Research on the Influence of Knowledge Hiding on the Subsequent Altruistic Behavior of the Hider -- A Dual Mediation Model Based on Compensatory Ethics

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Abstract. Previous research on knowledge hiding has mostly focused on its negative effects, however, the hider might also make up for their mistakes by using their skills. This study is based on the compensatory ethics, aiming to explore the generation mechanism of subsequent altruistic behavior of knowledge hiders from the perspectives of moral cognition and moral emotion. This research uses mature scales to conduct questionnaire surveys and collects data from two stages through longitudinal tracking. The collected 356 sets of data are analyzed using SPSS and MPLUS software. The results show that knowledge hiding has an impact on its subsequent altruistic behavior through the dual mediation of the hider's moral deficit (cognitive path) and guilt (emotional path). This research provides a new perspective for promoting knowledge management within organizations: Managers should establish a moral norm mechanism within the organization that is oriented towards improvement and enhancement. This can induce employees to face their immoral behaviors and compensate for their mistakes by practicing positive behaviors.

Keywords: knowledge hiding; altruistic behavior; moral deficit; guilt

1 Introduction

Knowledge is the foundation that enables businesses to maintain a competitive advantage and foster sustainable value creation in the knowledge economy era [1]. Effectively sharing, transferring, and applying knowledge within an organization are key factors in improving organizational performance. However, the scarcity of knowledge resources makes individuals unwilling to engage in proactive knowledge transfer behaviors, this phenomenon is known as knowledge hiding. Research indicates that despite efforts aimed at enhancing knowledge sharing and transfer, as well as the resources invested in strengthening knowledge management, knowledge hiding behavior remains prevalent [2]. From this, it can be seen that the phenomenon of knowledge hiding is very common and difficult to suppress within organizations, which brings a huge challenge to the knowledge management within the organization.

Past research on knowledge hiding has primarily focused on its antecedent variables, exploring the reasons for knowledge hiding to solve the behavior of knowledge hiding in organizations is indeed of great significance. However, given the universality and difficulty of suppressing knowledge hiding [2], can we explore the governance methods of knowledge hiding from other perspectives? As the ancient Chinese saying goes: understand the past that is not admonished, and know the future that can be pursued. As an immoral behavior that violates the widely recognized social norms within the organization [3], knowledge hiding is a "past mistake", can it stimulate the hider to generate a "positive pursuit"? This study takes the benevolent transformation of knowledge hiding as the research question, uses compensatory ethics as the entry point, and starts from the perspective of the hider to explore the cognitive, emotional, and behavioral changes of employees after the knowledge hiding.

Knowledge hiding refers to the deliberate concealment or disguise when facing a colleague's knowledge request [4]. Knowledge sharing norms have become increasingly important in contemporary workplaces, and knowledge has become one of the most valuable resources [5]. Organizations expect an individual to openly share knowledge with other members of the organization [6]. Therefore, employees need to openly share information and knowledge to achieve organizational goals and contribute to the success of the organization. This makes hiding knowledge contrary to organizational norms and is an unethical organizational behavior. Compensatory ethics refers to the individual's preference to alleviate their sense of immorality after immoral behavior by altruistic behavior [7].

The perspective of moral self-discipline believes that individuals strive to maintain the balance of moral accounts [8, 9], where moral behavior increases the individual's moral credit, and suspicious or immoral behavior reduces the individual's moral credit [10]. Moral deficit is a cognitive experience caused by the loss of moral credit [11], so individuals may feel the loss of moral credit (i.e., the cognition of a moral deficit) after hiding knowledge. The cognitive experience of moral deficit in turn prompts the actor to take remedial actions, such as making morally praiseworthy altruistic behavior, to maintain moral balance. For example, a study found that moral deficits play an indirect and positive mediating role between pro-organizational unethical behavior and employee organizational citizenship behavior [12]. Based on this, this article proposes Hypothesis 1: The hider's moral deficit plays a mediating role between knowledge hiding and the hider's altruistic behavior.

Secondly, compensatory ethics suggests that immoral behavior triggers the moral emotions of the actor [7]. Guilt is defined as a moral emotion because it is caused by behavior that does not conform to social norms or moral standards [13], and it represents an emotional reaction to events related to the welfare of others [14]. At the same time, feelings of guilt focus on the harm caused to others by the event and tend to make compensation [15]. Therefore, when employees engage in immoral behavior such as knowledge hiding, the hider is likely to feel guilty and subsequently engage in compensatory altruistic behavior to alleviate this negative emotion. For example, a study found that employees who felt guilty for engaging in counterproductive work behavior exhibited higher levels of organizational citizenship behavior [16]. Based on this, this article

proposes Hypothesis 2: The hider's guilt play a mediating role between knowledge hiding and the hider's altruistic behavior.

To sum up, this study constructs a dual mediation model with moral deficit as the moral cognitive pathway and guilt as the moral emotional pathway, by exploring the mechanism of the influence of knowledge hiding on the subsequent altruistic behavior of the hider. The aim is to explore new perspectives on the governance of knowledge hiding within organizations and alleviate the challenges that knowledge hiding brings to organizational knowledge management.

2   Research Objects and Methods

2.1   Objects

This study employed a multi-stage questionnaire survey method to collect data, with the sample drawn from 52 teams across 10 enterprises in Shanghai. The study primarily focused on knowledge-intensive industries such as information technology, software development, and financial services, where the phenomenon of knowledge hiding is more prevalent. This study used a multi-stage questionnaire survey method to collect data. The samples came from 52 teams in 10 companies in Shanghai, mainly involving knowledge-intensive industries such as information technology, software development, and financial services, where the phenomenon of knowledge hiding is more common. In order to reduce the common method bias and spurious correlation, this study conducted questionnaire collection in two stages in May and June 2023. A total of 450 questionnaires were distributed. In the first stage, 398 completely filled questionnaires were collected, and in the second stage, 372 completely filled questionnaires were collected. After excluding questionnaires with excessively high duplicate values and those that did not pass the test items, 356 valid questionnaires were obtained. The basic characteristics of the sample are as follows: 46.2% are male, and 53.8% are female. In terms of age, 31.7% are aged 20-25, 27.5% are aged 26-30, 20.8% are aged 31-35, 12.1% are aged 36-40, and 7.9% are aged 41 or above.

2.2   Scales

The measurement of related variables in this study is all selected from mature scales abroad, and all scales use the Likert 5-point scoring method, ranging from "1=strongly disagree" to "5=strongly agree".

Knowledge Hiding Scale

The knowledge hiding scale[4] was captured through Connelly et al. 's 12-item measure. This scale comprises items for all three dimensions of knowledge hiding. The examples of items used are "When colleagues ask for my knowledge, I promise to help, but I don't really intend to do so" and "When colleagues ask for my knowledge, I pretend not to know what they are talking about". Cronbach'α of the scale 0.89, the questionnaire has good reliability.

Altruistic Behavior Scale

The altruistic behavior questionnaire [17] compiled by Farh was used. A sample item of the scale is "I am willing to help him/her solve work-related problems". Cronbach'α of the scale 0.84, the questionnaire has good reliability.

Moral Deficit Scale

Moral deficit currently lacks established measurement standards. As moral deficit reflects the perception of a lack of moral credit, we adopted the moral credit scale [18] developed by Lin et al to measure moral deficit, with typical items such as "The action I took damaged my moral credit". Cronbach'α of the scale 0.98, the questionnaire has good reliability.

Guilt Scale

The guilt scale [19] prepared by Lewis in 1993 was selected. Employees are required to indicate the degree to which they feel "mildly guilty", "concerned about harming others", "strongly guilty", and "regretful" after engaging in knowledge hiding behavior. Cronbach'α of the scale 0.93, the questionnaire has good reliability.

2.3   Methods

Statistics Processing

This study uses SPSS27.0 for basic data analysis, uses Mplus8.0 for multilevel structural equation model path analysis, and tests the mediation effect based on the principle of effect decomposition. The bootstrap method was used, with 95% confidence interval, bootstrap sample size = 500 times, and the test level was 0.05.

Common Method Bias Test

The use of self-reporting methods to collect data may lead to common method bias. Therefore, this study implemented various procedures, such as anonymity, partial reverse scoring of items, and temporal staggered arrangements, to enhance reliability to some extent. Additionally, the Harman's single-factor test was employed to examine common method bias, and the results revealed six factors with eigenvalues greater than 1. The most influential factor explained 21.87% of the total variance, which did not exceed the 30% threshold of total explained variance. This indicates that the issue of common method bias in the research data is within an acceptable range.

Confirmatory Factor Analysis

This study compares the hypothetical model of the research with alternative models, testing the discriminant validity of four factors: knowledge hiding, moral deficit, guilt, and altruistic behavior. The analysis shows that the four-factor model has the best fit (χ^2 = 828.01, df = 454, χ^2/df = 1.82, RMSEA = 0.05, CFI = 0.93, TLI = 0.92, SRMR = 0.05). The data fit of other alternative models is inferior to the four-factor model and

does not reach the fitting standard, indicating that the four-factor model has the best fit and each factor has good discriminant validity. The results are shown in Table 1.

Table 1. CFA of the results of the measurement models

Measurement models	χ^2	df	χ^2/df	RMSEA	CFI	TLI	SRMR
KH, MD, Guilt, AL	828.01	454	1.82	0.05	0.93	0.92	0.05
KH, MD + Guilt, AL	2188.01	458	4.78	0.10	0.66	0.63	0.13
KH, MD + Guilt + AL	2240.34	461	4.86	0.10	0.65	0.62	0.13
KH + MD + Guilt + AL	2763.66	463	5.97	0.12	0.54	0.51	0.14

KH represents knowledge hiding; MD represents moral deficit; AL represents al truistic behavior; + indicates that two factors are merged into one factor.

3 Results

3.1 Descriptive Statistics and Correlation Analysis

Correlation analysis is used to study the correlation between knowledge hiding and moral deficit, guilt, and altruistic behavior, and the Pearson correlation coefficient is used to express the strength of the correlation. The correlation analysis shows that knowledge hiding is significantly positively correlated with moral deficit, guilt, and altruistic behavior at the 0.01 level. The results are shown in Table 2.

Table 2. Mean, standard deviation, and correlation values of variables

Variables	M	SD	1	2	3	4	5	6	7
1 Gender	1.55	0.52	1						
2 Age	2.37	1.26	0.02	1					
3 Qualifications	2.42	0.62	0.07	-0.01	1				
4 Knowledge hiding	3.07	0.54	-0.13*	0.01	-0.03	1			
5 Moral deficit	3.39	0.90	0.17**	0.15**	0.04	0.42**	1		
6 Guilt	3.53	0.74	-0.12*	0.16**	0.05	0.32**	0.47**	1	
7 Altruistic behavior	3.94	0.52	-0.09	0.08	-0.00	0.22**	0.52**	0.55**	1

*$p < 0.05$ **$p < 0.01$

3.2 Hypothesis Testing

Analysis of the Direct Effect of Knowledge Hiding on Moral Deficit and Guilt

The overall model was analyzed using MLUS software, and the results of the path analysis are presented in Figure 1. Examining the path relationships and coefficients of the structural equation model in Figure 1, the path coefficient for "knowledge hiding

→ moral deficit" (β = 0.413, p < 0.001) is significant, indicating a significant positive impact of knowledge hiding on moral deficit. The path coefficient for "moral deficit → altruistic behavior" (β = 0.236, p < 0.01) is significant, preliminarily validating H1, indicating a mediating effect of moral deficit. The path 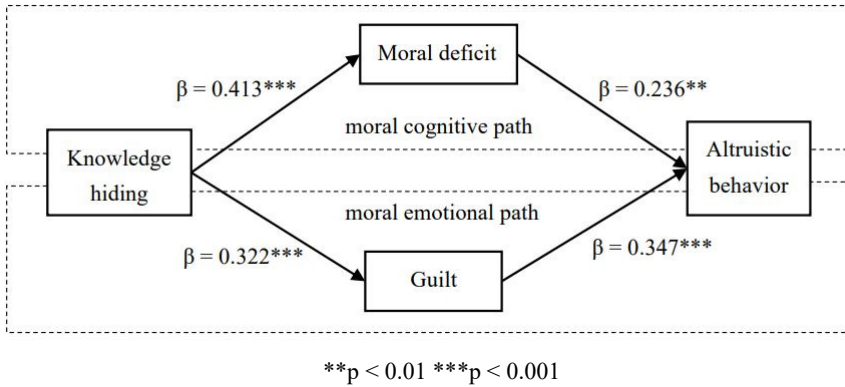coefficient for "knowledge hiding → guilt" (β = 0.322, p < 0.001) is significant, demonstrating a significant positive impact of knowledge hiding on guilt. The path coefficient for "guilt → altruistic behavior" (β = 0.347, p < 0.001) is significant, preliminarily validating H2, indicating a mediating effect of guilt.

**p < 0.01 ***p < 0.001

Fig. 1. Standardized path coefficient diagram of the research hypothesis model

Analysis of the Mediating Effect of Moral Deficit and Guilt

Based on the compensatory ethics, this study constructs a double mediation model in which knowledge hiding affects the subsequent altruistic behavior of the hider through moral deficit and guilt. Gender, grade, and education will be used as control variables, knowledge hiding will be used as the independent variable, moral deficit and guilt will be used as the mediating variables, and the process program will be used to test the mediating effect. The results of the mediation model test are shown in Table3.

Table 3. Testing of the mediation model of moral deficit and guilt

	AL		AL		MD		Guilt	
	t	p	t	p	t	p	t	p
Gender	0.193	0.847	-1.195	0.233	-2.825	0.005	-2.087	0.038
Age	-0.396	0.692	1.407	0.161	3.027	0.003	3.139	0.002
Qualifications	-0.589	0.556	0.244	0.808	1.305	0.193	1.329	0.185
KH	0.011	0.991	3.994	0.000	7.398	0.000	6.011	0.000
MD	3.566	0.000						
Guilt	4.704	0.000						
R^2	0.321		0.057		0.216		0.138	

F value	27.546	5.270	24.219	13.986

The impact of knowledge hiding on the subsequent altruistic behavior of the hider is realized through two paths of moral cognition and moral emotion: Moral cognition path: knowledge hiding → moral deficit → altruistic behavior; Moral emotion path: knowledge hiding → guilt → altruistic behavior. From Table 4, it can be seen that the 95% confidence interval for the mediation path of moral deficit is [0.042, 0.170], which does not include 0. This indicates that the mediating effect of moral deficit is significant in the relationship between knowledge hiding and the subsequent altruistic behavior of the hider. Therefore, H1 is supported. The 95% confidence interval for the mediating path of guilt emotion is [0.046, 0.167], which also does not include 0, therefore H2 is also supported.

Table 4. Total effect, direct effect and mediating effect decomposition table

	Effect	Boot SE	LLCI	ULCI
Total effect	0.205	0.057	0.095	0.317
Mediating effect of MD	0.105	0.032	0.042	0.170
Mediating effect of Guilt	0.099	0.031	0.046	0.167
Total mediating effect	0.204	0.035	0.139	0.276

4   Limitations and Future Directions

This study strives to ensure the scientific rigor of the research in both theory and practice. However, there are some limitations that could be addressed in future studies. First, this study adopts a longitudinal tracking approach to collect two-stage data, effectively capturing the dynamic process of how knowledge hiding influences subsequent altruistic behavior. Nevertheless, as all data are self-reported by employees, social desirability bias may impact data validity, especially when participants are required to report negative work behavior. Thus, future research is advised to measure participants' social expectations and control for their influence in statistical analysis. Second, this study employed a questionnaire method, utilizing employee self-reports to test hypotheses. We encourage future research to employ experimental designs with hypothetical scenarios to understand causal relationships between variables. For example, researchers could design laboratory experiments where participants interact with others, manipulating their knowledge hiding behavior during the experiment. This would help provide supportive evidence for hypotheses confirmed through self-reports. Finally, this study focuses on the mediating mechanism of knowledge hiding affecting the altruistic behavior, future research could explore additional potential moderating factors.

5   Conclusions

This study sets out from the perspective of compensatory ethics theory, integrating relevant research in the fields of knowledge hiding, altruistic behavior, moral deficit, and guilt, and constructing a cognitive and emotional dual-path integration model of the impact of knowledge hiding on the altruistic behavior of the hider. The results show that knowledge hiding affects the subsequent altruistic behavior of the hider through their moral deficit and guilt, thereby providing some insights for the practice of knowledge management within the organization.

This study makes several contributions. First, by combining the compensatory ethics theory [7] with knowledge hiding, the study extends the applicability of the moral compensation theory. Second, the study pays attention to the compensatory behavior following knowledge hiding, enhancing the understanding of the potential positive effects of knowledge hiding and providing a new research perspective for the consequences of knowledge hiding. Lastly, based on the impact of knowledge hiding behavior on the behavior implementer, the study adds a cognitive path (moral deficit) and emotional path (guilt) to understand the relationship between knowledge hiding and positive work behavior (altruistic behavior).The research results point out that after a knowledge hiding event, capturing the specific cognitive changes and emotional responses of employees is very important for correctly inferring the potential negative or positive impact of knowledge hiding on subsequent work behavior.

Exploring the "toward goodness" guidance governance model following knowledge hiding incidents does not imply an endorsement of knowledge hiding within organizations. Instead, it is grounded in the societal reality of the ubiquity and challenging control of knowledge hiding. The objective is to investigate relevant mechanisms with the aim of minimizing the negative consequences that arise after knowledge hiding. Firstly, managers should let employees understand the negative cognitive and emotional consequences of hiding knowledge. Employees need to realize that the potential expected benefits of knowledge hiding may be offset by the cognitive and emotional costs associated with hiding knowledge. Secondly, managers should clearly convey the negative organizational consequences of knowledge hiding, making the negative consequences more prominent, so as to motivate employees who engage in knowledge hiding to make up for their mistakes through compensatory behavior. Thirdly, managers should try to induce constructive moral emotions in employees to promote positive compensatory work behavior. For example, managers can emphasize within the organization that sometimes hiding knowledge may be unavoidable (for example, due to time pressure, other interests, etc.), but employees can compensate for their violation of social norms through subsequent compensatory work behavior (such as altruistic behavior).

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