Identity Change through Affordance Actualization: Evidence from Healthcare Workers

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Abstract

As more and more digital technologies are used in healthcare organizations, the way healthcare workers work and doctor-patient communication are changing. These changes will lead to identity change of healthcare workers. Some scholars try to understand technological changes in terms of the affordance theory. However, there are few relevant studies that incorporate specific application scenarios. In this paper, we explore the specific performance of the digital technology affordance and the impact on healthcare workers' identity in China. We conducted in-depth interviews with 14 healthcare workers and used grounded theory to summarize three kinds of digital technology affordance, namely functional affordance, process affordance and performance affordance. The findings suggest that on the one hand, digital technology affordance increase the efficiency of healthcare workers and enhance collaboration among colleagues, thus reinforcing the healthcare workers' identity. On the other hand, over-reliance on digital technology may also lead to unnecessary hassles that worsen healthcare workers' identity. Our study enriches the affordance theory and identity theory, and has constructive implications for the quality of healthcare services in a digital context.

Keywords: digital technology affordance, identity theory, grounded theory, healthcare workers

1. Introduction

Have you ever considered this question, what impact will digital technology have on healthcare workers? With the continuous improvement of digital technologies such as 5G network and artificial intelligence, medical digitization has become an irresistible trend. In the face of the sudden epidemic, digital medical services have played an important role in providing convenient, flexible, timely and efficient services. Digital technology is designed to make it possible for organizations to change, and healthcare organizations are no exception. However, how digital technology is integrated into the organization to play a role in the process has not been well understood. Until the process of change associated with digital technology is better understood, it is uncertain how desired outcomes (e.g., the better quality of care, greater efficiency/productivity, reduced costs, and greater patient and provider satisfaction) can be achieved from these changes. Only by understanding the integration process of digital technology can we find the shortcomings and further improve the quality of medical service to achieve the desired goals. The affordance theory provides a theoretical perspective for this. The literature has studied the organizational change process related to implementing electronic health records (EHR) in healthcare organizations with the help of the affordance theory, in order to better achieve the desired goals of investment in EHR (Strong, D. M., et al, 2014). Most relevant studies are focused on the organizational level. We believe that many direct users of digital applications in medical organizations are healthcare workers. Therefore, this study explores the impact of digital technology on the work practice of healthcare workers from their perspective.

Due to the specific nature of their work, healthcare workers are charged with the responsibility of saving lives and have a high status in society. Because of their professionalism, they enjoy great autonomy over their work. As the application of digital technology in the medical field evolves, it remains to be explored how the identities of healthcare workers will change. It is these

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identities and their evolution that we believe are critical to understanding healthcare workers' decision-making and behaviors in the healthcare industry (Real, K., et al., 2009).

In this paper, we have combined identity theory and affordance theory to conceptualize the healthcare workers identity reinforcement and deterioration in order to examine the impact of digital technology affordance. To develop our theory, we first conducted a longitudinal study of digital technology practices in different departments in multiple hospitals. Using the grounded theory approach, we interviewed 14 healthcare workers in hospitals across China, with each interviewee lasting 0.5-1 hour to ensure the depth and completeness of the data. We asked them about their use of digital technology and how it supports their work, and what impact it has on care provider identity and professional identity. We use an interview approach to obtain data that allows us to gain insights into the actual using experience of digital technology from direct users.

The rest of this paper is organized as follows. Firstly, a brief overview of the relevant research on the affordance theory in IS literature, followed by a review of the identity theory used in IS research. In the next section, the research methods and results will be introduced. Subsequently, the results are discussed. Finally, the conclusions and limitations are described. While enhancing the identity of healthcare workers, digital technology also threatens the identity of healthcare workers to some extent.

2. Theoretical Background

2.1. Affordance theory

The concept of affordances was first put forward by Gibson (1986), an ecological psychologist, when he studied animals' perception of the surrounding environment. According to Gibson's original definition, affordances are what are offered, provided, or provided to someone or something by an object (Gibson, 1986). In recent years, scholars in the field of IS have introduced affordances to study the use and consequences of IT artifacts (Pozzi et al., 2014). The IS literature defines affordances as "the potential for behaviors related to the realization of immediate concrete outcomes and derived from objects (e.g., IT artifacts) and goal-oriented actors or relationships between actors (Volkoff and Strong, 2013)." IS researchers use affordances to study m-health from an individual perspective (Abouzahra and Ghasemaghaei, 2021; Benbunan - Fich, 2019; James et al., 2019), service innovation (Lehrer et al., 2018), knowledge sharing and innovation Performance (Sun et al., 2020), online learning (Jin, 2018), corporate social media and knowledge sharing (Majchrzak et al., 2013) at the organizational level.

As a cutting-edge technology research topic in IS field, digital technology affordance provides theoretical support for understanding the transformation process of digital technology. Digital technology affordance research believes that the difference in the use effect of digital technology lies in the actors' grasp of the possibilities provided by digital technology, as well as the process of opportunity discovery and exploration based on this. Therefore, digital technology affordance is a new theoretical perspective based on the relationship between digital technology and actors, with the core of revealing the formation process of digital technology change.

As a subdivision concept of technology affordance, digital technology affordance provides theoretical support for understanding the process of digital technology transformation. Digital technology affordance research believes that the difference in the using effect of digital technology lies in the actors' grasp of the possibilities provided by digital technology, as well as the process of opportunity discovery and exploration based on this. Therefore, digital affordance is a new theoretical perspective based on the relationship between digital technology and actors, with the core of revealing the formation process of digital technology change. In recent years, IS researchers have made significant progress in understanding digital technology affordance, including the distinction between the existence, perception, actualization and effect of affordance (Bernhard et al., 2013; Leidner et al., 2018), and distinguishes the way of affordance perception as vicarious and autonomous (Lehrig, T., et al., 2019). And some scholars have used the affordance theory to study the use of wearable devices (Abouzahra and Ghasemaghaei, 2021; Benbunan-fich, 2019). This paper flashes out the concept of the existence, perception and actualization of digital technology affordance based on the usage scenario of medical digital technology, and the impact of digital technology affordance actualization on the identity of healthcare workers is discussed.

2.2. Identity theory

There are many definitions of identity. Mishra et al (2012) concludes the identity as a cognitive construct of the self. Scholars' discussion on identity is mostly divided into two aspects: role identity and social identity (Hogg et al. 1995, Stets and Burke 2000). Role identity refers to "the specific role that people perform, differentiating that particular role from others, and providing meaning to the self" (Mishra, A. N., et al., 2012). Social identity is conceptualized as "What defines us?", treating individuals as members of a

collective and explaining the actions and behaviors of such a collective (Tajfel and Turner 1979). Research on doctors' identity has focused on professional identity as social identity. Professional identity is defined as "the self-definition of an individual as a member of an occupation and associated with the formulation of occupational roles" (Chreim, Williams & Hinings, 2007). It is based on a focus on professional autonomy and a commitment to professional values (Barbour & Lammers, 2015). These two factors are particularly important in the context of healthcare workers. In addition to professional identity, some scholars also defined the role identity of physicians as care providers and explored the impact of EHR on the physicians' identity (Mishra, A. N., et al., 2012). As care providers, the most important and significant players in medical practice, physicians see themselves as coordinators of care delivery and see others (such as nurses, pharmacists and technicians) as assistants who follow instructions (Mishra, A. N., et al, 2012). Based on the existing literature, we defined the identity of health care workers in terms of professional identity and care provider identity. In this study, the professional identity of healthcare workers refers to the adherence to ethics and norms, collaboration between colleagues and within the industry. The care provider identity of healthcare worker refers to the job of providing medical services to patients.

With the use of digital technology in healthcare organizations, the working environment of healthcare workers has changed. Studies have shown that technological change can enhance or threaten the identity of healthcare workers (Boonstra et al, 2022). Identities are not static and can be adjusted as circumstances change. Technology affordance emphasize the co-evolution between technology and users (Stendal et al, 2016), providing a theoretical perspective for understanding identity change caused by technological change.

This study considers drawing on and extending the concepts of identity enhancement and deterioration from the perspective of healthcare workers' identity, which has been under-researched in the extant literature, despite a significant amount of theoretical research in the field of identity. Furthermore, while identity theory has been widely applied in a variety of settings, including the healthcare industry (Brewer and Gardner 1996; Dukerich et al. 2002; Johnson et al. 2006; Pratt and Foreman 2000), its application in studying phenomena related to healthcare digital technologies has been limited. In this study, based on the identity theory, we conceptualize healthcare worker identity reinforcement and deterioration to investigate the effects of digital technology affordance actualization.

3. Methods

3.1. Grounded theory

This study adopts the qualitative research method of grounded theory, which is a data-driven inductive analysis based on theory and empirical observations (Lofland, Snow, Anderson, & Lofland, 2006). This study is interwoven with existing theoretical work to identify research priorities and questions and to 'refine' prior theoretical work and fill existing gaps (Lofland et al., 2006). In the tradition of triangulation-validated rooted theory (Corbin & Strauss, 2008), our research was based on primary and secondary data sources. One primary data source consisted of in-depth interviews. We also collected research reports and government policy documents related to digital healthcare in China. Triangulation of these research data and methods allowed for strong confirmation of constructs and relationships (Ligthart, Oerlemans, & Noorderhaven, 2016).

Inspired by the Gioia methodology (Gioia, Corley, & Hamilton, 2013; Gioia, Price, Hamilton, & Thomas, 2010), in the process of data analysis, this paper uses the concrete steps of grounded theory for reference to carry out step by step coding. The first step is open coding. In this stage, two researchers encode the collected data respectively, using concepts either directly extracted from interview data or summarized by combining existing concepts. Consider all potential theoretical possibilities and filter primary coding around the content of the affordance and identity theory. Then we discussed with the third researcher and decided on the first level of coding, and got topics such as "digital infrastructure", "database", and "internal private network". Next is the axial coding. The two researchers classify the first-level coding according to the general characteristics, transform the practical language into the theoretical language, and provide model modules. For example, the "identity reinforcement" and "identity deterioration" in the first-level coding jointly illustrate the "identity change", and finally conclude four categories. The last step is selective coding. Team members worked together to conduct the selective coding, sorting out the relationships between the resulting concepts.

3.2. Data collection

The research scenario of this paper is the hospital, to explore the impact of digital technology affordance on healthcare workers. In this paper, relatives and friends working in hospitals were interviewed, and interviewees were recommended by friends and teachers. These healthcare workers interviewed come from

different hospitals across the country, so the digital technology in practice is different, which helps to have a comprehensive understanding of the digital technology in the hospital. The interviewees are also in different ages, and their feelings of use vary from person to person, which is helpful to have a comprehensive understanding of the feelings of healthcare workers in different ages. In this study, 6 relatively young healthcare workers were interviewed in early April 2022. After summarizing the interview data, the interview was further improved. A second set of interviews was conducted in mid-late April and early May with seven older healthcare workers. The 14th health worker was interviewed in June, no new concepts had emerged and saturation had been tested. The basic information of the 14 interviewees is shown in Table 1.

Table 1. Basic information of interviewees.

NO.	Gender	Age	Position	Using years	Department	Digital systems	Date	Platform
1	Female	25	Dentist	5	Dentistry	Outpatient system and clinical publishing system	2022.4.2	WeChat
2	Male	31	Intermediate pharmacist in charge	5	Pharmacy Department Dispensing Section	HIS, pharmacy integrated management system, intelligent medicine cabinet system, electronic medical record system, adverse event system, clinical laboratory management system, outpatient prescription review system Real One	2022.4.3	WeChat
3	Male	26	Resident doctor	1	Oncology	Inpatient Management System, Dingxiangyuan, Oncologist, Medication Assistant App	2022.4.6	Phone
4	Male	24	Assistant intern	1	Radiology Imaging Department	PACS Image Archiving and Communication System, IIH System, Itu, NIKON	2022.4.6	WeChat
5	Female	23	Pharmacist	2	Pharmacy Department	Jindie integrated medical management system, PASS rational drug use monitoring system	2022.4.6	WeChat
6	Male	23	Resident doctor	1	Pediatrics	HIS、OA system	2022.4.7	WeChat
7	Male	36	Network Engineer	11	Information Management Center	Electronic medical record system, HIS, resident workstation, PACS, rational drug use system, clinical assistant decision system, case internal quality control system	2022.4.19	Tencent meeting
8	Female	39	Associate chief physician	17	Department of Medical Psychology	Computerized diagnostic systems, screening systems, auxiliary diagnostic systems, PACS	2022.4.25	Tencent meeting
9	Female	52	Attending physician	30	The emergency department	Outpatient physician workstations	2022.4.27	Tencent meeting
10	Female	30	Nurse Supervisor	8	Endoscopy Room	Gastroscopy System	2022.4.29	Tencent meeting
11	Male	44	Associate chief physician	20	Minimally Invasive Foot and Ankle Surgery	HIS，Minix	2022.4.30	Tencent meeting
12	Female	30	Dentist	4	Periodontology	Medical record system, imaging system	2022.5.1	Tencent meeting
13	Male	42	Chief Physician	17	Thoracic Surgery	Medical record system, inpatient workstation, surgery confirmation system, scheduled surgery system, automatic follow-up system	2022.5.13	Tencent meeting
14	Male	43	Chief Physician	11	Vascular Surgery	ICD coding system	2022.6.11	Tencent meeting

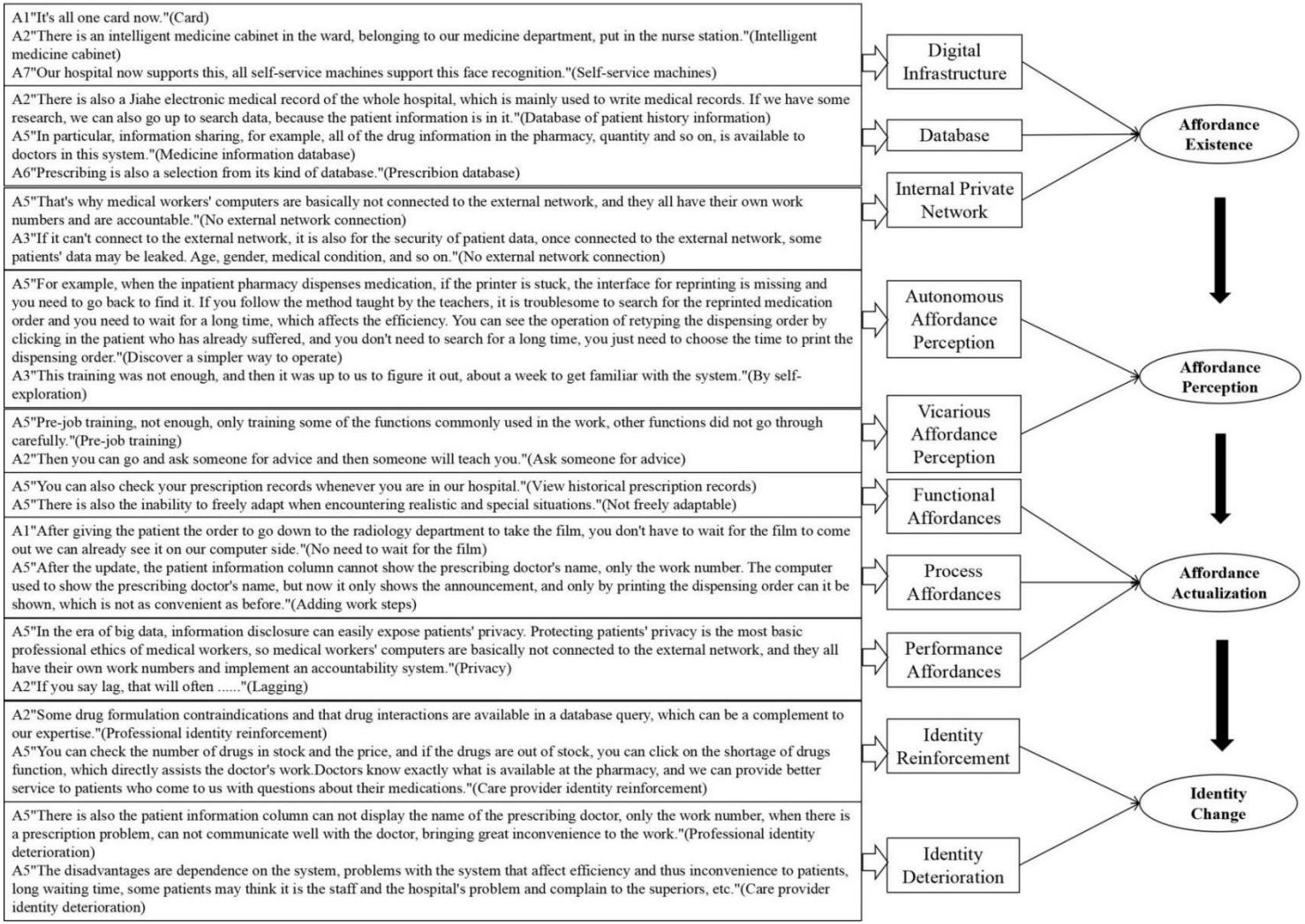

Figure 1. The impact of digital technology affordance on healthcare workers coding process.

Before the interview, the interviewees were informed that the interview would be recorded, but only for academic papers and excluding personal information. Then the interview would be conducted after the interviewees agreed. Throughout the interview process, the interview was closely focused on the impact of digital technology affordance on healthcare workers, and questions were asked according to the interview outline prepared in advance, and additional questions were asked according to the actual situation.

3.3. Data analysis

After the interview, the recording was transferred to word processing and word-for-word sorting. Then the word for word draft is coded step by step according to the grounded theory and the conclusion is drawn. The encoding process is shown in Figure 1.

4. Results

Through the three-layer coding process, we summarized the specific performance of digital technology affordance in the medical scene (see Figure 2).

In healthcare organizations, we use digital infrastructure, databases, and internal private networks to illustrate the basis of digital technology affordance. The perception of digital technology affordance can be divided into vicarious and autonomous from the way of perception. In the process of the actualization of digital technology affordance, there are three forms of affordance, which are functional affordance, process affordance and performance affordance. Finally, we found that there are two aspects of the impact of digital technology on healthcare workers' identity change: reinforcement and deterioration.

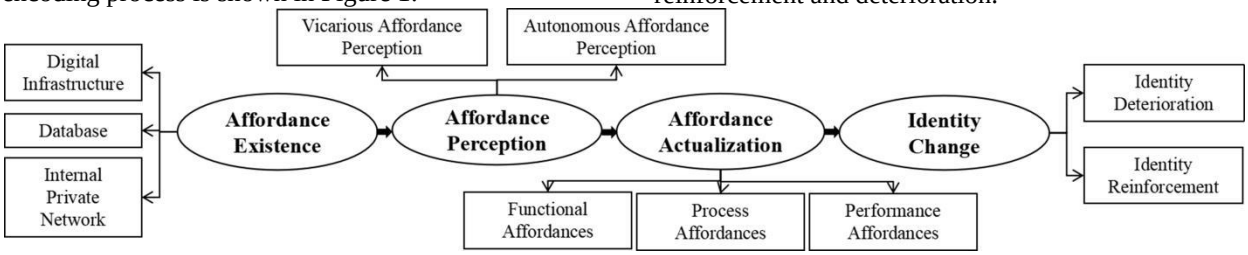

Figure 2. Identity change through affordance actualization.

4.1. Affordance existence

The characteristics of digital technology provide the basis for the existence of digital technology affordance. These features include digital infrastructure, database, and internal private network.

Digital infrastructure and digital systems combine to facilitate healthcare workers.

A7"Our hospital now supports this. All self-service machines support this face recognition."

Databases can store more information than humans can remember, making it easy to look up.

A5"In particular, information sharing, for example, all of the drug information in the pharmacy, quantity and so on, is available to doctors in this system."

The internal private network is based on the hospital this special industry background, providing the possibility to protect the patients' privacy.

A8"Our computer is not connected with the external network, firstly not connected with the Internet, secondly hospital network is not connected. It is a special set of confidentiality system. Previously we used paper medical records, now our electronic medical records are also specially encrypted."

4.2. Affordance perception

Healthcare workers' perception of the digital technology affordance can be divided into vicarious and autonomous.

The autonomous affordance perception is mainly manifested as self - exploration.

A5"For example, when the inpatient pharmacy dispenses medication, if the printer is stuck, the interface for reprinting is missing and you need to go back to find it. If you follow the method taught by the teachers, it is troublesome to search for the reprinted medication order and you need to wait for a long time, which affects the efficiency. You can see the operation of retyping the dispensing order by clicking in the patient who has already suffered, and you don't need to search for a long time, you just need to choose the time to print the dispensing order."

The vicarious affordance perception is mainly manifested in receiving training and seeking advice from others.

A3"The training is that the physician will teach us. Probably teach us a little bit, probably spend a couple of hours on the first day."

4.3. Affordance actualization

During the interviews, we found three kinds of digital technology affordance: functional affordance, process affordance and performance affordance.

Wyche et al (2019) described functional affordance as design feature that helps users accomplish work (i.e., the usefulness of a system function). Therefore we define functional affordance as digital technology provides certain functions to help healthcare workers do their jobs. For example, doctors can see patients' indicators more directly in the system.

A8"In the past, you couldn't see or get the nursing data, and the lab data didn't come out so quickly. This is very good, including our psychological data, we can see what interventions are used, which indicators immediately go wrong and make changes, which is actually very clear, so it is very intuitive to give doctors various data."

Process affordance are that digital technology influences the work flow of medical workers or the medical procedures of patients. For example, the process of taking medicine for nurses is simplified because of the smart medicine cabinet.

A2"The nurse's temporary, emergency or commonly used medication can be picked up at the nurse's station without having to come down and pick it up."

Performance affordance are how successful digital technologies are or how well they do something in supporting the healthcare workers. In particular, performance affordance refers to how the fluency, stability, and privacy of digital technology can positively or negatively affect healthcare workers. And privacy refers to the confidentiality of the healthcare organization's internal network.

A5"Only the lagging situation, get the information section staff to fix it, or shut down the system and log back in." "Does it have a big impact on work? "Big, sometimes the system is very slow."

4.4. Identity change

Digital technology has both positive and negative impacts on healthcare workers.

Care provider identity reinforcement. Medicine and prescription databases can complement expertise. Patient cases can be selected for academic research. Accessibility to medicine purchase records, clear management of patient medical history and prescription reviews can reduce errors, all of which reinforcing the care provider identity.

A3 "We will select some typical cases for clinical discussion, or some papers for publication."

Professional identity reinforcement Reviewing prescriptions, reporting adverse reactions, keeping paper prescriptions and protecting patient privacy are all ethical considerations. Medicine inventory tips, clear course management, cross-department communication and some common medicine without nurses to go to the pharmacy are the embodiment of convenient collaboration among colleagues. After reporting adverse reactions, the departments concerned urged the drug factories to rectify the instructions, which promoted the progress of the whole industry. These are reinforcement of professional identities.

A6"Because we need to change departments often, or for example, for a bed may be the first month is under my management, but in my departure, the patient did not discharge, but I have to go, is that I will not continue to take charge of him. Then, he will move to my next doctor, and then through the system handover will be slightly more convenient."

Care provider identity deterioration. Copying historical prescriptions makes doctors too dependent on digital technology. When patients go to the pharmacy to take medicine, they find that some drugs are temporarily unavailable, which will bring unnecessary trouble to patients and lead to the decline of service quality. Excessive transparency of expense records can also cause patients' doubts and increase conflicts between doctors and patients. These are deterioration to the care provider identity.

A5"The disadvantage is the dependence on the system, if there is a problem with the system, it will affect the efficiency of work and cause inconvenience to patients."

Professional identity deterioration. In some hospitals, the outpatient system cannot display the name of the prescribing doctor, but only the work number. If the pharmacist has problems when reviewing the prescription, he cannot quickly find the doctor to communicate with him, which is not conducive to the cooperation between the doctor and the pharmacist. Others dispense with paper prescriptions in a selfish attempt to get patients to get their medicine in their hospital.

A5"There is also the fact that the patient information column cannot display the name of the prescribing doctor, only the work number, which makes it impossible to communicate well with the doctor when there is a prescription problem and causes great inconvenience to the work." (Impeding inter-departmental communication)

5. Discussion

Most of the studies on technology affordance in the IS field focus on the theoretical framework (Wang et al.,

2018), and our study validates this theoretical framework in the context of medical organization digitalization. The existence of affordance provides the basis for technology enabling and limiting. Our study also validates the two ways of perception of affordance summarized by Lehrig, T., et al. (2019). Different from previous studies, we found three forms of digital technology affordance in the actualization process of affordance. In addition, our study takes the identity change as the main manifestation of the effect of digital technology affordance. For the first time, we combine affordance theory and identity theory to explore the impact of digital technological change on the identity of healthcare workers.

This paper uses grounded theory to analyze the impact, particularly negative, on health worker identity through the actualization of digital technology affordance, digs deeply into the how digital technology affordance are changing the identity of healthcare workers. On the one hand, it was found that technology can facilitate healthcare workers' academic research, enrich professional knowledge, improve efficiency, and enhance the identity of healthcare workers. This is consistent with previous research findings (Boonstra et al, 2022). On the other hand, over-reliance on technology threatens the identity of healthcare workers which have not been addressed by previous studies. In addition, in Chinese medical organizations, older doctors often have student assistants to help write electronic medical records and other documents that digital technology systems need to fill out. So digital technology has little impact on their work. And young health workers are resilient to new digital technologies. Therefore, digital technology has more positive impact on healthcare workers. But everything has two sides, digital technology is more and more convenient in people's life and work, we should be alert to the dark side of digital technology. In a hospital context where people's lives are at stake, healthcare workers need to maintain a keen sense, not rely too much on digital technology, and maintain their autonomy. Although from the overall situation of our interviews, the advantages of digital technology outweigh the disadvantages. Some inconveniences will only lead to some low-level mistakes. And these problems will be gradually overcome with the development of digital technology. But in the process of technological change, old problems are solved and new problems may arise. We need to keep a progressive perspective on the impact of digital technology on healthcare workers, because it directly affects the quality of healthcare.

After using affordance theory and identity theory, we can see the consistence between healthcare real experiences and affordance theory and we summarize three kinds of digital technology affordance based on our interview data: function affordance, process affordance and performance affordance.

The theoretical contribution is an enrichment of affordance theory and identity theory in the field of healthcare workers. Our study extends the affordance theory and identity theory by summarizing specific technology affordance and its impact on the identity of healthcare workers. Most existing studies focus on technological change from the organizational level (Autio, E., et al., 2018; Chatterjee, S., et al., 2020), this study focuses on the impact of technological change on the identity of healthcare workers at an individual level. In addition to its contributions to research and concrete examples of affordance actualization, our specific micro theory provides a template for other micro theories of digital-related organizational change. More generally, the template provides researchers with the guidance of the affordance actualization lens for empirical research. We believe that this perspective provides valuable insights into digital technology-related organizational change processes at the individual level and provides a basis for research to better develop theories to explain such change processes.

The practical contribution of this research includes that we show affordance theory can serve as a useful perspective for studying the possibilities of how individuals can implement digital technologies as envisioned by designers and developers, providing recommendations for improving the quality of health care in real situations.

6. Conclusions

As our study found, digital technology has indeed brought benefits to healthcare workers, including increased productivity, improved quality of healthcare, reinforced care provider and professional identity. But at the same time, there are some downsides, such as over-reliance on digital technology, poor communication between colleagues and conflicts with patients, which threaten care provider and professional identities. On the whole, digital technology brings more advantages than disadvantages. Our study focuses on the negative effects of digital technology from the perspective of healthcare workers, hoping to bring some references to the digital practice of hospitals.

This study also has certain limitations at present. Firstly, the interviewees for the primary data were only 14, which is hardly representative of the industry as a whole. The degree of digital technology development also varies from hospital to hospital, as do the problems. Secondly, although we also collected some digital health research reports and government policy documents for reference, it is difficult to avoid the influence of subjective factors in the process of data coding, so the

conclusion may be biased. Finally, the qualitative research method used in this paper suffers from the problem of not having a large enough amount of objective data. In the next step of the study, a combination of quantitative and qualitative methods can be used to verify the conclusions.

7. References

Abouzahra, M., & Ghasemaghaei, M. (2022). Effective use of information technologies by seniors: the case of wearable device use. European Journal of Information Systems, 31(2), 241-255.

Autio, E., Nambisan, S., Thomas, L. D., & Wright, M. (2018). Digital technology affordance, spatial affordance, and the genesis of entrepreneurial ecosystems. Strategic Entrepreneurship Journal, 12(1), 72-95.

Barbour, J. B., & Lammers, J. C. (2015). Measuring professional identity: A review of the literature and a multilevel confirmatory factor analysis of professional identity constructs. Journal of professions and Organization, 2(1), 38-60.

Benbunan-Fich R. (2019) An affordance lens for wearable information systems. European Journal of Information Systems 28(3): 256–271.

Bernhard, E., Recker, J., & Burton-Jones, A. (2013). Understanding the actualization of affordance: A study in the process modeling context. In Proceedings of the 34th International Conference on Information Systems (ICIS 2013) (pp. 1-11). Association for Information Systems (AIS).

Brewer, M. B., & Gardner, W. (1996). Who is this" We"? Levels of collective identity and self representations. Journal of personality and social psychology, 71(1), 83.

Boonstra, A., Vos, J., & Rosenberg, L. (2022). The effect of Electronic Health Records on the medical professional identity of physicians: a systematic literature review. Procedia Computer Science, 196, 272-279.

Chatterjee, S., Moody, G., Lowry, P. B., Chakraborty, S., & Hardin, A. (2020). Information Technology and organizational innovation: Harmonious information technology affordance and courage-based actualization. The Journal of Strategic Information Systems, 29(1), 101596.

Chreim, S., Williams, B. E., & Hinings, C. R. (2007). Interlevel influences on the reconstruction of professional role identity. Academy of management Journal, 50(6), 1515-1539.

Corbin, J. M. & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory.* Los Angeles: Los Angeles: SAGE Publications Inc.

Dukerich, J. M., Golden, B. R., & Shortell, S. M. (2002). Beauty is in the eye of the beholder: The impact of organizational identification, identity, and image on the cooperative behaviors of physicians. Administrative Science Quarterly, 47(3), 507-533.

Eisenberg, E. M., & Witten, M. G. (1987). Reconsidering openness in organizational communication. Academy of Management Review, 12(3), 418-426.

Faraj, S., Jarvenpaa, S. L., & Majchrzak, A. (2011). Knowledge collaboration in online communities. Organization science, 22(5), 1224-1239.

Gibson, J. J. (1986). *The ecological approach to visual perception.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Gioia, D. A., Price, K. N., Hamilton, A. L., & Thomas, J. B. (2010). Forging an identity: An insider-outsider study of processes involved in the formation of organizational identity. Administrative science quarterly, 55(1), 1-46.

Hogg, M. A., Terry, D. J., & White, K. M. (1995). A tale of two theories: A critical comparison of identity theory with social identity theory. Social psychology quarterly, 255-269.

James T. L., Deane J. K. and Wallace L. (2019) An application of goal content theory to examine how desired exercise outcomes impact fitness technology feature set selection. Information Systems Journal 29(5): 1010–1039.

Jin, L. (2018). Digital technology affordance on WeChat: Learning Chinese as a second language. Computer Assisted Language Learning, 31(1-2), 27-52.

Johnson, M. D., Morgeson, F. P., Ilgen, D. R., Meyer, C. J., & Lloyd, J. W. (2006). Multiple professional identities: examining differences in identification across work-related targets. Journal of Applied Psychology, 91(2), 498.

Lehrer, C., Wieneke, A., Vom Brocke, J. A. N., Jung, R., & Seidel, S. (2018). How big data analytics enables service innovation: materiality, affordance, and the individualization of service. Journal of Management Information Systems, 35(2), 424-460.

Lehrig, T., Krancher, O., & Dibbern, J. (2019). *Affordance Perceptions under Malleable Information Technology: A Social Cognitive Theory Perspective.*

Leidner, D. E., Gonzalez, E., & Koch, H. (2020). An affordance perspective of enterprise social media and organizational socialization. In Strategic Information Management (pp. 364-402). Routledge.

Ligthart, R., Oerlemans, L., & Noorderhaven, N. (2016). In the shadows of time: A case study of flexibility behaviors in an interorganizational project. Organization Studies, 37(12), 1721-1743.

Lofland, J., Snow, D., Anderson, L., & Lofland, L. H. (2006). *Analyzing social settings: A guide to qualitative observation and analysis* (4th ed.). Belmont: Wadsworth.

Majchrzak, A., Faraj, S., Kane, G. C., & Azad, B. (2013). The contradictory influence of social media affordance on online communal knowledge sharing. Journal of Computer-Mediated Communication, 19(1), 38-55.

Mishra, A. N., Anderson, C., Angst, C. M., & Agarwal, R. (2012). Electronic health records assimilation and physician identity evolution: An identity theory perspective. Information Systems Research, 23(3-part-1), 738-760.

Norman, D. A. (1988). *The psychology of everyday things.* Basic books.

Olson, G. M., & Olson, J. S. (2000). Distance matters. Human–computer interaction, 15(2-3), 139-178.

Pozzi, G., Pigni, F., & Vitari, C. (2014). *Affordance theory in the IS discipline: A review and synthesis of the literature.* In AMCIS 2014 Proceedings.

Pratt, M. G., & Foreman, P. O. (2000). Classifying managerial responses to multiple organizational identities. Academy of Management Review, 25(1), 18-42.

Real, K., Bramson, R., & Poole, M. S. (2009). The symbolic and material nature of physician identity: Implications for physician–patient communication. Health communication, 24(7), 575-587.

Stendal, K., Thapa, D., & Lanamäki, A. (2016, January). Analyzing the concept of affordance in information systems. In 2016 49th Hawaii international conference on system sciences (HICSS) (pp. 5270-5277). IEEE.

Stets, J. E., & Burke, P. J. (2000). Identity theory and social identity theory. Social psychology quarterly, 224-237.

Strong, D. M., Volkoff, O., Johnson, S. A., Pelletier, L. R., Tulu, B., Bar-On, I., ... & Garber, L. (2014). A theory of organization-EHR affordance actualization. Journal of the association for information systems, 15(2), 2.

Sun, Y., Wang, C., & Jeyaraj, A. (2020). Enterprise social media affordance as enablers of knowledge transfer and creative performance: An empirical study. Telematics and Informatics, 51, 101402.

Tajfel, H., Turner, J. C., Austin, W. G., & Worchel, S. (1979). An integrative theory of intergroup conflict. Organizational identity: A reader, 56(65), 9780203505984-16.

Treem, J. W., & Leonardi, P. M. (2013). Social media use in organizations: Exploring the affordance of visibility, editability, persistence, and association. Annals of the International Communication Association, 36(1), 143-189.

Volkoff, O., & Strong, D. M. (2013). Critical realism and affordance: Theorizing IT-associated organizational change processes. MIS quarterly, 819-834.

Wang, H., Wang, J., & Tang, Q. (2018). A review of application of affordance theory in information systems. Journal of Service Science and Management, 11(01), 56.

Wyche, S., Simiyu, N., & Othieno, M. E. (2019). Understanding women's mobile phone use in rural Kenya: An affordance-based approach. Mobile Media & Communication, 7(1), 94-110.

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