

Study on the Effect of Psychological Contract on Employee Knowledge Sharing in Virtual Platforms

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Abstract. With the rapid development of Internet technology, employee knowledge sharing in virtual platforms plays a crucial role in the innovative development of enterprise. The psychological contract, as a bond of belief between organizations and employees, has been of great concern to the organizational field, and whether it has an impact on employee knowledge sharing in virtual platforms deserves in-depth study. Based on the above considerations, the study applies social exchange theory and reciprocity norms to posit that the fulfillment of employees' psychological contract is conducive to promoting their knowledge sharing in virtual platforms. The questionnaire and data analysis prove that the psychological contract plays a key role in facilitating employees' knowledge sharing in the virtual platform. The evidence shows that psychological ownership plays a partially mediating effect in the positive effect of psychological contracts on employee knowledge sharing, and that employees with a higher degree of openness to experience are more willing to engage in knowledge sharing in virtual platforms.

1 Introduction

Due to the proliferation of information in the Internet era, online virtual platforms have become important channels for corporate users to share knowledge and exchange office information. The act of employees' spontaneous knowledge sharing on the virtual platform, as the most parsimonious way of knowledge collaboration, enables faster and more effective knowledge collaboration. Based on this, organizations have begun to pay more attention to employee knowledge sharing behavior in virtual platforms, trying to stimulate employees to share knowledge spontaneously, so as to promote better knowledge innovation in enterprises.

In the context of virtual platforms, the belief commitment between employees and organizations, i.e. psychological contract has attracted the attention of scholars [1]. According to social communication theory and reciprocity norms, when the organization satisfies the needs of employees, employees will spontaneously act in favor of the organization due to the psychology of reciprocity and reward. The fulfillment of an

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individual's psychological contract has been shown to have a dramatic effect on manifest behavior in a collaborative environment [2]. Therefore, the study introduces the psychological contract as an antecedent of knowledge sharing for research, which can more effectively and rationally explain the motivational factors behind employee knowledge sharing.

In addition, organizational psychological ownership, as an endogenous force that reflects a sense of personal ownership, plays an important role in stimulating employees to work actively with a sense of "ownership". It affects not only their attitude toward the organization, but also their cooperation in the team [3]. It has been studied by many scholars in the field of knowledge sharing, and this study adds psychological ownership as a mediating variable to investigate whether it is an intrinsic mechanism for the effect of psychological contract on knowledge sharing in virtual platform.

Knowledge sharing in virtual platforms is essentially individual employee behaviour. From a social psychological perspective, personality variables have both direct and indirect relational effects on individual knowledge sharing behavior. Therefore, it is necessary to explore the influence of personal traits on knowledge sharing. This study also focuses on individual heterogeneity and intends to investigate the moderating effect of openness to experience on employee knowledge sharing.

2 Theoretical background and hypotheses development

2.1 Psychological contract and employee knowledge sharing

The virtual platform becomes an important channel for enterprise employees to share knowledge, but the knowledge exchange of employees is based on voluntary basis rather than controlled by the platform. Therefore, it is necessary to study how to stimulate employees' intention to share knowledge in virtual platforms. Psychological contract is an "unwritten" contract between employees and their organization. Psychological contract can motivate employees to act favorable in social groups [4]. When employees find that the organization actively fulfills its psychological contractual obligations, they will trust their organization more and show greater commitment and willingness to contribute more to the organization. Therefore, the following hypothesis is proposed.

H1: Psychological contracts positively influence employee knowledge sharing in virtual platforms.

2.2 The mediating effect of psychological ownership

Psychological ownership, as an endogenous power of employees, is rooted in a sense of belonging and identification with the organization. Therefore, in the process of psychological contract fulfilment, employees develop a sense of belonging to the organization, at which point psychological ownership beliefs arise. Therefore, the following hypothesis is proposed.

H2: Psychological contract positively influences psychological ownership.

The concept of psychological ownership is an important predictor of employees' attitudinal behaviour and motivation in the workplace [5]. When members' psychological ownership is satisfied, they feel a responsibility to protect or strengthen the organization and are motivated to participate in knowledge sharing [6]. Therefore, the hypothesis is proposed.

H3: Psychological ownership positively influences employee knowledge sharing in virtual platforms.

From the above relational argument, it is shown that employees develop a sense of belonging when the organization fulfills its own psychological expectations of commitment, and the psychological need to belong, etc., leads to behaviours towards the organization that go beyond the role **itself**. Therefore, the fulfillment of the psychological contract motivates employees to generate psychological ownership, and the generation of psychological ownership motivates employees to share knowledge in the virtual platform. Based on the above study, the hypothesis is proposed.

H4: Psychological ownership mediates the effect between psychological contracts and employee knowledge sharing in virtual platforms.

2.3 The moderating effect of openness to experience

Knowledge sharing is fundamentally about creating ideas collaboratively, and people who are open to experience are more open to accepting and exploring new goals and environments. Thus, people with greater openness to experience have a higher tolerance for unfamiliar environments and are better able to adapt in virtual platform land situations. Based on the above study, the hypothesis is proposed.

H5: Openness to experience moderates between psychological contracts and employee knowledge sharing in virtual platforms.

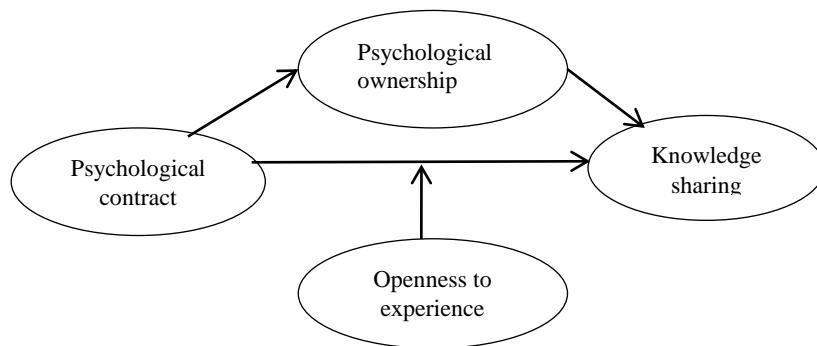


Fig. 1. Theoretical model

Based on the above hypotheses, a theoretical model of the psychological contract on the knowledge sharing of employees **in** virtual platforms is formulated.

3 Method and measures

3.1 Data collection

The participants of this questionnaire were employees in various industries. Participants answered the questionnaire anonymously online. 259 employees were invited to participate in the study, and 217 valid questionnaires were returned, with an effective rate of 83.78%.

3.2 Measures

According to the purpose of the study, the adapted and matured Psychological Contract Scale, Psychological Ownership Scale, Virtual Platform Employee Knowledge Sharing Scale, and Openness of Experience Scale were used. Each of the main variables was rated

on a 5-point Likert scale, with scores from 1 to 5 representing strongly disagree to strongly agree.

The psychological contract scale is based on the concept of "commitment agreed or implied by both the organization and the employee" and is based on the scale of Hua [7] and Liu [8]. An example item is "Fulfilled the promise made to me when I was hired".

The Psychological Ownership Scale refers to the three-dimensional structure of psychological ownership proposed by Pierce [9] and the four-dimensional structure of psychological attributes proposed by Avey [10]. The scale was based on Pierce's, Avey's, and Zhao's scales. Example item is "I have a high level of personal ownership of this job".

The Openness of Experience scale was adopted from Donnellan and adapted from Roger of the scale. The example item is "I enjoy cultivating and developing new hobbies".

The scale for knowledge sharing among employees in virtual platform was adopted from Pirkkalainen [11] and Hsu [12]. The example item is "I am willing to help other members with work expertise needs on a virtual online platform".

4 Data analysis and results

4.1 Reliability and validity analysis

In this paper, reliability analysis of the survey results was performed using SPSS 26.0 statistical software, and validation factor analysis of the questionnaire data was performed by AMOS.24.0. The results are shown in Table 1.

As shown in Table 1, the Cronbach's alpha coefficients for all variables were greater than 0.7, indicating that the overall reliability of the questionnaire was high and that there was good internal consistency across the question items in different dimensions. CR values of all four variables are greater than 0.5, indicating that the topics of the scale highlight the qualities of the dimensional concept. In terms of convergent validity, the average variance extracted of all variables were greater than 0.8, which generally indicated good convergent validity and met the requirements.

In the validation factor analysis, the goodness of fit of the model results and the statistical results were evaluated. The results showed $CMIN/DF = 1.642 \leq 3$, $RMSEA = 0.055 \leq 0.08$, $TLI = 0.941 \geq 0.9$, $CLI = 0.948 \geq 0.9$, and $RMR = 0.034 \leq 0.05$, although $GFI = 0.862$ close to 0.9 is close to ideal and all other indices are ideal. Therefore, from the overall point of view, the factor analysis under validation is qualified.

Table 1. Reliability and validity analysis

Indicator	Cronbach's Alpha	CR	AVE
PC	0.864	0.5155	0.8643
PO	0.881	0.5653	0.8862
KS	0.894	0.5870	0.8950
OE	0.913	0.5847	0.8940

4.2 Hypothesis testing

In studying the effect of psychological contract on employee knowledge sharing among in virtual communities, AMOS24.0 was used for structural equation modeling. The modeling results are shown in Figure 2.

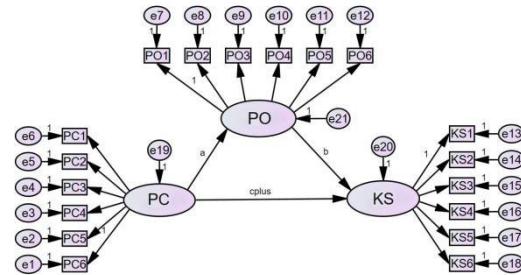


Fig. 2. Modeling Diagram

The results of the test of Table 2 show that psychological contract positively affects virtual platform employee knowledge sharing ($\beta=0.415$, $p<0.001$), hypothesis H1 holds; psychological contract positively affects psychological ownership ($\beta=0.766$, $p<0.001$), and the hypothesis H2 holds; psychological ownership positively affects knowledge sharing in virtual platform ($\beta=0.375$, $p<0.001$), and the hypothesis H3 holds.

Table 2. Model test results

	S.E	C.R.	Path coefficients
PC-->PO	0.5155	0.8643	0.766***
PO-->KS	0.5653	0.8862	0.375***
PC-->KS	0.5870	0.8950	0.415***

* $p < 0.10$. *** $p < 0.01$.

4.2.1 Mediation effect

The mediating effect test in this study was conducted using a one-way mediation model with a bootstrap method and 5000 replicate samples, and the results are shown in Table 3. The mediating effect of psychological contract for knowledge sharing was 0.328 with a Z value = $2.41 \geq 1.96$, corresponding to a 95% confidence interval of [0.126, 0.656], which does not contain 0 to reach significance, indicating that the indirect effect holds and the mediating effect is significant. The direct effect of psychological contract on knowledge sharing is 0.387, corresponding to a 95% confidence interval of [0.041, 0.671], indicating that the direct effect is also significant. Therefore, psychological ownership plays a partial mediating effect in the effect of psychological contract on knowledge sharing of employees in virtual platforms, and hypothesis H4 holds.

Table 3. Mediation analyses

	Estimates	Z	95%CI	
			Lower	Upper
PC-KS	0.328	0.328 (Indirect effects)	0.126	0.656
PC-KS	0.387	0.387 (Direct effect)	0.041	0.671
PC-KS	0.715	0.715 (Total effect)	0.525	0.929

4.2.2 Moderating effects

This study used the PROCESS plug-in in SPSS for the analysis of the moderating role. The analysis showed that the model was statistically significant $F=76.2702$ ($p<0.01$) and the product term of psychological contract and openness to experience was statistically significant ($p<0.01$), so the relationship between psychological contract and virtual platform employees' knowledge sharing is influenced by experience openness, and hypothesis H5 holds.

To further clarify the moderating relationship, it can be seen through Figure 3 that the interaction between psychological contract and openness to experience is an enhanced interaction. The positive relationship between psychological contract and employee knowledge sharing in virtual communities increases with the growth of experience of openness.

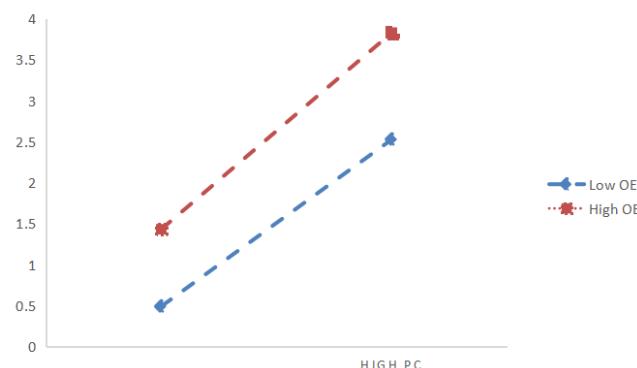


Fig. 3. Interaction effect diagram

5 Discussion and conclusion

The purpose of the study was to understand the contributing factors behind employees' knowledge sharing in virtual platforms. The investigation proved that psychological contracts can effectively facilitate employees' knowledge sharing in virtual platforms, and that psychological ownership plays a partly mediating effect in the influence path, in which openness to experience plays a moderating effect.

5.1 Contributions to theory

This study has made some theoretical contributions. First, based on social exchange theory and reciprocity norms, this paper empirically confirms that satisfying employee psychological contracts with the firm increases their knowledge sharing behavior in virtual platforms. Previous research on employee knowledge sharing has been conducted in various dimensions, but more often explores the traditional forms of employee knowledge sharing, and less often examines the antecedent motivations of knowledge sharing from the dimension of virtual platform in depth. Second, this paper extends the study of psychological ownership theory by establishing psychological ownership as a mediating relationship between employee psychological contract performance and employee sharing in virtual platforms. It is found that in the process of psychological contract fulfillment, employees will be more committed to their work in return for the organization's investment

in them, which is the motivation for employees to be committed to their work, and this more fully explains the reason for employees' continuous knowledge sharing.

5.2 Managerial implication

The results of this paper show that the commitment between employees and the organization, as well as employees' personal belief and trust in the organization, are effective "innovation sources" for the invisible knowledge dissemination of employees in enterprises. This will facilitate employees' innovative activities such as knowledge collaboration on the virtual platform. Secondly, the openness of employees' personal experience has a moderating effect on the psychological contract for knowledge sharing on the virtual platform, and the higher the degree of openness of experience, the more significant is the positive effect of the psychological contract on knowledge sharing. Therefore, when advocating employees to collaborate and share knowledge, employees with different degrees of openness to experience can be targeted and guided to collaborate with knowledge by high openness to experience groups.

5.3 Limitations and conclusion

This study has two limitations that call for further research. The first limitation relates to the data, and while the platforms chosen in the paper were selected across a wider range of virtual platforms, the findings in the paper also need to be validated in specific specialized virtual platforms. Future research could generalize these findings to other virtual platforms with different community characteristics.

Second, the emotional paths generated by employees after the fulfillment of the psychological contract should be more complex, not only from a sense of belonging to stimulate psychological ownership, but also possibly through different paths to influence the knowledge sharing of employees on the virtual platform. Mediating variables such as emotional commitment, self-improvement, and abuse of supervision can be added to psychological ownership to explore the black box of psychological contract on employee knowledge sharing from multiple dimensions.

Authors' contributions

It is confirmed empirically that satisfying employees' psychological contracts for the organization increases their behavior of knowledge sharing in the virtual platform. It also establishes the partial mediating relationship of psychological ownership between psychological contract and employee knowledge sharing in virtual platform. The research also proves that the higher the degree of openness of experience, the more significant the psychological contract is to the employee knowledge sharing in the virtual platform.

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