

KNOWLEDGE CONTRIBUTION IN SERVER MANAGEMENT: ANTECEDENTS AND CONSEQUENCES OF DIFFERENT TYPES OF MOTIVATION

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ABSTRACT

Understanding how to help employees motivate themselves to contribute knowledge into knowledge management systems is quite challenging. In this study, we identify how different types of motivation lead to different knowledge contribution behaviors in the context of server system management. We focus on supervisory support and its role in influencing different types of motivation. Data from a Fortune 500 company was used to test our model. Results indicate that different motivation indeed leads to different knowledge contribution behaviors, and supervisory support is positively associated with intrinsic motivation. Our study contributes to the current literature by providing a deeper theoretical understanding of motivation, and contributes to practice by offering suggestions on how to better motivate employees within organizations and potential consequences of different types of motivation.

INTRODUCTION

Knowledge has been recognized as one of the most valuable resources in organizations, especially when the environment is quite volatile and full of uncertainty [17], because knowledge can represent organizational important intangible assets, operational routines and creative processes [12]. Therefore, the degree to which knowledge is utilized and managed is vital for organizations to maintain their competitive advantage [2], and many organizations develop knowledge management systems (KMS) to manage their knowledge [5].

One of the most challenging issues in knowledge management is knowledge contribution [17] [26]. In KMS, organizations encourage their members to contribute knowledge into a KMS so that other members from the organization can apply the contributed content [11]. However, since the use of KMS is often voluntary, individuals can choose whether or not to contribute knowledge into KMS. A significant challenge for practitioners, therefore, is to understand how to help organizational members motivate themselves to contribute knowledge to a KMS [17].

While motivation has been included in previous studies of KMS success [1] [26], questions about the drivers of motivation to contribute knowledge remain. We argue that the main limitation in previous literature is that few studies explicitly investigate different types of motivation. Although motivation literature has recognized that there are different kinds of motivation [13] [23], many previous studies fail to differentiate different types of motivation [24], which creates conceptual problems. Therefore, there is a need to examine different kinds of motivation in KMS.

Our goal in this study is to narrow this gap by focusing on two types of motivation: external regulated extrinsic motivation [23] and intrinsic motivation. Because organizations often charge management with motivating and directing employees, we focus on the impact of supervisorial support on intrinsic and external regulated motivation.

Our study contributes to current knowledge management literature in several ways. First, we provide deeper understanding of motivation in knowledge contribution. By explicitly investigating two specific types of motivation, we argue that it is not sufficient to treat motivation as a unidimensional concept in the context of knowledge contribution. Second, we demonstrate that different types of motivation result in different knowledge contribution behaviors, which have important implications for organizations. Third, by examining the antecedent of different types of motivation, we find that the context under which different types of motivation are maintained and fostered are indeed different. Our study clarifies the role of supervisors in maintaining and fostering intrinsic motivation, as well as influencing external regulated extrinsic motivation.

The remainder of the paper is organized as follows. First, we developed our hypotheses. Next, we test our hypotheses with data from a Fortune 500 company, and present the results.

HYPOTHESES DEVELOPMENT

Supervisorial support refers to the overall level of helpful social interaction available on the job from supervisors [18], and the importance of supportive supervisors has been recognized in previous literature. For example, Van Yperen and Hagedoorn [24] argue that feeling valued and supported by supervisors makes the work environment more pleasant and rewarding. In the context of server management, although supervisors may not provide suggestions on the technical aspect of knowledge contribution, their supports can make server system administrators (SAs) feel that their supervisors really care about them and respect their jobs, which satisfy their need for relatedness and increase their intrinsic motivation. Therefore, we hypothesize that

H1a: Supervisorial Support is positively associated with intrinsic motivation to contribute knowledge.

Self-determination Theory (SDT) further argues that satisfaction of one's need for relatedness can help the integration of external regulations and make extrinsic motivation become more self-determined. In the process of this integration, individuals start to feel efficacious with the activity, fully understand its meaning and synthesize that meaning with their own value set, and no longer rely on extrinsic rules and rewards to regulate their activities [8, p. 229]. In the context of server management, SAs with supervisorial support are likely to satisfy their need for relatedness and integrate the importance of knowledge contribution into their own value set. As a result, they will no longer rely on these rewards to regulate themselves and contribute knowledge. Therefore, we hypothesize that:

H1b: Supervisorial support does not significantly affect one's extrinsic motivation to contribute knowledge.

Intrinsic motivation refers to "doing something because it is inherently interesting or enjoyable" [22, p.55]. Intrinsic motivation represents individuals' natural tendency toward mastery, spontaneous interest, and exploration, and is a principal source of enjoyment and vitality [6] [21]. Therefore, when people are intrinsically motivated, they are more likely to explore and master challenges. For SAs, the basic work of

server management involves everyday tasks that seem mundane and uninteresting [15]. Because these everyday tasks are topics that are highly generalizable and applicable across departments and contexts, they are perfect candidates for knowledge document submissions. However, the familiarity of this work means that writing about it is uninteresting and not challenging. Therefore, we hypothesize that:

H2a: Intrinsic motivation is negatively associated with knowledge contribution via documents.

In contrast, knowledge contribution via tickets is an aspect of system administration that is more novel and challenging [15]. To solve a particular problem, SAs need to understand the exact context and be able to identify many possible causes as well as generate a list of candidate solutions. To implement a system change, the SA must maintain an accurate picture of current and future system states while anticipating issues that may arise from introducing even a small change into a complex system [25]. In both cases, SAs often need to determine whether their solution can be generalized to other contexts so that other SAs can benefit from the knowledge they contributed. The novelty and complexity involved in closing tickets is likely transferred to the written summarization that formally concludes those tasks. As such, the process of knowledge contribution via tickets – from problem or change identification through solution and summarization – is not straightforward and requires effort from SAs. Thus, we hypothesize that:

H2b: Intrinsic motivation is positively associated with knowledge contribution via problem tickets.

Extrinsic motivation refers to “doing something because it leads to a separable outcome” [22, p.55]. SDT argues that there are different types of extrinsic motivation, which vary greatly in relative autonomy. When SAs are extrinsically motivated by external regulation (e.g., monetary reward), they probably not fully integrate the importance of knowledge contribution into their own value. That is, SAs may perform knowledge contribution simply to satisfy an external regulation or obtain an externally imposed reward [7]. Since knowledge contribution via documents summarizes basic, foundational knowledge, it is cognitively easier for SAs than knowledge contribution via tickets. In order to maximize any external gains, SAs must contribute as many pieces of knowledge as possible. Therefore, we hypothesize that:

H3a: Extrinsic motivation is positively associated with knowledge contribution via documents.

On the other hand, knowledge contribution via tickets can be quite challenging and time consuming in that SAs must fully understand the contexts and issues of the tickets discussed earlier. Therefore, it is more difficult for SAs to contribute knowledge via tickets, and more effort is needed for each contribution. When SAs are extrinsically motivated by external regulation, they are likely to put less effort whenever possible [23]. Therefore, we hypothesize that:

H3b: Extrinsic motivation is negatively associated with knowledge contribution via problem tickets.

METHODOLOGY AND RESULTS

Setting

The setting for the study was a large Fortune 500 company, whose system administration services were contracted out to customers. The company had introduced a KMS to help SAs perform their primary tasks (server management) more efficiently by aggregating user data and centralizing knowledge. The KMS integrated data from various sources to provide SAs with information needed for particular server

management tasks. The pooled knowledge came from knowledge that had been contributed by SAs into the KMS

Measurement

A cross-sectional questionnaire was created with previously validated items. The survey was developed following the methodology outlined by Dillman [9] and measures from previous validated items were adapted. Specially, supervisorial support was taken from Kulkarni et al. [19]. Knowledge contribution was adapted from Durcikova and Brown [10]. Intrinsic and extrinsic motivation (which corresponds to the external regulation subtype) was taken from Bock et al. [3]. Each question was measured on a 5-point, Likert-type scale, anchored on 1 strongly disagree to 5 = strongly agree.

Participants

A web-based survey was used for data collection for ease of distribution and familiarity with web technology. An invitation to participate in the survey was distributed to the 1,012 SAs authorized to access the KM, although not all SAs who received the email were necessarily users of the system. Of the population of 1,012 potential users, 100 usable questionnaires were completed, a response rate of 9.88%. Of the 100 responses, 9 were women (9%). On average, respondents had 4.6 years of working experience in their current position (ranging from 0 to 25 years; S.D. = 5.07) and 6.64 years of experience in their profession (ranging from 0 to 30 years; S.D. = 5.96). The demographic profile of the respondents matched the profile of the sampling frame, thus minimizing concerns about nonresponse bias. In addition, we compared early and late respondents in terms of all contextual variables and found no significant differences in any cases. These results show that nonresponse bias is probably not an issue in our study.

Analysis

We use SmartPLS [20] for testing the research model. Our choice of analysis techniques was based on the following three considerations [16]: First, PLS does not require any assumptions of multivariate normality; second, PLS works well with small-to-medium sample size; third, PLS is well suited to exploratory research. Consistent with prior research using PLS techniques, we analyzed our model in two stages [14]. The first stage involved “the assessment of the reliability and the validity of the measurement model,” and the second stage deals with “the assessment of the structural model” [16, p. 198].

In the first stage of assessing the measurement model, convergent validity was established by satisfying the following three criteria [14] [16]: First, each item loaded significantly on their respective constructs, none of the items loaded on their constructs below the cutoff value of .60. Second, the composite reliabilities of all constructs were over .70. Finally, the average variance extracted (AVEs) of all constructs was over the threshold value of .50. Discriminant validity was confirmed by ensuring that the correlations between constructs were below .85 [4] and that for each construct, the square root of its AVE exceeded all correlations between that factor and any other construct [14]. Thus, overall, our measures demonstrated good psychometric properties. Next, we discuss the results of our hypothesis testing.

H1a states that supervisorial support is positively associated with intrinsic motivation to contribute knowledge. This hypothesis is supported ($b = .336$, $t = 3.949$, $p < .001$). H1b predicts that supervisorial support is not significantly associated with extrinsic motivation to contribute knowledge. This hypothesis is

also supported ($b = .027$, $t = .259$, $p > .05$). H2a argues that intrinsic motivation is negatively associated with knowledge contribution via documents. This hypothesis is not supported ($b = -.005$, $t = .576$, $p > .05$). H2b, stating that intrinsic motivation is positively associated with knowledge contribution via tickets, is supported ($b = .504$, $t = 5.467$, $p < .001$). H3a, which predicts that extrinsic motivation is positively associated with knowledge contribution via documents, is supported ($b = .500$, $t = 6.975$, $p < .001$). Finally, H3b, stating that extrinsic motivation is negatively associated with knowledge contribution via tickets, is supported ($b = -.138$, $t = 1.694$, $p > .05$).

CONCLUSION

While previous literature has examined various factors influencing people's motivation to contribute, few studies have tried to differentiate various kinds of motivation and to understand their antecedents and consequences. Based on previous literature on knowledge management and psychology (Self-Determination Theory), in this study we try to gain deeper understanding of motivation by examining intrinsic motivation and one kind of extrinsic motivation (external regulation). We found that supervisorial support indeed helped maintain and support intrinsic motivation, but not external regulated extrinsic motivation. Additionally, different kinds of motivation indeed lead to different knowledge contribution behaviors: while intrinsic motivation is significantly associated with knowledge contribution via tickets, external-regulated extrinsic motivation is significantly related to knowledge contribution via document submission. Our findings have important theoretical and practical contributions.

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