RESEARCH ON THE IMPACT OF EMPLOYEES’ SOCIAL MEDIA USE ON AMBIDEXTROUS INNOVATION

Shuiping Wang
Mingming He

Dhurakij Pundit University, Bangkok, Thailand

With the rapid development of social media, employees' use of social media in the workplace has a significant impact on communication, interaction, and information sharing among employees and between employees and organizations. Therefore, this study selects employees as the research object, based on UGT and ambidextrous innovation theory, comprehensively considers the different use purposes of social media, and explores the influence mechanism of social media use on ambidextrous innovation from the level of employees. The understanding of the boundary conditions of employee social media use for ambidextrous innovation has deepened. By combing existing literature, designing questionnaires, collecting data, and using a variety of data analysis tools for correlation analysis, this study draws the following main conclusions: employees' use of social media and its three dimensions all have a significant positive impact on ambidextrous innovation; innovative atmosphere plays a positive moderating role in the impact of employees' social media use on ambidextrous innovation. This study verifies the positive impact of employees' use of social media and its different dimensions on ambidextrous innovation, reveals the specific effects of social media use within enterprises, and improves the research framework for social media application within enterprises.

Keywords: social media; exploratory innovation; exploitative innovation
Introduction

With the rapid development of network and information communication technology, social media has emerged and rapidly become popular. Users can create, share, discuss, evaluate, and communicate through social media platforms (Kaplan & Haenlein, 2010).

At present, the application of social media in the workplace has attracted widespread attention in the academic community (Zhang et al., 2019).

The existing research mostly discusses the impact mechanism of social media use from a single dimension (Luo et al., 2018), lacking in-depth analysis of the mechanism.

With the increasingly diversified demand for social media use (Nardi et al., 2004), some studies began to distinguish different purposes of social media use.

However, the relevant research mostly focuses on the purposes of work and social interaction (Sun & Shang, 2014; Song et al., 2019), neglecting other purposes, thus failing to comprehensively consider the multiple motivations of employees for using social media. In fact, some studies have found that moderate use of social media for social and recreational purposes can help improve emotional commitment and employees' mental health (Luo et al., 2018; Wu et al., 2020).

The research of Ali-Hassan et al. (2015) also showed that the recreational use of social media has a mitigating effect on innovation performance. In addition, the effects of different modes of social media use on employee creativity are also different (Ding et al., 2019). Therefore, different purposes of use need to be clarified when studying the impact of social media on innovation.

The Usage and Gratification Theory (UGT) believes that the use of social media mainly meets three needs of individuals: social, hedonistic, and cognitive (McQuail, 1987). Based on UGT, scholars such as Ali-Hassan et al. (2015) and Ali (2019) have conducted research on the use of social media in three dimensions: social use, cognitive use, and hedonistic use. At present, this method of dividing dimensions is widely used in theoretical and empirical research on the use of social media. Therefore, based on UGT, this study is divided into three dimensions: social use, cognitive use, and hedonic use, according to the purpose of employees' use of social media.

In particular, the use of social media based on work and social interaction has a positive effect on employees' immediacy and creativity (Sun et al., 2019). Although existing research has proved the impact of social media on innovation, most studies have taken innovation as a dimension. Because employees' use of social media for different purposes will lead to different types of innovation, scholars suggest exploring different uses and applications of social media (Aral et al., 2013; Cao & Ali, 2018).

Therefore, analyzing the impact of employees' use of social media on different types of innovation is helpful to explore its internal causes and influencing mechanisms. Based on the theory of ambidextrous innovation, this study divides binary innovation into exploratory innovation and exploitative innovation. Exploratory innovation focuses on finding new opportunities, discovering new fields, and exploring new solutions, while exploitative innovation focuses on optimization and improvement based on existing knowledge and resources (Benner & Tushman, 2002). In summary, this study believes that employees' social media use will positively affect the generation of ambidextrous innovation.

In addition, the innovative atmosphere shapes the innovative awareness and active innovation ability of organizations and employees (Kim & Jang, 2021). A highly innovative
atmosphere accelerates the speed of knowledge integration and information dissemination through social media, promoting the generation of innovative performance (Richter, 2012).

In addition, in a highly innovative atmosphere, organizations will support and encourage employees to innovate and provide necessary resources and funds for employees' innovative behaviors (He et al., 2019).

Such support reduces the burden of innovation for employees, and employees can develop and innovate in a worry-free environment, promoting the process of transforming fragmented information into new products. Based on this, this study believes that when employees use social media, the innovative atmosphere plays a moderating role.

When employees feel a highly innovative atmosphere, they will increase their motivation to obtain and integrate new information through social media, thus promoting their innovative behavior.

To sum up, it is of great significance to deeply explore the impact of social media use on ambidextrous innovation, to fully understand the influence mechanism and boundary conditions of social media use, as well as to provide practical guidance for enterprise innovation and management.

Literature review and hypotheses

Employees' social media use and exploratory innovation

In the process of innovation, social media is increasingly being used as a tool to manage knowledge flow within and across organizational boundaries (Bhimani et al., 2019).

Testa et al. (2020) showed that social media plays an important role in the innovation process. Through the effective use of social media, employees can recombine existing ideas into new ones, thereby promoting their innovative behavior.

Leonardi (2014). By connecting other unrelated sources of knowledge and insights, it enriches employees’ channels for obtaining information, enabling employees to use various resources and methods more flexibly. At the same time, social media can be used as a tool for communication and the development of customer observation, knowledge acquisition, the co-creation of ideas and concepts with users, and support for the release of new products (Roberts et al., 2016). Through the use of social media, employees can interact and exchange information in real time with colleagues, industry experts, and other relevant people, thereby obtaining new ideas, technologies, and market trends and sharing their insights and experiences with other innovators.

This convenience in knowledge acquisition and information exchange helps to stimulate employees' innovative awareness and encourages them to find new solutions, products, or services by trying new ideas, methods, and technologies. When employees use new knowledge to innovate in new fields, it will play an important role in promoting exploratory innovation. Therefore, the following hypotheses are proposed:

H1: Employees' social media use has a positive impact on exploratory innovation.

In addition, the impact of using social media for different purposes is also different (Sidhu, 2004; Ali-Hassan et al., 2015; Luo et al., 2018). Based on the usage and satisfaction theory, this study focuses on the impact of social media use on ambidextrous innovation from different dimensions and studies the motivation of employees to use social media from three dimensions: social use, cognitive use, and hedonistic use.
Firstly, social use refers to the use of social media by employees to establish and maintain contact with others, including interacting and communicating with colleagues, partners, and customers on social media, sharing ideas, discussing problems, and establishing social network relationships (Zhang et al., 2019).

In the use of social media for social purposes, employees can expand and consolidate their personal social networks, obtain information from different fields, and gain new ideas, views, and insights (Burke & Kraut, 2013).

This information may cover market trends, competitors' initiatives, technological updates, and changes in customer needs. Such diversified information input and viewpoint collisions help break the thinking stereotype, stimulate employees' innovative thinking, and provide new perspectives and inspirations when exploring new fields and trying new methods.

Secondly, cognitive use is widely used for work-related purposes, such as sharing content with colleagues, collaborating to build content, and disseminating work-related information (Ellison et al., 2007).

Employees using social media for cognitive purposes can more easily obtain professional knowledge, promote resource creation and sharing, and promote team collaboration (Benitez et al., 2018), so that employees can communicate and exchange professional knowledge and skills easily (Leonardi & Meyer, 2015). This exchange and knowledge sharing activity enables participating members to enrich professional knowledge (Ali et al., 2019), improve professional ability, and then actively use it to form new knowledge and new methods.

Finally, hedonistic use mainly refers to the behavior of employees relaxing and entertaining themselves through social media. Social media for leisure and social interaction can improve employees' mental health (Wu et al., 2020; Luo et al., 2018), and positive emotions have a positive impact on employees' innovation (Amabile et al., 2005).

Therefore, when employees use social media based on personal interests and hobbies, it will be easier to obtain knowledge and information they are interested in, communicate with people with the same interest, and obtain new resources and motivation, which helps to open up their minds and broaden their horizons, thus stimulating curiosity and exploration desire and promoting exploratory innovation. Therefore, the following hypotheses are proposed:

H1a: Social use has a positive impact on exploratory innovation.
H1b: Cognitive use has a positive impact on exploratory innovation.
H1c: Hedonistic use has a positive impact on exploratory innovation.

**Employees' social media use and exploitative innovation**

Exploitative innovation refers to the generation and implementation of employees' improvement ideas based on existing knowledge (Ellison et al., 2007). Through social media, employees can timely learn about rich information, helping them better understand the changes in the market and industry so as to make more wise decisions when using existing resources for innovation (Kane et al., 2014).

Through social media platforms, employees can interact and communicate with other innovators, sharing each other's innovation achievements and ideas (Leonardi et al., 2013). This open communication atmosphere helps to promote cooperation among employees, enabling team members to jointly use existing knowledge and experience to further improve
existing products, services, and processes (Kaish & Gilad, 1991), thereby promoting
exploitative innovation.

In addition, through social media, employees can establish connections and interactions
with external partners, suppliers, customers, and industry experts. This open partnership can
provide employees with opportunities for innovation. Through cooperation with external
partners, employees can obtain knowledge and resources from different fields and further
explore and utilize existing technologies and markets (Kane et al., 2014).

At the same time, the acquired new knowledge can be better integrated with the
existing knowledge, accelerate the knowledge reconstruction of employees, enrich the
existing knowledge, provide solutions for improving the existing technology, and thus
promote the utilization of innovation. Therefore, the following hypotheses are proposed:

H2: Employees’ use of social media has a positive impact on utilization innovation.

For different purposes of employees use of social media, when employees use social
media for social purposes, they can share their experiences, insights, and knowledge through
social media platforms (Bughin et al., 2013) and jointly use the existing knowledge and
experience to further improve and improve the existing products, services, and processes
(Leonardi et al., 2013), thus promoting the occurrence of utilization innovation. Secondly, in
the process of employees’ use of social media for cognitive purposes, they tend to use social
media to obtain information related to their work and profession. In this process, employees
can draw inspiration from others' experience, supplement and expand their existing
knowledge, and then produce change ideas related to existing knowledge and information,
thus promoting exploitative innovation.

Finally, although employees mainly focus on entertainment and relaxation in the
process of using social media for pleasure, they can communicate and interact with people
with the same interest through the use of social media and obtain diversified knowledge and
resources from different fields, from which they can get inspiration for innovation. This
collaboration and interaction help employees explore and use existing resources in the
process of innovation. In addition, in such a social media environment, employees feel happy
to be able to help other members (Wasko & Faraj, 2000).

Positive emotions can promote the flexibility of individual thinking (Fredrickson, 1998;
Filipowicz, 2006) and have a positive impact on employees’ innovation (Amabile, 2005). In
the case of happiness, employees will be more likely to accept new things, new technologies,
and new information so as to better learn and absorb existing technologies, improve existing
ideas, and promote exploitative innovation. Therefore, the following hypotheses are proposed:

H2a: Social use has a positive impact on exploitative innovation.
H2b: Cognitive use has a positive impact on exploitative innovation.
H2c: Hedonistic use has a positive impact on exploitative innovation.

**Moderating effect of innovative atmosphere**

According to the research of Jackson & Schuler (1995), employees’ perception of the
working environment and the opportunity resources provided by the organization will affect
their attitude towards innovation. Innovative atmosphere is the subjective cognitive and
perceptual experience of employees on the factors that affect innovation in their own
working environment. In terms of stimulating employees’ innovative thinking and innovative
awareness, a team’s innovative atmosphere plays a decisive role (Richter et al., 2012; Kim & Jang, 2021). Organizations with a high innovative atmosphere focus on the cultivation of employees’ knowledge and skills and support and encourage them to innovate. Employees will be affected by the innovative atmosphere, thus generating innovative ideas and realizing them (Lee & Om, 1994).

Therefore, a high innovative atmosphere helps employees’ better use social media to obtain knowledge resources and enhances employees’ ability to integrate and apply knowledge, as well as their awareness of team cooperation and trust, thus promoting the development of innovative behaviors (Leonardi & Meyer, 2015).

But if the organizational innovative atmosphere is low, employees cannot get support and encouragement from the organization, leaders, and colleagues for their innovative behaviors, and they may show negative attitudes such as avoidance and fear of innovation.

Therefore, this study believes that an innovative atmosphere positively moderates employees’ social media use and ambidexterity. In a high atmosphere of innovation, employees accelerate the speed of acquiring and utilizing information and knowledge through social media and enhance the process of applying knowledge, skills, and abilities to innovation. In the case of a low innovation atmosphere, the enthusiasm of employees is weakened, so the enthusiasm of employees to obtain and utilize information resources through social media and promote innovation is weakened. Based on the above analysis, this paper proposes the following hypotheses:

H4: An innovative atmosphere plays a positive moderating role between employees' use of social media and exploratory innovation.

H5: An innovative atmosphere plays a positive moderating role between employees' use of social media and exploitative innovation.

**Research method**

**Sampling and data collection**

This study used a questionnaire method to collect data. The formal survey of the questionnaire started in mid-November 2021 and ended in late January 2022, mainly focusing on R&D personnel, technical personnel, and management personnel, and the survey objects were limited, requiring respondents to have social media experience. A total of 600 questionnaires were distributed in this study.

The statistical results of valid samples show that the proportion of males and females is 52.6% and 47.4%, respectively. In terms of age, “31–40 years old” accounted for the highest proportion of 38%.

In terms of education level, more than 50% of the samples are undergraduates, and 77.3% of the samples have a bachelor's degree or above.

In terms of time spent on social media, 62.6% of the samples used it "more than 5 hours." In terms of working years, 48.9 percent of the respondents had worked for more than seven years.

In terms of the distribution of industry types, the type with the largest sample size is IT/communication/Internet, with a total of 123 enterprises, accounting for 22.4%. In general, the sample data are consistent with the research distribution and are representative to some extent.
RESEARCH ON THE IMPACT OF EMPLOYEES’

Variable measurement

The variable measurement scales in this study were selected from the maturity scales used in relevant studies and were appropriately modified as needed. The 7-point Linkert scale is used in this study, ranging from "1" to "7," representing "very inconsistent" and "very consistent," respectively.

Social media use: This study adopts the scale used in Ali-Hassan et al. (2015), Ali et al. (2019), and other studies and divides employees’ social media use into three dimensions: social use, cognitive use, and hedonic use, with 10 items.

Ambidexterous innovation: Based on the scale of ambidexterous innovation developed by Jansen et al. (2006) and He & Wong (2004), this study has six items: exploratory innovation and exploitative innovation.

Innovative atmosphere: In this study, innovative atmosphere refers to the subjective cognition and perceptual experience of employees on the factors related to innovation in their working environment. Therefore, this study draws on the innovative atmosphere scale, which contains four items in total.

Control variables: In order to avoid the influence of demographic characteristics on individual behaviors (Parker et al., 2006), this study selects five demographic variables as control variables, including gender, age, education level, working years, and industry type.

Statistical analysis and results

Reliability Test

Spss 26 software is used for reliability analysis, and the results show that Cronbach's α coefficient of all scales is greater than 0.8, indicating that the scales have good internal consistency. Through the analysis of the α coefficient of deleted items, it is found that the reliability coefficient does not increase significantly after the deletion of any item, so there is no need to delete any item. In addition, the CITC values of the analysis items are all greater than 0.4, indicating that there is a good correlation among the analysis items, which also indicates that the scale has a good level of reliability. In summary, it indicates that the reliability quality of the data is high and can be used for further analytical research.

Validity Test

Firstly, the KMO test and the Bartlett test are conducted on the data. The KMO value is 0.920, which is greater than 0.8, and the Bartlett test is significant (P<0.001), indicating that the research data are suitable for information extraction and factor analysis.

Then, confirmatory factor analysis was performed using Amos 26 to test validity. According to the results, the model fit index $X^2=363.256$, df=296, $X^2/df=1.227<3$, CFI=0.992>0.9, RMSEA=0.020<0.08, NFI=0.957>0.9, TLI=0.990>0.9, and IFI=0.992>0.9, indicating that the model has a good degree of fit (Wu, 2009). The AVE and CR values of each dimension of the results are calculated by formula, as shown in Tab. 1.

The absolute values of standardized factor loading coefficients are all greater than 0.7, which means that there is a good measurement relationship.

The correlation coefficient and the square root of the AVE value are shown in Tab. 2. Based on the above analysis, it shows that the data have good validity.
Multicollinearity test
Considering that the data of this study come from questionnaire collection, there may be multicollinearity problems. According to the test methods of the existing literature, if the variance inflation factor (VIF) is less than 3, it is considered that there is no multicollinearity problem (O'Brien, 2007). This study uses Spss 26 to conduct VIF test on the independent variables in the mode. The results show that the maximum value of VIF is 1.555, all of which are less than 3, so it is considered that there is no multicollinearity problem in this study.

Common method bias
Due to the large number of measurement items, common method bias may occur. Therefore, Harman univariate test is used for the data. If multiple factors are obtained and the first factor explanatory variable is less than 40%, it means that the common method bias is not serious. In this study, exploratory factor analysis included all items.

Table 1 - Model standard factor loading coefficients and results of AVE and CR indicators
(compiled by the authors)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Item of measurement</th>
<th>Standardized factor loading coefficients</th>
<th>AVE</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>social use</td>
<td>A11</td>
<td>0.832</td>
<td>0.678</td>
<td>0.863</td>
</tr>
<tr>
<td></td>
<td>A12</td>
<td>0.771</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A13</td>
<td>0.865</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cognitive use</td>
<td>A21</td>
<td>0.822</td>
<td>0.610</td>
<td>0.862</td>
</tr>
<tr>
<td></td>
<td>A22</td>
<td>0.836</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A23</td>
<td>0.758</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A24</td>
<td>0.701</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hedonistic use</td>
<td>A31</td>
<td>0.804</td>
<td>0.635</td>
<td>0.839</td>
</tr>
<tr>
<td></td>
<td>A32</td>
<td>0.808</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A33</td>
<td>0.779</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exploitative innovation</td>
<td>B11</td>
<td>0.778</td>
<td>0.642</td>
<td>0.843</td>
</tr>
<tr>
<td></td>
<td>B12</td>
<td>0.817</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B13</td>
<td>0.808</td>
<td></td>
<td></td>
</tr>
<tr>
<td>exploratory innovation</td>
<td>B21</td>
<td>0.816</td>
<td>0.633</td>
<td>0.838</td>
</tr>
<tr>
<td></td>
<td>B22</td>
<td>0.756</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B23</td>
<td>0.813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>innovative atmosphere</td>
<td>E11</td>
<td>0.881</td>
<td>0.678</td>
<td>0.893</td>
</tr>
<tr>
<td></td>
<td>E12</td>
<td>0.814</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E13</td>
<td>0.762</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E14</td>
<td>0.793</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2 - AVE square root values and correlation coefficients of variables
(compiled by the authors)

<table>
<thead>
<tr>
<th></th>
<th>innovative atmosphere</th>
<th>exploratory innovation</th>
<th>exploitative innovation</th>
<th>hedonistic use</th>
<th>cognitive use</th>
<th>social use</th>
</tr>
</thead>
<tbody>
<tr>
<td>innovative atmosphere</td>
<td>(0.823)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exploratory innovation</td>
<td></td>
<td>0.438***</td>
<td>(0.796)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exploitative innovation</td>
<td></td>
<td>0.464***</td>
<td>0.679***</td>
<td>0.801</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hedonistic use</td>
<td></td>
<td>0.440***</td>
<td>0.548***</td>
<td>0.585***</td>
<td>0.797</td>
<td></td>
</tr>
<tr>
<td>cognitive use</td>
<td></td>
<td>0.485***</td>
<td>0.594***</td>
<td>0.605***</td>
<td>0.534***</td>
<td>0.781</td>
</tr>
<tr>
<td>social use</td>
<td></td>
<td>0.433***</td>
<td>0.432***</td>
<td>0.489***</td>
<td>0.440***</td>
<td>0.435***</td>
</tr>
</tbody>
</table>

Note(s): Values in parentheses are AVE square root values; *p<0.05, **p<0.01, ***p<0.001

The results showed that the eigenvalue greater than 1 and 6 factors were extracted. After factor rotation, the cumulative variance interpretation rate of the six factors was 75.315%, among which the first factor explanatory variable was 35.988%, which did not exceed the critical value, indicating that the data results of this study had no serious common method bias.

**Hypothesis testing**

This study mainly uses Spss 26 and Amos 26 software to verify the proposed model hypotheses by using structural equation modeling and regression analysis methods. Firstly, the structural equation model of the direct effect of employees' social media use on ambidexterity is constructed, namely Model 1, and then the direct effect of each dimension on ambidexterity is constructed, namely Model 2. The fitting indexes of the corresponding models are shown in Tab. 3, and the results show that the goodness of fit of the models is within the acceptable range.

Table 3 - The fitting indexes of the model
(compiled by the authors)

<table>
<thead>
<tr>
<th>indexes</th>
<th>χ²</th>
<th>df</th>
<th>P</th>
<th>χ²/df</th>
<th>GFI</th>
<th>RMSEA</th>
<th>IFI</th>
<th>CFI</th>
<th>NFI</th>
<th>TLI</th>
<th>Degree of fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>standard</td>
<td>-</td>
<td>-</td>
<td>&gt;0.05</td>
<td>&lt;5</td>
<td>&gt;0.9</td>
<td>&lt;0.08</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>159.156</td>
<td>99</td>
<td>0.000</td>
<td>1.608</td>
<td>0.964</td>
<td>0.033</td>
<td>0.987</td>
<td>0.987</td>
<td>0.966</td>
<td>0.984</td>
<td>fit</td>
</tr>
<tr>
<td>Model 2</td>
<td>506.607</td>
<td>159</td>
<td>0.000</td>
<td>3.186</td>
<td>0.912</td>
<td>0.063</td>
<td>0.942</td>
<td>0.941</td>
<td>0.917</td>
<td>0.930</td>
<td>fit</td>
</tr>
</tbody>
</table>

**Main effect test**

The relevant regression results of structural equation Model 1 and Model 2 are shown in Figure 2. According to the relevant path analysis, it can be seen that employees' use of social media has a significantly positive impact on exploratory innovation (β =0.793, p<0.001), and H1 is valid. Employees' use of social media has a significantly positive impact on exploitative innovation (β =0.836, p<0.001), H2 is valid. Social use has a significantly positive impact on exploratory innovation (β =0.190, P<0.001), and H1a is valid.
Cognitive use has a significantly positive impact on exploratory innovation ($\beta = 0.448$, $P < 0.001$), and H1b is valid. Hedonic use significantly positively affected exploratory innovation ($\beta = 0.350$, $P < 0.001$), and H1c is valid.

Social use has a significantly positive impact on exploitative innovation ($\beta = 0.254$, $P < 0.001$), and H2a is valid. Cognitive use has a significantly positive impact on exploitative innovation ($\beta = 0.434$, $P < 0.001$), and H2b is valid. Hedonic use significantly positively affected exploitative innovation ($\beta = 0.379$, $P < 0.001$), and H2c is valid.

**Test of the moderating effect of innovative atmosphere**

This study uses hierarchical regression to verify the moderating effect of innovative atmosphere. Firstly, after centralizing the data related to social media use and innovative atmosphere, the interaction terms of the two are calculated, and then the interaction terms are added into the model for regression analysis.

After controlling the control variables such as gender, age, educational level, working years and industry type, the regression results are shown in Tab. 4 below.

<table>
<thead>
<tr>
<th>variable</th>
<th>exploratory innovation</th>
<th>exploitative innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M1</td>
<td>M2</td>
</tr>
<tr>
<td>gender</td>
<td>-0.030</td>
<td>-0.034</td>
</tr>
<tr>
<td>age</td>
<td>0.030</td>
<td>0.017</td>
</tr>
<tr>
<td>education level</td>
<td>0.095*</td>
<td>0.093*</td>
</tr>
<tr>
<td>working years</td>
<td>-0.042</td>
<td>-0.030</td>
</tr>
<tr>
<td>industry type</td>
<td>0.007</td>
<td>0.005</td>
</tr>
<tr>
<td>social media use</td>
<td>0.549***</td>
<td>0.540***</td>
</tr>
<tr>
<td>innovative atmosphere</td>
<td>0.092*</td>
<td>0.102**</td>
</tr>
<tr>
<td>social media use×innovative atmosphere</td>
<td>0.172***</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.375</td>
<td>0.405</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>0.367</td>
<td>0.396</td>
</tr>
<tr>
<td>F咪හ</td>
<td>46.383</td>
<td>45.861</td>
</tr>
<tr>
<td>VIF(max)</td>
<td>1.842</td>
<td>1.847</td>
</tr>
</tbody>
</table>

Note(s): * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

According to the results of regression analysis, the $F$ values of the above models are significant at the level of 0.001, the tolerance of the independent variables is greater than 0.1, and the VIF is less than 10, indicating that there is no collinearity problem among the independent variables. M1 adds innovative atmosphere on the basis of the influence of social media use on exploratory innovation, and then conducts regression analysis on exploratory innovation. M2 adds the interaction term between social media use and innovative atmosphere on the basis of M1 to conduct regression analysis. It is significant at the level of 0.001, indicating that innovative atmosphere has a positive moderating effect on the impact of social media use on exploratory innovation, and Hypothesis H4 is verified.
M3 adds innovative atmosphere to the influence of social media use on exploitative innovation, and then conducts regression analysis on exploitative innovation.

M4 adds the interaction term between social media use and innovative atmosphere to conduct regression analysis on the basis of M3. It is significant at the level of 0.001, indicating that innovative atmosphere has a positive moderating effect on the impact of social media use on exploitative innovation, and H5 is verified.

The moderating effect of innovative atmosphere is shown in Fig. 1 below.

![Figure 1 - Chart of the moderating effect of innovative atmosphere (compiled by the authors)](image)

**Discussion and conclusion**

**Results discussion**

Based on UGT and ambidextrous innovation theory, this study divides employees’ use of social media into three dimensions according to the purpose of use: social use, cognitive use, and hedonic use as the independent variables, ambidextrous innovation as the dependent variable, and innovative atmosphere as the moderating variable.

According to the results of the empirical research, employees’ use of social media and its three dimensions (social use, cognitive use, and hedonic use) all positively affect exploratory innovation and exploitative innovation, and the innovative atmosphere plays a moderating role in the effect of social media use on ambidextrous innovation.

Firstly, as an important channel for information dissemination and knowledge sharing, social media platforms provide opportunities for employees to communicate and interact with colleagues, industry experts, and other professionals. The use of social media can promote knowledge sharing, cooperation, and communication, which can help team members utilize existing knowledge and resources for innovation. It can provide rich resources and information for ambidextrous innovation.

Social use promotes communication and collaboration; cognitive use provides channels for knowledge acquisition and integration; and hedonic use provides effects of psychological relaxation and emotional regulation. The use of these three purposes helps employees interact and collaborate with other personnel through the network, who may have supplementary resources needed to solve innovation problems.
Employees are inspired in the process of absorbing, integrating, and utilizing these resources so as to improve existing products, technologies, or methods and even develop products with new functions, which has a positive impact on their own innovation behavior and provides favorable conditions and motivation for employees' ambidextrous innovation behavior.

Secondly, when employees feel that there is a strong atmosphere of innovation in the environment, they will be motivated to innovate. In the process of using social media, employees will be more sensitive to the information conducive to innovation, and they will be more able to obtain and collect the knowledge they need and even seek help on social media platforms so as to gather more and better resources. It can promote the improvement of employees' innovation abilities.

On the contrary, if the innovation atmosphere in the environment is very weak, such as if the enterprise does not have a good policy to encourage innovation or if the employees around are step-by-step and lack innovation consciousness, then in such an environment, employees will not actively pursue information acquisition or knowledge accumulation, and in the process of using social media, they will be less sensitive to information capture and less demanding. Without new knowledge, it is difficult to innovate. Therefore, organizations should strive to create a positive, innovative atmosphere to encourage employees to actively participate in social media use.

Theoretical and managerial implications

(1) Theoretical contribution: This study comprehensively considers the different use purposes of social media, verifies the positive impact of employees' use of social media and its different dimensions on ambidextrous innovation, reveals the specific effects of social media use within enterprises, improves the research framework of social media application within enterprises, and enriches the theoretical research on the influence mechanism of social media use.

In addition, this study explores the moderating effect of innovative atmosphere in this process, which provides a new theoretical perspective for further understanding the influence mechanism of employees' social media use in promoting ambidextrous innovation in the organization and provides a theoretical basis and research path for future research.

(2) Management implications: With the increasing trend of socialization in daily life and business transactions, enterprises should be fully aware of the impact of social media use on innovation. By formulating social media policies, providing training and support for social media use, establishing a culture of knowledge sharing and collaboration, promoting an organization's innovation culture, and optimizing employees' experiences of participating in social media, enterprises should be fully aware of the impact of social media use on innovation.

In order to make better use of social media platforms to promote employees' innovative behaviors and improve the competitiveness and innovation ability of the organization, in addition, in an organization with a strong atmosphere of innovation, all employees and the management have a good sense of innovation, pay attention to knowledge discovery and knowledge accumulation, and have active thoughts, which will enhance the ability to innovate.
Limitations and prospects

Although this study has made some innovations in both theory and practice on the basis of existing literature, there are still some limitations.

First of all, this study focuses on employee social media use of ambidextrous innovation mechanisms. Although it studied the different purposes of social media use of the influence of ambidextrous innovation, this study has no different purpose of social media use to analyze the difference in ambidextrous innovation influence. Future research should be further explored to use more targeted guidance.

Secondly, although this study introduces an innovative atmosphere to study the boundary conditions of the impact of employees’ social media use on ambidextrous innovation, however, due to the diversity and complexity of this process, it is still necessary to further enrich the relevant research on the effects and influencing mechanisms of social media use on other work outputs.

Finally, in terms of research methods, this study mainly adopts a questionnaire survey to obtain effective data by collecting subjective responses from others. However, there is some subjectivity in the questionnaire, and future research can adopt diversified data collection methods and research methods to enrich the research.

References:


**Paper submitted** 26 September 2023

**Paper accepted for publishing** 14 December 2023

**Paper revised** 26 December 2023

**Paper published online** 30 January 2024