The dynamic formation process and development path of teachers' digital resilience

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Abstract: In the post-epidemic era, teachers should have the ability to cope with major teaching shocks and form a new stable teaching state by using digital technology, that is, digital resilience. This paper will be based on Kompfer's resilience theory model to reveal the dynamic development process of teachers' digital resilience, and propose that teachers can develop digital resilience by deepening the independent construction of individual resilience traits and digital literacy, actively exploring and integrating supportive resources from the external environment, and flexibly adjusting and optimizing the strategic framework to cope with digital teaching challenges.

Key words: teacher digital resilience; resilience theory; psychological resilience; digital literacy

1 Introduction

With the deep integration of digital technologies such as artificial intelligence, big data, and blockchain with education, China has entered a critical period of digital transformation in education [1]. In response to the surging wave of digital transformation in the field of education, teachers are under pressure and challenges brought by digital education and teaching. Therefore, it is crucial to build and enhance teachers' digital resilience.

2 The evolution of concepts

The concept of digital resilience was first applied to the field of information technology [2]. Early research on digital resilience focused mainly on the technology of organizations, emphasizing the system's ability to resist, absorb, adapt and recover in the face of digital challenges. These studies are committed to building technical architectures and strategies so that organizations can flexibly respond to uncertainties in the digital environment and ensure the continuity and security of their key business functions [3][4]. After the global outbreak of COVID-19, the concept of digital resilience began to be widely used in various fields. The UK Council for Internet Safety (UKCIS) proposed a universal concept of digital resilience applicable to individuals or organizations, "Digital resilience is an evolving personality asset that comes from actively engaging in the digital world and cultivating it through participating in appropriate challenges rather than avoiding risks[5]." Regarding educators, Zhong Zhixian and others proposed that teacher digital resilience refers to the positive attitude and adaptability shown by teachers when facing the pressure, challenges or difficulties caused by the use of digital technology for educational and teaching activities [6].

In the context of digital education, teachers with digital resilience can promote the transformation of traditional teaching methods to new teaching methods. In this process, teachers play a leading role and are the core force driving the

change in teaching methods, having a profound impact on the classroom ecology.

3　The dynamic development process

Digital resilience is subordinate to psychological resilience and is a specific form of individual psychological resilience [7]. Kumpfer's psychological resilience model tells us that teacher digital resilience is also a process of interaction between an individual and the environment.
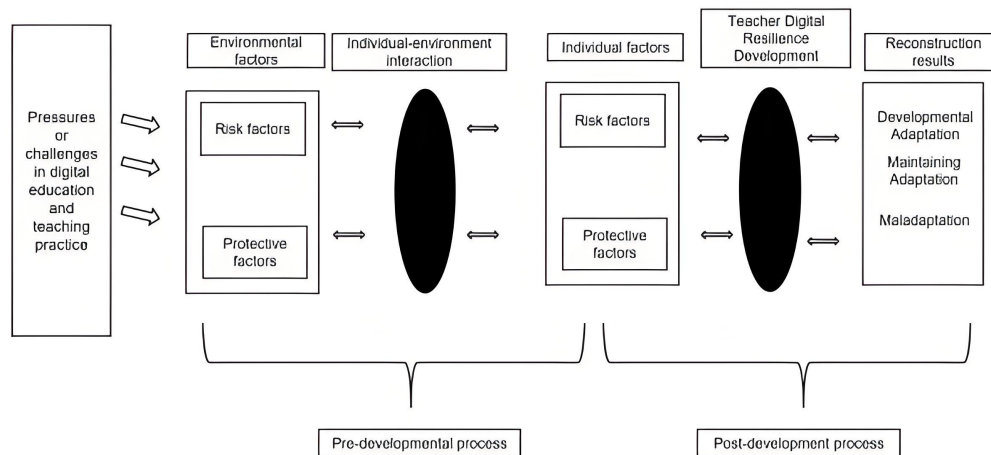
The development process of teachers' digital resilience consists of two stages. The first stage is the interaction process between individuals and the environment, and the second stage is the reconstruction process of teachers' digital resilience.

The first is the pre-development process, that is, the interaction process between individuals and the environment. When the digital impact in education and teaching comes, both environmental factors and individual factors of teachers will respond, and the two will influence each other. This process is called the interaction process between individuals and the environment. In the process of interaction between individuals and the environment, there are two typical situations. First, teachers may consciously or unconsciously draw on their individual characteristics to optimize the environment, or selectively and cognitively process the environment. Second, when teachers find that they can neither change nor leave the current environment, they tend to look for protective factors in the environment to weaken the negative impact of dangerous factors on themselves.

Then comes the post-development process, which is the reconstruction process of teachers' digital resilience. The post-development process of teachers' digital resilience is the development process of teachers' digital resilience level, and it is also the process of continuous cyclic reconstruction of teachers' digital resilience. There is a hierarchical difference between digital resilience and digital toughness, and this difference is relative. Bhagat and Kim's research pointed out that the development trajectory of digital resilience is not static at the same functional level, it involves leaping forward into a new reality [8]. If teachers can effectively cope with the pressure or challenges of digital education and teaching through existing digital resilience, they can at least maintain the existing level of digital resilience. On this basis, when teachers move forward through self-efficacy, it means that they grow at a better level of resilience. That is, teachers complete the stage of transitioning from low-level digital resilience to high-level digital resilience and can adapt to more complex digital education and teaching environments.

4　How to develop: the path for teachers to improve their digital resilience

According to the dynamic process of teachers' digital resilience development, we can see that to develop teachers'

digital resilience, teachers should deepen the independent construction of individual resilience traits and digital literacy, actively explore and integrate supportive resources from the external environment, and flexibly adjust and optimize the strategic framework for coping with digital teaching challenges. These three paths are intertwined and mutually reinforcing, and together constitute an important cornerstone for teachers to adapt to and lead the digital transformation of education.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

References

[1] Qi JY, Zhao KY. 2024. Research on the influencing factors and mechanism of teachers' digital teaching role adaptation. *China Audio-visual Education*, 1: 111-118.

[2] Sun HY, Yuan C, Qian Q, et al. 2022. Digital resilience among individuals in school education settings: a concept analysis based on a scoping review. *Frontiers in Psychiatry*, 13: 858515.

[3] Fraga-Lamas P, Fernández-Caramés TM. 2019. A review on blockchain technologies for an advanced and cyber-resilient automotive industry. *IEEE Access*, 7:17578–98. doi: 10.1109/ACCESS.2019.2895302

[4] Rick V, Rutger L. 2019. Cyber resilient behavior: integrating human behavioral models and resilience engineering capabilities into cyber security. Proceedings of the International Conference on Applied Human Factors and Ergonomics. Cham: Springer, 16-27. doi: 10.1016/j.aap.2021.106515

[5] UK Council for Internet Safety (UKCIS). 2019. Digital resilience framework. [EB/OL] [2023-09-10]. https://assets.publishing.service.gov.uk/media/5d7a00a0e5274a20381543e6/UKCIS_Digital_Resilience_Framework.pdf.

[6] Zhong ZX, Liu LH. 2024. Teachers' digital resilience: connotation, framework and development path. *Journal of Teacher Education*, 11(03): 63-73. https://link.cnki.net/urlid/50.1211.G4.20240128.2228.002

[7] Xue XQ, Zhao XW, Shen SS, et al. 2023. Digital resilience in online learning: key dimensions, status quo description and improvement strategies -- analysis based on survey data of junior high school students in Jiangsu Province. *Audio-visual Education Research*, 44(04): 72-78+85. DOI:10.13811/j.cnki.eer.2023.04.010.

[8] Bhagat S, Kim DJ. 2020. Higher education amidst COVID-19: challenges and silver lining. *Inform Syst Manage*. 37: 366-71. doi: 10.1080/10580530.2020. 1824040