcis2001>

Recommended Citation

Marks, Peter; McCoy, Scott; and Polak, Peter, "Contributing Valuable Knowledge to a Knowledge Management System" (2001).
AMCIS 2001 Proceedings. 311.
<http://aisel.aisnet.org/amcis2001/311>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2001 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

CONTRIBUTING VALUABLE KNOWLEDGE TO A KNOWLEDGE MANAGEMENT SYSTEM

Peter V. Marks, Jr.
Katz Graduate School of
Business
University of Pittsburgh
pvmst1@katz.pitt.edu

Scott McCoy
Katz Graduate School of
Business
University of Pittsburgh
smccoy@katz.pitt.edu

Peter Polak
Katz Graduate School of
Business
University of Pittsburgh
ppolak@katz.pitt.edu

Abstract

An experiment is proposed to investigate the factors that influence the behavior of individuals contributing their personally-held knowledge to a knowledge management system (KMS), specifically when the individual sharer believes that the knowledge they are considering sharing has a potential value to them and others in their organization. This research can expand understanding for both researchers and practitioners as to the important antecedents to knowledge sharing.

Introduction

Modern information systems enable the transfer of knowledge in new and unique ways in organizations. Recently, scholars in various fields have turned their attention to Knowledge Management Systems (KMS) as a means of transferring knowledge in organizations (Alavi & Leidner, 1999). KMSs are information systems designed to capture knowledge in and around the organization to allow the entire organization to benefit from the knowledge that already exists (Davenport, et al, 1998).

This strategy of utilizing a KMS to capture the knowledge of individuals in an organization oftentimes requires that they contribute their personally-held knowledge to a system. This may cause social-psychological dilemmas for organizational participants. Knowledge sharing may be considered unnatural in many organizational cultures where holding on to unique and potentially valuable knowledge is a source of power (Goodman & Darr, 1999). In these organizations, simply sharing knowledge with peers utilizing traditional methods (e.g., face-to-face, telephone conversations, etc.) can represent a significant challenge. Thus, the idea of sharing knowledge with an entire organization through a computer system amplifies the challenge on the contributor who does not know exactly who may benefit from the contribution of their personally-held and possibly valuable knowledge. This aspect distinguishes the issue of sharing in an established social network with sharing in an entire organization where the sharer does not know where the knowledge will go or what purpose it will serve.

Prior Research

Some prior research on sharing behaviors has focused on three variables, managerial control, social identification, and social value orientation (De Cremer & Van Vugt, 1999; Van Vugt & De Cremer, 1999). These variables are reviewed below.

Managerial Control

In its broadest sense, control is a process utilized by organizations to influence employees' attitudes, behaviors, and activities (Birnberg, 1998). This paper adopts the concept of control from the behavioral literature (Jaworski, 1988). In this view of control, management attempts to have individuals working together on organizational projects utilizing agreed upon strategies to achieve goals. Therefore, this control is neither positive nor negative. It is simply an attempt by management to influence the behavior of individuals within the organization by paying attention to the elements in the workplace that are important.

Social Identification

An important aspect that is related to sharing is social identification. This variable measures the amount of identification that an individual has to a particular group. Positive social identification has been a very important element in determining why individuals share more willingly in public goods research and why individuals exercise a greater amount of restraint in resource dilemmas (Kramer & Goldman, 1995).

Social Value Orientation

Social value orientation (Messick & McClintoch, 1968) assesses individual outcome preferences in social dilemmas, such as the provision of public goods. Individuals generally view outcome preferences in terms of their own personal well being, whereas others focus on the collective outcome to an entire group of individuals. This enables researchers to focus on individuals in one of two broad categorical functions – “proself” or “prosocial.” Proself individuals attempt to either maximize their own returns at the expense of others or maximize their returns with indifference to others. Prosocial individuals attempt to maximize the returns of both themselves and others. These measures have been utilized over the past two decades with reliable and valid results surrounding the behavior of individuals in contributing to social dilemmas.

Proposed Research and Methodology

This proposal seeks to investigate the effect of managerial control, social identification, and social value orientation on the contribution of valuable knowledge to a KMS. This research is best performed in an experimental setting so that a stronger manipulation of the variables can occur. Students at a large university in the Northeastern US will be used as subjects in this research. Managerial control will be operationalized as either present or absent. In the managerial control group, one of the researchers will send messages encouraging contributions. Social identification will be operationalized similarly to prior research (De Cremer & Van Vugt, 1999). The subjects will be instructed that an investment game is being conducted. In the high identification group, subjects will be told that results are being compared to other universities in the area. This allows subjects to feel a sense of competitiveness between their university and other universities. The low identification group will be told that the researchers are interested in the results of college students in general. Finally, subjects will be categorized as either prosocial or proself using the social value orientation test (Messick & McClintoch, 1968). This results in a 2 (managerial control or no managerial control) by 2 (high social identification or low social identification) by 2 (prosocial or proself) factorial design.

The key difference between prior research on sharing and this research effort is in the function of the dependent variable. In prior research, the dependent variable had an exact value for the individual decision maker and/or the group as a whole. This produced a cash payoff matrix for either the individual decision maker or the individual decision maker and/or the group as a whole.

However, in terms of sharing knowledge, it is unlikely that contributed knowledge will produce a unilateral impact for all members of the group because knowledge will likely be valuable to some group members and not valuable at all to other members (King & Wallin, 1991). Therefore, this research will change the dependent variable to something that has a probability of value to the sharer and a different probability of value to another unknown individual within the group, as well as, a group value if a certain amount of knowledge is shared. Utilizing this payoff matrix, the individual decision maker can either keep the knowledge to himself and accept the probabilities of individual payoff, or share the knowledge with an unidentified group member who has a probability of payoff for that specific element of knowledge, which in turn, can produce a payoff for the group as well, provided that enough knowledge is shared.

Using the existing literature on managerial control (Birnberg, 1998), social identification (De Cremer & Van Vugt, 1999), and social value orientation (Messick & McClintoch, 1968), hypotheses will now be made as to the effect of these variables on the frequency of knowledge contributions. These effects are expected to vary according to the relative value of the knowledge known. When there is a high value associated with knowledge to oneself and a low value associated with the knowledge to others in the group, or vice versa, the outcome can easily be predicted. It is when the value is relatively moderate, both for the individual and the group, that the decisions are interesting. Therefore, the following hypotheses include the term, “valuable” when referring to the type of knowledge to be shared. This term refers to level of value associated to the item, both to the individual and the other members of the group, as outlined in the probabilities in the payoff matrix.

Managerial control in this research is neither positive nor negative. The existence of managerial control will be used to investigate whether individuals will contribute more knowledge to the system. Because the existence of managerial control is expected to

coordinate worker activities, the subjects in this group will have an outside influence on their contributions. This outside influence is expected to result in more contributions than groups without managerial influence. Thus, hypothesis one states:

H1: The number of valuable contributions will be higher for the group with managerial control than the group with no managerial control.

Social identification measures the degree to which a person identifies with a particular group. This identification with groups affects their decision behavior. When individuals identify with groups, they are more likely to contribute their knowledge to the group. Thus, H2 states:

H2: The number of valuable contributions will be higher for the group with high social identification than the group with low social identification.

As stated above, social value orientation assesses individual outcome preferences independent of current environmental contexts. The differences in orientations, prosocial versus proself, determine the way people respond to situations. Prosocial orientations are more cooperative than proself orientations, and are more concerned with the welfare of others and the group as a whole. Therefore, it is expected that prosocial oriented people will contribute more than proself oriented individuals. Thus,

H3: The number of valuable contributions will be higher for individuals who are categorized as prosocial than individuals who are categorized as proself.

This proposal asserts that managerial control, social identification, and social value orientation have not only direct but also interactive effects on the number of valuable knowledge contributions. All possible interactions are hypothesized: three two-way interactions and one three-way interaction.

In low social identification groups, contributions are expected to be low. This is because those that do not identify highly with the group are expected not to contribute to others. However, when managerial control is added, it is expected that contributions will increase. This is due to the coordination of contributions possible through managerial control. Therefore:

H4A: The number of valuable contributions in low social identification groups will be higher for groups with managerial control than for groups with no managerial control.

Contributions are expected to be high for individuals that identify highly with the group. This is because those that do identify with the group are expected to contribute to others. Contributions are expected to be even higher when managerial control is added. This is because individual behaviors are expected to be coordinated with managerial control. This coordination of contributions is expected to increase overall contributions more than social identity alone. Thus:

H4B: The number of valuable contributions in high social identification groups will be higher with managerial control than for groups with no managerial control.

Contributions from proself individuals are expected to be low. This is because these people are more interested in maximizing their own utility at the expense of others' utility. However, when managerial control is added, contributions are expected to increase because managerial control allows for an increase influence on contributions for the good of the group. Therefore:

H5A: The number of valuable contributions by proself individuals will be higher in groups with managerial control than in groups with no managerial control.

Contributions from prosocial individuals are expected to be high. This is because prosocial people attempt to maximize the utility of both themselves and others. Providing managerial control to prosocial individuals is not expected to increase contributions above that level expected by prosocial people alone. This is because prosocial people are already highly concerned with the welfare of others. Thus:

H5B: The number of valuable contributions by prosocial individuals will remain the same between groups with managerial control and groups with no managerial control.

As stated before, contributions are expected to be relatively low from proself individuals when compared to prosocial individuals. However, proself individuals are expected to contribute more when they have high group identification. This is because these people start to associate themselves with the group and the welfare of others begins to become important. Therefore:

H6A: The number of valuable contributions by proself individuals will be higher in high social identification groups than in low social identification groups.

Although proself individuals are expected to contribute more when they identify strongly with the group, prosocial people are not expected to contribute more. This is because prosocial people are already primarily concerned with the group and not themselves. Thus:

H6B: The number of valuable contributions by prosocial individuals will remain the same between high social identification groups and low social identification groups.

A three-way interaction between managerial control, social identification, and social value orientation is expected to be significant.

H7: A three-way interaction (social identification, control, and social value) will be significant.

Proposed Analysis and Expected Results

In order to determine the effects of the independent factors on the dependent variable, ANOVA tests will be run. As stated before, managerial control, social identification, and social value orientation will be the independent factors, and the level of contributions will be the dependent factor. In addition, any significant differences in means of the dependent variable will be investigated using a post-hoc analysis. All hypotheses are expected to be significant.

Discussion and Conclusion

The research conducted by Goodman and Darr (1999) on sharing valuable knowledge and the research on public goods (De Cremer & Van Vugt, 1999) are important foundations when looking at the decision to contribute personally-held knowledge to a KMS. Once a payoff matrix has been constructed and the experiment conducted, it is expected to provide further insight into the role of managerial control, social identification, and social value orientation on the decision of individuals to contribute valuable knowledge to a KMS.

References

Available upon request.