

DOI: <https://doi.org/10.63332/joph.v5i3.762>

Research on the Mechanism of Online Community Users' Participation in Community Value Co-creation-Based on Social Capital Theory

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Abstract

This study investigates the impact of economic and social invitation strategies on online community users' social capital (structural, cognitive, and relational dimensions) and their willingness to engage in value co-creation activities, grounded in social capital theory. Data were collected from 418 ordinary users of the Xiaomi community and analyzed using structural equation modeling. The findings reveal that economic reward strategies significantly enhance structural and cognitive social capital, whereas social invitation strategies positively influence cognitive and relational social capital. Structural social capital is found to affect the initiation of value co-creation activities, cognitive social capital impacts both initiation and participation, and relational social capital influences participation only. Moreover, social capital mediates the relationship between incentive strategies and users' willingness to co-create value. This study enriches the application of social capital theory in the context of value co-creation communities and provides a deeper understanding of the micro-mechanisms underlying user participation behaviors.

Keywords: Online Community, Social Capital, Value Co-Creation, Economic Reward, Social Invitation.

Introduction

Nahapiet and Ghoshal (1998) suggest that social capital consists of three dimensions, structural social capital, cognitive social capital and relational social capital. Enterprises can employ community interaction strategies to empower social interactions among community users. economic rewards, inforvalue co-creationmational incentives, and social incentives provided by enterprises can help to increase the value of structural, cognitive, and relational social capitalization of community members. Enterprises' community interaction strategies in online communities, i.e., community members' perceived community value, facilitate the process of social capitalization and accumulation of community members, and increase the social capitalization value of community members. Social capitalization stimulates the willingness of community members to participate in community value co-creation activities. Enterprises can stimulate customers to participate in community value creation and sharing activities to strengthen relationships between customers, which helps customers accumulate structural social capital, and similarly enterprises can stimulate customers to participate in community value creation and sharing activities to increase trust, communication between customers, which in turn promotes relational social capital and perceived social capital. Social capital acts as a

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mediating transmission mechanism between community interaction strategies and value co-creation willingness relationships. This study focuses on the role of social capital as a mediating mechanism. This study argues that users' online community participation is a process of social capitalization, and that community participation, evolutionary dynamics are motivated by community members' social capitalization motives. To use their existing knowledge, relationships, and emotions to create greater value for themselves and other community users through community interactions.

Research Model and Research Hypotheses

Theoretical Model

Based on the research related to social capital theory, the research model of this study as follows.

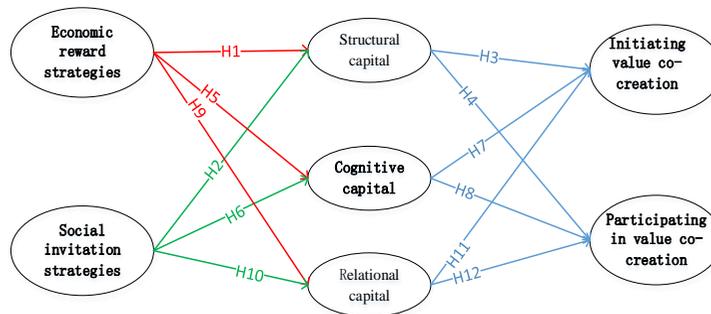


Plate 1: Proposed Model

Research Hypotheses

Structural social capital embodies community users' social invitation tie with other members of the community (Chiu & Wang, 2016). Hann (2023) found that the higher the community rank the higher the economic reward received may be. The economic value demand of the community users promotes the structural social capitalization. Community users are motivated to engage in social invitation for self-expression and social advancement, social invitation strategies can stimulate structural social capitalization among community users. Therefore, this study proposes the hypothesis:

H1: Economic reward strategies have a positive effect on community users' structural social capital.

H2: Social invitation strategies have a positive effect on community users' structural social capital.

In innovative communities, the higher the structural social capital of a community user, the higher it is, indicating that he or she is at the center of the network. The higher the structural social capital of a community user, the more likely it is that the member will be motivated to publish value co-creation themed activities rather than participate in value co-creation activities. Therefore, this study proposes the hypothesis:

H3: Structural capital of community users has a positive effect on initiating value co-creation.

H4: Structural capital of community users does not have a significant effect on participating in value co-creation.

Enterprises utilize intellectual capital to create economic benefits and competitive advantages, and similarly, individuals can rely on their own knowledge to create value for themselves, such as economic value. Economic value demands stimulate community users' cognitive capitalization. There are differences in the experience and knowledge level of each community user about the product/service, and social invitation enables them to obtain social support while promoting their new knowledge about the product/service. Therefore, social invitation strategies can stimulate the cognitive social capitalization of community users. Therefore, this study proposes the hypothesis:

H5: Economic reward strategies have a positive effect on community users' cognitive social capital.

H6: Social invitation strategies have a positive effect on community users' cognitive social capital.

Cognitive social capital is a relatively neutral concept, having a certain amount of cognitive social capital is desirable to participate in value co-creation activities, whether for opinion leaders or ordinary participants. Therefore, this study proposes the hypothesis:

H7: Cognitive capital of community users has a positive effect on initiating value co-creation.

H8: Cognitive capital of community users has a positive effect on participating in value co-creation.

Relational capital implies emotional attributes (Lin, 2021; Nahapiet, 1998). This affective attribute means that relational capital emphasizes more on community users' identification with the group, trust of others, responsibility, and group norms (Wasko, 2015). Enterprises' economic reward strategies, will not stimulate community users' relational social capitalization. The social invitation strategies fit well with the relational social capital of community users, through which social relationships are established and developed among community users. Social invitation strategies can stimulate relational social capitalization among community users. Therefore, this study proposes the hypothesis:

H9: There is no significant effect of economic reward strategies on community users' relational capital.

H10: Social invitation strategies have a positive effect on community users' relational capital.

The reciprocity and commitment elements of relational social capital imply the reinforcement of mutual aid and support among community users, the social attributes of relational social capital are especially evident when enterprises encourage more interaction among members in the community. For example, in the Xiaomi community, enterprises encourage community users to invite their community friends to participate in value co-creation activities, and the number of people participating in value co-creation activities increases. Therefore, this study concludes that relational social capital can be more effective in motivating community users to participate in value co-creation activities rather than actively publishing the topics of value co-creation activities. Therefore, this study proposes the hypothesis:

H11: Relational capital of community users does not have a significant effect on initiating value co-creation.

H12: Relational capital of community users has a positive effect on participating in value co-creation.

Data and Methodology

Samples Information

This study takes ordinary users of Xiaomi community as the research object. They were invited to fill out the questionnaire online by sending station messages in the community and given certain economic interactions, each ID was required to fill out only one questionnaire, which could not be repeated. A total of 600 questionnaires were distributed in this study and 534 responses were received, with a response rate of 89%. By eliminating the unqualified samples such as incomplete filling, 418 valid samples were finally obtained, with an efficiency rate of 78.3%.

Variables Measurement

This study mainly utilized Amos software and SPSS software as statistical and path analysis tools, with analysis steps and methods referring to (Chen, Zheng & Liu, 2013) and (Wang, 2013). The measurement verbal items of each variable refer to well-established scales. Economic reward strategies reference (Burroughs, 2021; Leimeister, 2019); Social invitation strategies reference (Zhu & Dholakia, 2022; Zwass, 2010); Structural capital reference ((Robert, 2018); Cognitive capital reference (Leimeister, 2019; Nambisan & Baron, 2017; Wasko, 2015); Relational capital reference (Mathwick & Wiertz, 2018; Robert, 2018; Wiertz, 2017); and value co-creation reference (Kohler & Rohm, 2021; Ridings, 2022). Initiating value co-creation uses community members' activity initiation, i.e., the number of topic posts, as a strategic indicator, and participating in value co-creation uses community members' activity participation, i.e., the number of engaged reply posts, as a strategic indicator. For the sake of normal distribution of the data, value co-creation refers to the practice of (Chiu et al., 2006) where the total number of value co-creation was divided into two groups according to whether it was initiated or participated and converted into a 5-point Likert scale. Where 5 indicates complete agreement and 1 indicates complete disagreement.

Results of Empirical Analysis

Descriptive Statistics

Descriptive statistics for each variable in this study are shown in Table 1. The skewness and kurtosis values of each variable satisfy the requirements of normal distribution, indicating that the sample basically meets the normal distribution and the data quality is high.

| Variable | Obs | Min | Max | Mean | Std. Dev | Skewness | Kurtosis |
|------------------------------|-----|-------|--------|-------|----------|----------|----------|
| Economic reward strategies | 418 | 0 | 17.264 | 8.268 | 2.637 | -0.299 | -0.118 |
| Social invitation strategies | 418 | 0 | 15.555 | 6.267 | 2.376 | -1.346 | 1.381 |
| Initiating value co-creation | 418 | 3.635 | 9.087 | 7.191 | 1.388 | -0.524 | 0.250 |

| | | | | | | | |
|------------------------------------|-----|-------|-------|-------|-------|--------|--------|
| Participating in value co-creation | 418 | 1.817 | 9.087 | 7.297 | 1.476 | -0.040 | -0.708 |
| Structural capital | 418 | 3.030 | 9.087 | 6.315 | 1.356 | -1.029 | 1.309 |
| Cognitive capital | 418 | 4.089 | 9.087 | 7.422 | 0.974 | -1.971 | 3.423 |
| Relational capital | 418 | 4.089 | 9.087 | 7.435 | 0.974 | -1.745 | 2.616 |

Table I. Descriptive statistics of each variable (n=418)

Reliability and Validity Test

From the results of the reliability analysis in Table 2, it can be seen all the variables in this study are within the acceptable range, the internal consistency of each variable is within a reasonable range, and the combined reliability is also greater than 0.5, which indicates that the combination of variables has a relatively high reliability.

| Research Variables | Items | Cronbach's α | Composite Reliability |
|------------------------------------|-------|---------------------|-----------------------|
| Economic reward strategies | 5 | 0.806 | 0.817 |
| Social invitation strategies | 7 | 0.788 | 0.801 |
| Structural capital | 4 | 0.833 | 0.847 |
| Cognitive capital | 6 | 0.776 | 0.805 |
| Relational capital | 5 | 0.750 | 0.769 |
| Initiating value co-creation | 3 | 0.789 | 0.785 |
| Participating in value co-creation | 4 | 0.788 | 0.784 |

Table II. Results of reliability test (n=418)

Tables 3 show the results of the composite reliability and average variance extracted (AVE). This suggests that each item is measured consistently and can reliably represent the respective concepts.

| Research Variables | Cronbach's α | Composite Reliability | AVE |
|------------------------------|---------------------|-----------------------|-------|
| Economic reward strategies | 0.806 | 0.817 | 0.600 |
| Social invitation strategies | 0.788 | 0.801 | 0.573 |
| Structural capital | 0.833 | 0.847 | 0.650 |

| | | | |
|------------------------------------|-------|-------|-------|
| Cognitive capital | 0.776 | 0.805 | 0.510 |
| Relational capital | 0.750 | 0.769 | 0.530 |
| Initiating value co-creation | 0.789 | 0.785 | 0.550 |
| Participating in value co-creation | 0.787 | 0.786 | 0.548 |

Table III. Convergence validity analysis results

| | Economic reward strategies | Social invitation strategies | Structural capital | Cognitive capital | Relational capital | Initiating value co-creation | Participating in value co-creation |
|------------------------------------|----------------------------|------------------------------|--------------------|-------------------|--------------------|------------------------------|------------------------------------|
| Economic reward strategies | 0.775 | | | | | | |
| Social invitation strategies | 0.250 | 0.757 | | | | | |
| Structural capital | 0.387 | 0.292 | 0.806 | | | | |
| Cognitive capital | 0.336 | 0.568 | 0.259 | 0.714 | | | |
| Relational capital | 0.259 | 0.586 | 0.323 | 0.259 | 0.728 | | |
| Initiating value co-creation | 0.274 | 0.510 | 0.314 | 0.577 | 0.498 | 0.742 | |
| Participating in value co-creation | 0.276 | 0.513 | 0.496 | 0.579 | 0.577 | 0.728 | 0.740 |

Table IV. Latent variable correlation coefficients matrix

Note: The diagonal line is the square root of average variance extracted (AVE)

According to table 4, it can be seen that the correlation coefficients of each latent variable are much smaller than 0.90. The square root of average variance extracted is greater than the correlation coefficients of every latent variable and other latent variables, which indicates that

the data of the present study possesses a good discriminatory validity, and indicates that the data collected by questionnaire research do not have serious common method bias. The data in this study can be used as the next step for analyzing statistics and hypothesis testing.

Hypothesis Test

Path Analysis

Table 5 shows the goodness of fit test results. The well-fitted model provides robust statistical support for the study, ensures the reliability of the analyzed results, and lays a solid foundation for the subsequent interpretation.

| Indicator | χ^2/df | RMSEA | CFI | NFI | IFI | GFI | AGFI |
|--------------|-------------|-------|-------|-------|-------|-------|-------|
| Ideal value | <3 | <0.08 | >0.90 | >0.90 | >0.90 | >0.90 | >0.80 |
| Fitted value | 1.922 | 0.047 | 0.922 | 0.851 | 0.923 | 0.925 | 0.902 |

Table V. Goodness of Fit Test Results

Note: χ^2/df is the ratio of the chi-square value to the degrees of freedom, RMSEA is the root mean square of the error of approximation, CFI is the comparative fit index, NFI is the normative fit index, IFI is the incremental fit index, GFI is the goodness-of-fit index, and AGFI is the adjusted goodness-of-fit index.

Considering these fit indicators, the researcher concluded that the structural model of this study has a good fit. It accurately explains and predicts the relationship between the research objects with high confidence and accuracy. The results of the analysis of the path hypothesis relationships are shown in Table 6.

| Relationships | Hypothesis | Original Sample | Sample Mean | Standard Deviation | Standard Error | T Statistics | Inference |
|---|------------|-----------------|-------------|--------------------|----------------|--------------|-----------|
| Economic reward strategies → Structural capital | H1 | 0.29 | 0.29 | 0.05 | 0.05 | 5.92*** | Supported |
| Social invitation strategies → Structural capital | H2 | 0.08 | 0.08 | 0.06 | 0.06 | 1.53† | Rejected |
| Structural capital → Initiating value co-creation | H3 | 0.26 | 0.26 | 0.17 | 0.17 | 4.78*** | Supported |
| Structural capital → Participating in value co-creation | H4 | 0.03 | 0.03 | 0.02 | 0.02 | 0.55 | Supported |
| Economic reward strategies → Cognitive capital | H5 | 0.16 | 0.16 | 0.05 | 0.05 | 3.39** | Supported |

| Relationships | Hypotheses | Original Sample | Sample Mean | Standard Deviation | Standard Error | T Statistics | Inference |
|--|------------|-----------------|-------------|--------------------|----------------|--------------|-----------|
| Social invitation strategies→ Cognitive capital | H6 | 0.38 | 0.39 | 0.05 | 0.05 | 7.47** | Supported |
| Cognitive capital→Initiating value co-creation | H7 | 0.31 | 0.31 | 0.21 | 0.21 | 5.67** | Supported |
| Cognitive capital→Participating in value co-creation | H8 | 0.52 | 0.52 | 0.34 | 0.34 | 9.47*** | Supported |
| Economic reward strategies→ Relational capital | H9 | 0.07 | 0.07 | 0.04 | 0.04 | 1.61† | Rejected |
| Social invitation strategies→ Relational capital | H10 | 0.41 | 0.41 | 0.05 | 0.05 | 9.04*** | Supported |
| Relational capital→Initiating value co-creation | H11 | 0.21 | 0.21 | 0.14 | 0.14 | 3.95† | Supported |
| Relational capital→ Participating in value co-creation | H12 | 0.44 | 0.44 | 0.29 | 0.29 | 8.05*** | Supported |

Table VI. Path coefficient T test results

Note: *represents $p < 0.05$, **represents $p < 0.01$, ***represents $p < 0.00$, †represents $p < 0.1$

The test results show that the economic reward strategies has a significant positive effect on structural capital ($\beta=0.29$, $t=5.92 > 1.96$, $p < 0.00$), hypothesis H1 is supported. The social invitation strategies has a non-significant effect on structural capital ($\beta=0.08$, $t=1.53 < 1.96$, $p < 0.1$), hypothesis H2 is rejected. Structural capital has a significant positive effect on initiating value co-creation ($\beta=0.26$, $t=4.78 > 1.96$, $p < 0.00$), while the effect on participating in value co-creation is not significant ($\beta=0.03$, $t=0.55 < 1.96$), hypotheses H3 and H4 are supported. Structural capital represents the structural position of community members in the social network, typical indicators such as degree centrality and bridging centrality, the higher these indicators are the more community members are at the center of the network, such as opinion leaders. This study confirms that structural capital has a positive and significant effect on initiating value co-creation and a non-significant effect on participating in value co-creation, indicating that community members who have a higher position and are more at the center of the network are more likely to initiate discussion topics than to participate in value co-creation activities or topic discussions.

The economic reward strategies has a significant positive effect on cognitive capital ($\beta=0.16$, $t=3.39 > 1.96$, $p < 0.01$), hypothesis H5 is supported. The social invitation strategies has a significant positive effect on cognitive capital ($\beta=0.38$, $t=7.47 > 1.96$, $p < 0.01$), hypothesis H6 is supported. Cognitive capital has a significant positive effect on both initiating value co-creation

($\beta=0.31$, $t=5.67>1.96$, $p<0.01$) and participating in value co-creation ($\beta=0.52$, $t=9.47>1.96$, $p<0.00$), hypotheses H7 and H8 are supported. Cognitive capital is a neutral concept, which is the accumulation of individual knowledge and information about the communities or products, there is no difference in the impact of cognitive capital whether it is initiating value co-creation or participating in value co-creation.

However, the effect of economic reward strategies on relational capital ($\beta=0.07$, $t=1.61<1.96$, $p<0.1$) is not significant, hypothesis H9 is rejected. Social invitation strategies has a significant positive effect on relational capital ($\beta=0.41$, $t=9.04>1.96$, $p<0.00$), hypothesis H10 is supported. Relational capital has a non-significant effect on initiating value co-creation ($\beta=0.21$, $t=3.95>1.96$, $p<0.1$), and a significant positive effect on participating in value co-creation ($\beta=0.44$, $t=8.05>1.96$, $p<0.00$), hypotheses H11 and H12 are supported. Relatively, relational capital emphasizes more on socialization, community members with high social capital have stronger emotional ties to the community and other community members, are more willing to work with other community members to maintain the community, they are willing to help others and actively participate in community activities. Therefore, community members with high social capital are more likely to participate in value co-creation activities than in initiating them.

Tests for the Mediating Effect of Social Capital

According to the suggestion of (Chen et al., 2013), there are four aspects that need to be focused on in the results of test data of multiple juxtaposed mediating variables. First, the common mediating effects and significance of multiple mediating variables. Second, the sole mediating effect and significance of a mediating variable after removing the role of other mediating variables. Third, a comparison of the magnitude of the sole mediating effects of multiple mediating variables. Fourth, the direct effect of the independent variable on the dependent variable after controlling for the common mediating effects of multiple variables. In addition, the analysis results of the structural equation model path showed that the effect of economic reward strategies on relational capital ($\beta=0.07$, $t=1.61<1.96$) was not significant; therefore, the mediating variables to be considered in analyzing the mechanism of the effect of economic reward strategies on initiating value co-creation and participating in value co-creation are structural capital and cognitive capital. The effect of social invitation strategies on structural capital ($\beta=0.08$, $t=1.53<1.96$) is not significant, therefore, the mediating variables to be considered in analyzing the mechanism of influence of social invitation strategies on initiating value co-creation and participating in value co-creation are cognitive capital and relational capital. The results of mediating effect test are shown in Table 7.

| | | Economic reward strategies | | | Social invitation strategies | | |
|-------------------------|--------------------|----------------------------|-------|-------|------------------------------|-------|-------|
| | | β | LLCI | ULCI | β | LLCI | ULCI |
| Common mediating effect | | 0.186 | 0.132 | 0.252 | 0.306 | 0.225 | 0.401 |
| Sole mediating effect | Structural Capital | 0.052 | 0.023 | 0.096 | - | - | - |
| | Cognitive Capital | 0.135 | 0.091 | 0.190 | 0.174 | 0.087 | 0.261 |

| | | | | | | | |
|-----------------------------|---------------------------------------|-----------------------|--------|-------|----------------------------|-------|-------|
| | Relational Capital | - | - | - | 0.133 | 0.065 | 0.211 |
| Mediating effect difference | Structural Capital +Cognitive Capital | -0.083 | -0.147 | -0.02 | - | - | - |
| | Cognitive Capital +Relational Capital | - | - | - | 0.041 | -0.09 | 0.169 |
| Direct mediating effect | | 0.017 | -0.050 | 0.083 | 0.220 | 0.121 | 0.318 |
| Mediating results | | Full mediating effect | | | Partially mediating effect | | |

Table VII. Mediating effect test results

(1) According to the mediating effect test results, the mediating effect of structural capital and cognitive capital in the influence mechanism of economic reward strategies on initiating value co-creation and participating in value co-creation are as follows. First, the two mediating variables (structural capital and cognitive capital) jointly play a significant mediating effect (BootLLCI= 0.132, BootULCI= 0.252), and the common mediating effect is 0.186. Second, there are significant sole mediating effects in the two independent mediating effect paths, the sole mediating effect of structural capital is 0.052 (BootLLCI=0.023, BootULCI=0.096), the sole mediating effect of cognitive capital is 0.135 (BootLLCI=0.091, BootULCI=0.190). Third, the difference of the sole mediating effect of structural capital compared to cognitive capital is -0.083 (BootLLCI=-0.147, BootULCI=-0.020), the sole mediating effect of cognitive capital is significantly higher than the sole mediating effect of structural capital. Finally, after controlling for the common mediating effects of structural capital and cognitive capital, the direct effect of economic reward strategies on initiating value co-creation is 0.017, this is non significant (BootLLCI= -0.050, BootULCI = 0.083), suggesting that structural capital and cognitive capital act as full mediating effect of economic reward strategies on initiating value co-creation and participating in value co-creation.

(2) The mediating effect of cognitive capital and relational capital in the influence mechanism of social invitation strategies on initiating value co-creation and participating in value co-creation are as follows. First, the two mediating variables (cognitive capital and relational capital) jointly play a significant mediating effect (BootLLCI=0.225, BootULCI=0.401), and the common mediating effect is 0.306. Second, there are significant sole mediating effects in the two independent mediating effect paths, the sole mediating effect of cognitive capital is 0.174 (BootLLCI = 0.087, BootULCI = 0.261), the sole mediating effect of relational capital is 0.133 (BootLLCI = 0.065, BootULCI = 0.211). Third, the difference of the sole mediating effect of cognitive capital compared to relational capital is 0.041 (BootLLCI = -0.099, BootULCI = 0.169), it is not significant. Finally, after controlling for the common mediating effects of cognitive capital and relational capital, the direct effect of social invitation strategies on initiating value co-creation is 0.220, this is significant (BootLLCI = 0.121, BootULCI = 0.318), suggesting that cognitive capital and relational capital play a partially mediating effect between social invitation strategies on initiating value co-creation and participating in value co-creation.

Conclusions and Implications

This study explores the mechanism of community members' participation in value co-creation activities from the individual micro level, and the theoretical significance is mainly reflected in as follows. (1) Expanded the application of social capital theory in value co-creation communities. While previous studies have focused on generalized brand communities, this study expanded it by citing it to the field of enterprise-led online communities with product/service value co-creation as the main goal. In addition, previous studies have explored the research on the application of social capital in open source communities from the perspective of network structure research. In this study, the antecedents of social capital and the results of its influence are examined through the measurement of psychological mechanisms. (2) Enriched research on the micro-mechanisms of value co-creation in online communities. While previous studies on social capital in online communities have mainly viewed social capital as a dependent variable, this study argues that social capital should be viewed as a process that begins with the entry of community members into the community and is stimulated by community-specific factors, such as economic interactions as well as social interactions, that stimulate the social capitalization or accumulation of community members, which then facilitates the participation of community members in community value co-creation activities. (3) Deepened understanding of the factors that stimulate social capital. Theoretically, there are differences in the connotations of the three dimensions of social capital. Structural social capital embodies the social interaction connections among community members, and is influenced by non-social and emotional factors, for example, economic factors can stimulate the structural social capitalization or accumulation motivation of community members. For individual community members, cognitive social capital embodies the members' own knowledge about the product or the community, and is a more neutral concept, it has no emotional bias. Cognitive social capital is not only motivated by economic factors, but also by social factors, indicating that cognitive social capital is driven by a wider range of factors. Relational social capital emphasizes the social relationships among community members, and the relationships themselves contain emotions, making it an emotionally-biased concept. The relationship between relational social capital and the economic functional factors is not very strong, relational social capital is mainly influenced by social factors.

Acknowledgements: In the present study, we have drawn upon an extensive array of literature to construct the theoretical framework of our research. Notably, certain references, such as those by Hann et al. (2023), Burroughs et al. (2021), Leimeister et al. (2019), Robert et al. (2018), and Ridings et al. (2022), were utilized exclusively as background reading. Although these works were not directly cited in the main text, they provided essential theoretical support that significantly informed the development of our study. We extend our sincere appreciation to the authors of these references, whose contributions have laid a solid foundation for the conduct of this research.

Author Contributions: Conceptualization, methodology, supervision, software, validation and visualization: BL; investigation, data curation, formal analysis, writing-original draft, writing-review and editing: HL. All authors have read and agreed to the published version of the manuscript.

Availability of Data and Materials: The authors confirm that the data supporting the findings of this study are available within the supplementary materials.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Clinical Trial: Not applicable

Consent to Publish Declaration: We confirm that the article is an original work and has not been published or submitted elsewhere. We understand and agree that the journal reserves the right to edit, typeset, publish and disseminate the article once it has been accepted for publication.

Ethics: This study was approved by the Rattanakosin International College of Creative Entrepreneurship, Rajamangala University of Technology Rattanakosin. All participants provided written informed consent prior to their participation in the study. They were informed about the purpose of the study, the procedures involved, the potential risks and benefits, and their right to withdraw at any time without penalty.

Informed Consent: The authors and the author team confirmed that all participants obtained written consent for participation and written consent for publication. For participants under 18 years, written consent was obtained from parents and / or legal guardians.

Data availability: The datasets supporting the findings of this paper are available upon request from the corresponding author.

Conflict of interest: The authors declare no conflict of interest.

References

- Nahapiet, J., & Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, 23(2), 242–266.
- Chiu, & Wang. (2016). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*, 42(3), 1872–1888.
- Hann, I., Roberts, J. A., & Slaughter, S. A. (2023). All Are Not Equal: An Examination of the Economic Returns to Different Forms of Participation in Open Source Software Communities. *Information Systems Research*, 24(3), 520–538.
- Lin, N. (2021). *Social capital: A Theory of Social Structure and Action*. Cambridge University Press, 33.
- Wasko, M. M., & Faraj, S. (2015). Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice. *MIS Quarterly*, 29(1), 35–57.
- Burroughs, J. E., Dahl, D. W., Moreau, C. P., Chattopadhyay, A., & Gorn, G. J. (2021). Facilitating and Rewarding. *Journal of Marketing*, 75(July), 53–67.
- Leimeister, J. M., Huber, M., Bretschneider, U., & Krcmar, H. (2019). Leveraging Crowdsourcing: Activation-Supporting Components for IT-Based Ideas Competition. *Journal of Management Information Systems*, 26(1), 197–224.
- Zhu, & Dholakia. (2022). Does Online Community Participation Foster Risky Financial Behavior? *Journal of Marketing Research*, 49(3), 394–407.
- Zwass. (2010). Co-creation: toward a taxonomy and an integrated research perspective. *International Journal of Electronic Commerce*, 15(1), 11–48.
- Robert, L. P., Dennis, A. R., & Ahuja, M. K. (2018). Social capital and knowledge integration in digitally enabled teams. *Information Systems Research*, 19(3), 314–334.
- Nambisan, & Baron. (2017). Interactions in virtual customer environments: Implications for product support and customer relationship management. *Journal of Interactive Marketing*, 21(2), 42–62.
- Mathwick, & Wiertz. (2018). Social Capital Production in a Virtual P3 Community. *Journal of Consumer Research*, 34(6), 832–849.
- Wiertz, C., & De Ruyter, K. (2017). Beyond the call of duty: Why customers contribute to firm-hosted

- commercial online communities. *Organization Studies*, 28(3), 347–376.
- Kohler, & Rohm. (2021). Return on interactivity: The impact of online agents on newcomer adjustment. *Journal of Marketing*, 75(2).
- Ridings, C. M., Gefen, D., & Arinze, B. (2022). Some antecedents and effects of trust in virtual communities. *The Journal of Strategic Information Systems*, 11(3-4), 271–295.