

# The Evolution and Challenges of Interpersonal Interaction in Digital Work Environments

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**Abstract.** Against the backdrop of the rapid development of information technology, the digital environment has become a distinctive feature of modern society. The purpose of this paper is to explore the evolution of interpersonal interactions and their challenges in digital work environments, and to propose corresponding coping strategies. It is found that while the digital work environment enhances interpersonal connections, promotes teamwork, and expands social networks, it also brings about problems such as interpersonal alienation, lack of trust, social barriers, hierarchical relationships, and increased competition in the workplace. Based on this, this paper proposes coping strategies at both the organizational and individual levels, including organizing offline activities and optimizing the use of tools, as well as improving digital literacy and maintaining work-life boundaries for individuals. Improving interpersonal relationships in digital work environments is important for promoting organizational development, meeting people's needs for a better life, and building a harmonious society.

**Keywords:** Interpersonal interaction, digital environment, work, challenges.

## 1. Introduction

### 1.1. Research Background

With the rapid development of information technology, the role of the Internet, big data and new media in real life is increasing day by day, and the social life of human beings has been massively shifted into the digital space. The digital environment has become the basic environment for contemporary people's daily production and life, leading society to undergo a drastic change in the digital shift.

The digital work environment has redefined the concept of the workplace with its efficiency and convenience, eliminating time and geographical constraints and enabling online communication and remote collaboration. However, this emerging way of working also poses a number of challenges, especially in terms of interpersonal interactions. Face-to-face communication has been replaced by e-mail, instant messaging and videoconferencing, which has somewhat weakened the exchange of non-verbal information in social interactions. The rise of social media and social networks has changed the way people connect, but it can also lead to a degradation of social skills and social barriers in the real world. The digital work environment requires individuals to possess new skills, such as the ability to effectively manage digital tools and platforms, and how to demonstrate leadership and teamwork in virtual teams, placing new demands on interpersonal interactions in the workplace.

As more and more organizations and businesses are adopting digital tools to promote productivity, this study aims to explore the evolution of interpersonal interactions and their challenges in the digital work environment, and attempts to explore strategies to promote effective interpersonal interactions.

### 1.2. Significance of the Study

The significance of this study is to help organizations and individuals adapt to the digital work environment by identifying the challenges faced by interpersonal relationships and making feasible recommendations. Reinforcing interpersonal interactions can enhance employees' sense of belonging and satisfaction, improve the efficiency of teamwork, and thus promote the overall development and innovation of organizations. From a macro perspective, studying interpersonal relationships in digital

work environments is also conducive to understanding the impact of contemporary digital technologies on the production and daily life, and thus guiding digital technologies to benefit the people, meet the people's growing needs for a better life, and promote high-quality economic and social development.

### **1.3. Literature Review**

#### **1.3.1 Existing Research Results**

In China, scholars have explored the changes in interpersonal relationships in the digital era from multiple dimensions. For example, Ye Maolin pointed out that digital organizational features constructed workplace loneliness [1], Liang Jian and others argued that the digital era weakened trust within enterprises [2], while Pan Lei and others found that information-based attendance improved workplace relationships in institutions [3]. In the family and youth groups, Mao Shijiao and Guo Xiaoqin investigated the impact of digital social media on intergenerational family relationships and youth interpersonal interactions [4, 5], respectively, while Yao analyzed the dual virtuality of "virtual lovers" relationships [6]. At the macro level, Zhang Lian and Zhang Ruimin, among others, studied the impact of online media on the structure of social interactions [7, 8], Zhou Runqi, among others, emphasised the role of digital social modes in expanding the resources of social networks [9], and Xie Zhenrong and Liu Yan, put forward the strategies to deal with the problems of digital interpersonal communication from the perspective of Marxian interaction theory and communication science, respectively [10, 11].

The relevant foreign research themes are richer, but less focused on the professional arena. For example, Boeker and others explored the role of digital technology in driving corporate innovation [12], Yudha emphasized the role of digital media in enhancing communication [13], Habito and others examined the impact of digital technology on intimacy among young Filipinos [14], and Goldberg explored digital romantic relationships among adolescents [15]. Ferreday, on the other hand, critiques interactive relationships in the digital age from a feminist perspective [16].

#### **1.3.2 Shortcomings of Previous Studies**

Previous studies have mostly analyzed the overall pattern of interpersonal relationships in the digital era from a macro perspective, or the evolution in a specific field from a micro perspective, but there are the following shortcomings: A. Fewer studies have been conducted to address workplace relationships in the digital work environment; B. Most of the studies have focused on the influence of new, online social media, ignoring the indirect role of digital office platforms and tools on interpersonal interactions; C. There is a lack of effective strategies to cope with the dilemma of social interaction in the digital era. Therefore, this study will focus on interpersonal interactions in digital work environments, while analyzing the role paths of both online social media and digital office tools, and proposing coping strategies in order to fill the research gap and reflect the practical significance.

## **2. Methodology**

This study adopts a mixed research method, mainly through the interview method and questionnaire to collect data. The author first conducted a simple pre-survey of the research questions with the help of a questionnaire, forming a preliminary understanding of interpersonal relationships in the digital work environment, and then conducted in-depth interviews with representative research subjects to obtain more detailed information and data.

### **2.1. Interview Method**

#### **2.1.1 Participants**

Interview subjects were selected using the purposive sampling method. Taking into account factors such as industry, position, age, gender, and geography, the author recruited a total of seven in-depth interviewees, who came from different workplaces, such as institutions, IT companies, financial

institutions, construction companies, hospitals, etc., and held positions of different levels, such as grassroots, middle, and high-level, and were distributed in various geographic regions, such as Fujian Province, Beijing, Shanghai, and Hebei Province. The age range is from 23 to 52 years old, among which there are 3 females and 4 males (see the table below for details).

**Table 1.** Information of the Participants

| Name (Initials) | Industry             | Gender | Age |
|-----------------|----------------------|--------|-----|
| YXY             | Construction Company | Male   | 38  |
| ZY              | Banking              | Female | 33  |
| LLF             | IT Company           | Male   | 29  |
| WZZ             | Public Institution   | Male   | 25  |
| ZQW             | Financial Company    | Female | 23  |
| WZ              | Hospital             | Female | 31  |
| GQS             | Middle School        | Male   | 52  |

### 2.1.2 Interview Format

Given the geographical constraints, the author completed interviews with seven participants via online teleconferencing. The interviews were conducted person by person and ranged from 20 to 40 minutes, totalling 5.1 hours. With the consent of the interviewees, the entire interview was audio-recorded, and the recordings were transcribed into a text of more than 33,000 words.

### 2.1.3 Outline of the Interview

The semi-structured interview method was adopted, and the semi-structured interview outline was developed on the basis of reviewing relevant literature. Overall, the questions covered the following categories: basic information about the interviewees, digital coverage of the workplace, the overall impact of the digital work environment on interpersonal relationships, the characteristics and challenges of digital communication, the use of social media in the workplace, the use and experience of the digital work platform, and the use of digital office tools and their impact on interpersonal relationships.

## 2.2. Survey Method

### 2.2.1 Survey Format

A total of 466 questionnaires were collected by using the *Questionnaire Star* tool to design and publish questionnaires, which were forwarded on *Wechat*, *QQ*, *Xiaohongshu* and other online social media platforms, inviting eligible practitioners to fill in the questionnaires online. According to statistics, the age of those who filled in the questionnaire ranged from 18 to 53 years old, with 56.8 per cent and 43.2 per cent of males and females, respectively, and with IP belonging to 11 provinces and municipalities directly under the central government in China, spanning the education, financial, manufacturing and Internet industries.

### 2.2.2 Content of the Questionnaire

The designed questionnaire mainly covers the following questions (in part): Does your current job require digital tools to communicate/collaborate? In what ways do you usually build and maintain relationships with others? How effective do you think digital communication methods are in building trust? Do you think online communication is more likely to lead to misunderstandings? Which digital office platforms do you currently use for your work? Do you feel that communication with your colleagues is smoother due to certain features of the digital workplace? Do you feel that the digital work environment has made your relationships with colleagues more superficial? Do you think offline activities are helpful in improving relationships?

### 3. Findings and Results

#### 3.1. Positive Evolution of Interpersonal Relationships in Digital Work Environments

##### 3.1.1 Enhancement of Interpersonal Connections and Team Cohesion

The digital environment has greatly enriched the way of interpersonal communication, expanding from traditional face-to-face communication to instant messaging, e-mail, video conferencing, social media platforms and other forms, providing people in the workplace with more convenient and flexible ways of communication. The application of digital communication tools breaks the traditional time and space constraints, and through diversified contact methods, people can communicate and interact with each other anytime and anywhere, which to a certain extent strengthens the connection between people and the cohesion of the team. For example, "When there is a shortage of staff at the front desk, just send a message in the work group, and people will come up to help" (ZY, female, 33 years old). Another example is "It's difficult to deal with urgent work when we can't get together on weekends, but a *Tencent* meeting can solve the problem" (LLF, male, 29 years old).

In addition, this instantaneous and boundary-less communication also strengthens the emotional connection between people by expanding the communication space. In traditional workplace environments, interaction between people relies on face-to-face communication in the same domain, whereas in non-workplaces or out-of-hours, co-workers are "out of touch" with each other. For example, a newly recruited grassroots employee commented that "If there is no *Wechat* contact, colleagues are like strangers because it is hard to get to know them as no one can be seen after work" (WZZ, male, 25 years old). Using online social networking platforms as a medium, the connection between staff members extends from the work sphere to their spare time. Behaviours such as posting daily updates in *Wechat Moments* as well as private chats, liking and commenting on *Wechat* can deepen the emotional connection between colleagues, which can have a positive effect on establishing harmonious interpersonal relationships.

##### 3.1.2 Improvement of Division of Labor and Collaboration

The digital environment facilitates the rapid transmission and sharing of information. Employees can easily share files and information through email, cloud storage and online documents, and better understand each other's work progress and needs, which helps employees to divide up their work, thus promoting teamwork and coordination. For example, one of the architects interviewed mentioned that "After accomplishing the drawings, we will upload them to the cloud network disc, so that all designers in charge of different boards can see them." (YXY, male, 38 years old).

At the same time, the digital environment enables knowledge and resources to be rapidly disseminated and shared, and workplace professionals can more conveniently access the latest industry information and professional knowledge to improve their professionalism in order to enhance cooperation and synergy between teams, upgrading the efficiency and innovation of the whole team. For example, an interviewed employee of a financial company, due to her low educational level, was "afraid that she was not capable enough to drag the whole group down", and tried to make use of online resources for self-learning and enhancement to better integrate into the team (ZQW, female, 23 years old).

Working professionals can also manage their relationships more systematically through certain specific digital tools. For example, the use of customer relationship management (CRM) systems to track and maintain customer relationships, and the use of project management software to coordinate cooperation among team members. The use of these tools can help to improve the efficiency and accuracy of interpersonal relationship management and enhance team coordination and cooperation.

##### 3.1.3 Expansion of Interpersonal Networks

According to the results of the questionnaire survey, 91.4 per cent of the participants believe that "the digital environment has expanded their interpersonal network". Through social media and other platforms, people are able to quickly connect with a wide variety of people, effectively expanding

their social circles. The expansion of social networks not only enriches people's social experience, but also helps to establish a wide range of business contacts and friendships, providing a wider range of opportunities for collaboration and resource sharing for people in the workplace. With the support of convenient digital social networking tools, people who would otherwise be difficult to meet face-to-face due to geographical, hierarchical, and occupational constraints can become potential social capital by accessing the "address book" of social software. "Compared to the past, it is relatively easy to build networks now, as you can add a 'friend' by just scanning a QR code" (YXY, male, 38 years old). In other words, the boundaries of personal social networks are enormously extended in the digital work environment.

### **3.2. Challenges of Interpersonal Relationships in Digital Work Environments**

#### **3.2.1 Interpersonal Alienation and Lack of Trust**

While digital tools such as e-mail, instant messaging and social media facilitate remote communication, they can also lead to communication barriers that make interpersonal relationships increasingly distant and superficial, making it difficult to build trusting relationships. Symbolic interactionism suggests that social life is an ongoing interactive process in which people communicate and exchange symbols in order to build social relationships. The term "symbols" refers to the tools and media used by people to communicate and express their meaning, including both written language and non-verbal symbols such as body language, voice tone and eye contact. Interactions in digital work environments often lack non-verbal elements such as facial expressions, tone of voice, eye contact, etc., which are crucial in face-to-face communication to understand and feel the other party's attitudes and emotions. Interaction between people has changed from a three-dimensional expression constructed by both verbal and non-verbal symbols to a flat expression relying on words struck by a keyboard, which may lead to inaccurate messages, a lack of empathy and even misunderstanding, constituting an obstacle to interpersonal communication and weakening deeper interpersonal connections.

"Once a colleague passed me a document, (typing) said 'edit and send it to me'. In fact, it is rational, but that sentence typed on the phone just give me the impression of indifference, making me a little bit uncomfortable" (LLF, male, 29 years old). Through the account of this interviewed IT company employee, it is evident that communication expressions relying on digital social media may distort the meaning of the language itself and lead to misunderstanding and even interpersonal conflicts due to the lack of emotional factors in face-to-face communication.

Moreover, over-reliance on digital tools for workplace communication may lead to a sense of distance and isolation among employees. With the popularity of digital offices, opportunities for face-to-face communication are decreasing, and the lack of physical contact may affect the building of intimacy and trust among colleagues. For example, an interviewed doctor pointed out that medical examination information is now transmitted through electronic devices, "medical records are all available on the system, so there is almost no need for face to face communication. Once you enter it with the device, I will look at it with the computer, after which the patient's condition will be acknowledged" (WZ, female, 41 years old). In the questionnaire, 66.3 per cent believed that "the digital work environment has made the relationship between themselves and their colleagues superficial".

#### **3.2.2 Technology Dependency and Real-World Social Barriers**

Work styles such as telecommuting and digital collaboration reduce physical contact between employees, and the lack of real-world social opportunities due to prolonged interaction and communication in digital environments tends to create a technological dependency in engagement activities. On the one hand, being accustomed to flat communication methods such as emails, instant messengers and online meetings leads to the degradation of real-world social skills due to a lack of practice, such as expression and comprehension skills like body language, facial expressions and voice intonation. On the other hand, the frequent use of digital communication tools weakens people's

motivation to engage in social activities and build interpersonal relationships. Due to the lack of experience and self-confidence in real-world social interaction, people develop social anxiety and avoid real-world interactions due to the fear of not being able to communicate effectively with others, thus creating a vicious circle.

For example, architects among the interviewees felt that online collaborative working practices had increased their "Social Phobia". "As tech guys, we are not good at socializing. Now that designing is done on computers with each person working on their own part, we communicate even less. If something can be discussed over the phone, we are reluctant to talk face to face." (YXY, male, 38 years old). Similarly, in the multiple choice question of the questionnaire, "What trouble does the digital working environment bring to you?", more than 200 people chose the option of "Becoming uncomfortable when communicating with people face-to-face", which shows that the digital way of working has weakened people's social skills to a certain extent, and increased the number of people working in the workplace. This shows that digital workplaces do weaken people's social skills to a certain extent, making it more difficult to build and maintain relationships in the real world.

Besides, dramaturgical theory suggests that in the "front stage", the performer takes his own role position, others' evaluations and many other factors into account, tending to display the perfect side of himself through the technique of impression management [17]. The digital work environment provides a platform for individuals to perform in the "front stage", but this kind of self-presentation often conceals elements that are not genuine, resulting in interpersonal interactions that fail to present the real individual and are cut off from real-world interactions. For example, an employee working in a financial institution said, "It's quite embarrassing when you are obviously chatting intimately with some of your colleagues on *Wechat*, but when you meet them at work, you have a sense of detached strangeness" (ZQW, female, 23 years old). People exhibit their desired social status in digital environments, but once they are out of cyberspace, they are overwhelmed in the real world, which manifests itself as social barriers. In other words, the emotional expression in online communication is not real, and the reliance on digital technology makes it difficult for people to establish and maintain deep interpersonal relationships in the real world.

### 3.2.3 Exacerbation of Technological Pressures and Power Hierarchies

Social exchange theory suggests that interpersonal interactions are essentially a process of exchange based on trade-offs of interests, and that power relations influence such exchanges and make interpersonal relationships more complex. The digital way of working reinforces unequal power relations in the workplace through the path of technological pressures, which in turn negatively affects interpersonal relationships in the workplace [18].

First of all, for ordinary employees, while the digital work environment enhances work flexibility, it also leads to the blurring of work-life boundaries. Employees need to be on call at all times to deal with all kinds of e-mails, notifications and messages, and the sudden increase in work pressure may cause them to feel tired and anxious, which may lead to discontent with their colleagues or superiors. One interviewee, a self-deprecating labourer, complained, "As soon as the nail rings, I know another job is coming, it could be meal time, it could be lunch break, the leader doesn't care about that" (WZZ, male, 25 years old). As for management, digital tools allow them to give orders and deploy work at any time, and they can closely track the progress and activities of their employees, whose power is invariably reinforced. As a result, digital work environments increase the potential stress of employees, and invisible regulation and control exacerbate the inequality of power relations.

Meanwhile, in the digital environment, technological mastery has become a new source of power. According to the questionnaire survey, 90.3 per cent of people agreed that "the more you know about digital technology, the more advantageous you are in workplace relationships". For example, a middle-aged worker spoke of the current situation at work with some frustration: "It's all run by young people who can operate [electronic equipment], and I haven't heard of many of the terms they use, so I really can't fit in" (GQS, male, 52 years old). Those who are digitally proficient and able to use digital tools effectively have access to more power and resources, while those who are not comfortable with digital ways of working risk being marginalised. The digital divide that exists in

new ways of working is one of the most important causes of interpersonal relationships in the workplace.

In the workplace, the use of digital media, such as *Wechat*, has also exacerbated hierarchical power relations, with subordinates needing to constantly obey their superiors in a passive manner and engage in more emotional labour [18]. For example, one grassroots employee mentioned that every time a notification is sent from the top, everyone immediately replies "Got it"; for fear of leaving a bad impression, everyone responds to messages sent by the leader "as soon as they are called". Furthermore, with digital transformation, the power and responsibility of work roles have been redefined. Management controls the channels of information flow, decides which information can be shared and which communication tools can be used, and is more likely to access and process information than ordinary employees, which ultimately translates into power and exacerbates the inequality of workplace relationships. Digital communication, on the other hand, tends to be more unidirectional, with grassroots employees receiving more information and instructions from management and having less opportunity to raise objections or participate in discussions. For example, 64.5 per cent of participants chose "instructions from superiors" for the question "What type of messages are most frequent in work-related group chats" in the questionnaire. In sum, the technological pressures of the digital work environment exacerbate power inequalities in various forms, affecting interpersonal relationships and social interactions in the workplace.

#### 3.2.4 Increased Competitiveness in Workplace

Digital tools and platforms can record employees' performance and progress, allowing for greater transparency and visibility of work outcomes and efficiency. Whether through publicizing work progress, publishing performance reports or showcasing results on social media, the digital environment makes it easier for employees to compare their performance with that of their colleagues. For example, the digital performance evaluation system emphasizes quantitative indicators such as sales and project completion rates, "whether you are doing well or not is visible at the end of the performance a ranking, the pressure is still quite high, everyone is caught in the rat race" (ZY, female, 33 years old). Employees are overly concerned about these indicators, which can easily lead to vicious competition in the workplace and make interpersonal relationships tense.

On top of that, as AI employees have begun to play a role in the workplace, gradually replacing the work of some human employees, the ecology in the digital work environment has changed. For example, in the field of customer service, robot customer service has been able to achieve interactive dialogue with customers and provide basic advice and services [19]. The rise of technologies such as cloud computing, automation and AI has given rise to emerging positions such as supply chain data analysts and logistics information engineers, while at the same time replacing some of them. Such changes have enhanced uncertainty in the job market, and employees need to continuously upgrade their skills and knowledge to adapt to the new workplace ecosystem, which will undoubtedly lead to increased competition in the workplace. Regarding the career anxiety brought about by technological change, an employee of an Internet company knows it well, "The company now has a tendency to lay off employees because of the advanced technology. There is no need for such a big amount of workers, so the competition is getting more and more intense" (LLF, male, 29 years old). As individuals' sense of job security is decreasing, people may show sharper aggression in order to maintain their technological advantages to strengthen their career competitiveness, which is not conducive to the formation of harmonious workplace relationships.

## 4. Conclusions and Recommendations

With the digital transformation of society, there is an urgent need to improve interpersonal interactions in digital work environments. The digital evolution of the work environment, while enhancing interpersonal connections and team cohesion, facilitating the coordination of division of labour, and expanding interpersonal networks, also brings challenges such as interpersonal alienation and lack of trust, real-world social barriers, power hierarchies, and intensified competitive

relationships in the workplace. This will not only weaken the individual's sense of belonging, happiness and job satisfaction, but also hinder the overall coordination and progress of the organization, which will hinder the sustainable and healthy development of the economy and society. In the author's view, strategies to cope with the challenges of the digital environment on workplace interpersonal relationships can be explored at both the organizational and individual levels.

#### **4.1. Organizational Level**

First of all, organize offline meetings and social activities to promote direct interaction among colleagues regularly, enhance intimacy and trust among members through face-to-face communication, cultivate a spirit of mutual assistance and a sense of cooperation, as well as establish a positive workplace culture. Integrating the real world with the digital world, organizations can also adopt a hybrid work model that combines remote work and face-to-face work methods to meet individualized work needs while ensuring that employees interact effectively in the real world.

Secondly, in order to avoid possible misunderstandings and conflicts in the communication process, organizations should provide employees with digital communication and social skills training (e.g. instant messaging communication, email writing, online meeting skills, etc.), and encourage employees to use visual elements such as emoticons and pictures to convey emotions and make up for the lack of non-verbal elements, helping employees communicate more effectively in the digital environment.

Thirdly, facing the intensification of power hierarchy relations in the digital environment, organizations should ensure that all employees have equal opportunities to participate in team activities and decision-making, strengthen skills training for employees unfamiliar with digital technology to avoid workplace inequality triggered by the digital divide; and ensure a transparent flow of information between management and employees to avoid information mismatch and abuse of power. An information feedback mechanism should also be established to regularly collect employee feedback on the work environment and take action to improve it. Encourage different voices and perspectives in order to build an equal and inclusive workplace culture.

Fourthly, optimize the use of digital tools by selecting reasonable digital tools, regularly evaluate and adjust to ensure that they serve the well-being of employees and teamwork, and avoid excessive monitoring. Set clear boundaries on working hours to reduce management interference in employees' private lives through digital work methods. Promote flexible work arrangements to give employees more autonomy and flexibility.

Additionally, organizational managers need to support the continuous learning and growth of their employees by providing them with learning resources and opportunities, helping them to upgrade their skills in order to adapt to changes in the workplace, and reducing unhealthy competition and "involution".

#### **4.2. Individual Level**

Firstly, individuals should enhance their social skills and make use of online and offline opportunities to participate actively in social activities, improve their ability to communicate and build connections with people, broadening their networks. Learn to listen, develop empathy and improve the ability to establish deep connections with people, in particular, learn how to use and recognize non-verbal symbols to improve comprehension in different communication environments.

Secondly, employees should focus on improving digital literacy, learning and mastering the use of digital tools, such as the skilful use of email, instant messaging, online meeting software, etc.. When communicating digitally, we should practise clear, concise and courteous expressions, and learn how to use emoticons and pictures effectively to convey emotions and increase the warmth of communication. However, it is also important to avoid over-reliance on digital tools and to maintain real-world interpersonal interactions; to conduct regular digital "detoxes" and to reduce the use of social media and instant messaging tools as appropriate.

Thirdly, maintain work-life boundaries and avoid work encroaching on personal and family time. Learn to say "no" to unreasonable work arrangements and manage your workload and expectations. Learn stress management and psychological adjustment skills, communicate more with colleagues and maintain a good psychological state.

Last but not least, continuous learning and self-improvement is vital. One should regularly update his skills and knowledge, adapting to the needs of digital era to maintain professional competitiveness. What's more, improve adaptability and maintain an open attitude towards technological change and competition in the workplace.

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