



Changes and Constants in Teacher Literacy in the Context of Digital Transformation of Education

Ya Xu, Hong Li*

Yunnan Normal University, School of Information, Yunnan, Kunming, 650504, China

*Corresponding author's e-mail: 3086037227@qq.com

Abstract. This paper discusses the "changes" and "constancy" of teachers' quality in the context of digital transformation of education. Through literature review and case study, it examines the changes brought about by digital transformation to teachers' educational concepts and technology application ability, and analyzes the teachers' persistence and inheritance in professionalism and educational sentiment. The study aims to reveal the dynamic changes of teachers' literacy in the process of digital transformation and provide theoretical support and practical guidance for teachers' professional development. This study not only helps to deepen the understanding of the connotation of teacher literacy, but also is of great significance in promoting the improvement of education quality and the modernization process of education.

Keywords: education; digital transformation; teacher literacy

1 Introduction

1.1 Digital Transformation of Education and the Enhancement of Teachers' Literacy

Digital Transformation of Education. Under the background of digital transformation of education, the evolution of teacher literacy presents a distinctive feature of "change" and "no change". The report of the 20th Party Congress clearly puts forward: "Promote the digitization of education, and build a learning society and a learning country with lifelong learning for all" [1]. In order to implement this important initiative, the government and schools should enhance the application of digital technology in the field of education, promote the comprehensive and balanced development of students, while improving the quality of teaching and learning, and strive to build an education system that satisfies the people.

When education grows, the country grows; when education is strong, the country is strong. Today's digital technology contains a huge potential for change, is profoundly changing people's production, life, learning methods, and promoting the digital transformation of human society [2]. 2022 In January, the State Council issued the "14th Five-Year Plan for the Development of the Digital Economy", which explicitly proposed to

accelerate the promotion of culture, education and other areas of public service resources digital supply and networked services^[3]. In the field of education, Zhu Zhiting and others took the lead in defining the basic concept of digital transformation of education, pointing out that digital transformation of education is the process of using digital technology to promote all-round innovation and change in education^[4]. Education is a complex system with human beings as the main body, and the digital transformation of education is not as simple and straightforward as in other industries; the digital transformation of education is closely integrated with the understanding of education and the understanding of human beings, and the results should be ultimately embodied in teaching and promoting the development of human beings^[5]. Therefore, teachers also need to comply with the digital trend, develop innovative teaching thinking, actively explore and adopt new teaching modes such as flipped classroom, blended learning, project-based learning, etc., and promote the realization of personalized and in-depth learning with the help of digital technology. In addition, data-driven educational decision-making has become an important skill. Teachers need to have the ability to collect and analyze educational big data, make precise teaching interventions based on students' learning, and continuously optimize teaching strategies.

Enhancement of Teacher Literacy. Teachers' digital literacy has become a hotspot of international attention, for example, in 2016, Austria released the Framework for Teachers' Digital Literacy, which is used to guide teachers' digital literacy development and assessment^[6]; in 2017, the European Union released the Framework for Digital Competence of European Education Workers, which provides a framework for educators at all levels of schooling that enables them to comprehensively evaluate and develop their digital competence^[7]; in 2019, the UK releases the Professional Framework for Digital Teaching and Learning to help teachers clarify how digital technologies can enhance teaching and learning^[8]; and China's Digital Literacy for Teachers in November 2022 aims to improve the standard system of education informatization, and to enhance teachers' awareness, competence, and responsibility for using digital technologies to optimize, innovate, and transform educational and teaching activities. Despite the fact that digitalization has made distance learning possible, the role of face-to-face emotional communication and deep interpersonal interaction in the educational process cannot be ignored, and the quality of teachers' emotional commitment and care for students remains the cornerstone of educational work.

Overall, the digital transformation of education has posed new challenges and opportunities for teachers' quality, requiring them to actively follow the trend of technology and update their knowledge and skills, while at the same time sticking to the original heart and essence of education, so that they do not deviate from the direction of education amid the tide of digitization, thus effectively improving the quality of education and teaching and helping the all-around development of each and every student.

2 The “No Change” in Teacher Literacy

On September 9, 2016, General Secretary Xi Jinping advocated that teachers should be good “guides” during his visit to the Bayi School in Beijing^[9]. He pointed out that

teachers should treat every student equally, respect students' individuality, understand students' emotions, tolerate students' shortcomings and deficiencies, and be good at discovering every student's strengths and flashpoints, so that all students can grow up to be useful talents, and these statements reflect the people-oriented view of education that has always been in place. Education has always been people-oriented and moral education first, following the educational concepts of teaching without discrimination and teaching according to ability^[10]. Long-term natural evolution has given human beings dexterous hands, strong language skills, and a complex brain, laying the biological foundation of education^[11] and determining some basic principles of education, such as gradual and orderly progress, learning from the past and learning from the future, and learning from the past. In the context of the digital transformation of education, the “invariance” of teacher literacy is particularly important. The “human-centered” view of education is an indispensable part of teacher literacy, which represents the core values that teachers should adhere to in their educational practice.

2.1 A “people-centered” View of Education

The “people-centered” view of education emphasizes that education should be student-centered and focus on the overall development of students.

In order to realize the “people-centered” view of education in the context of the digital transformation of education, teachers need to continuously improve their professionalism and teaching ability. This includes an in-depth understanding of students' learning characteristics and needs, mastering the use of digital teaching tools and resources, and using data analysis and feedback mechanisms to optimize the teaching process. At the same time, teachers should also pay attention to students' mental health and growth environment, and create a safe, harmonious and positive learning atmosphere for them. A “human-centered” view of education is an integral part of teacher literacy. In the process of digital transformation of education, teachers should adhere to this core value, pay attention to the overall development of students, and continuously improve their professionalism and teaching ability to better adapt to the needs of digital education and provide strong support for the growth and development of students.

2.2 Teacher Ethics and Morale Building

What makes a good teacher? And what are the criteria for a good teacher?

Four Criteria. General Secretary Xi Jinping first put forward four criteria. First, there must be ideals and beliefs. Education is to serve the people, to serve socialism with Chinese characteristics, to serve reform and opening up and socialist modernization, and to train the builders and successors of the socialist cause. Secondly, there should be moral sentiments. A teacher's influence on students cannot be separated from his or her knowledge and ability, but also from the values he or she holds in the world, in the country and in the people, in public and in private. Third, to have solid knowledge.

Solid knowledge, excellent teaching ability, diligent teaching attitude, scientific teaching methods are the basic qualities of a teacher, of which knowledge is fundamental. Fourth, there should be love. There is no education without love. A good teacher should use love to cultivate love, inspire love, spread love, through true love, sincere, sincere distance with the students, moisturize the students' heart, become a good friend and intimate person of the students [12].

Four Leaders. General Secretary Xi Jinping put forward the “four guides” teacher responsibility requirements, emphasizing that the majority of teachers should be the guide for students to refine their character, the guide for students to learn knowledge, the guide for students to think innovatively, the guide for students to dedicate themselves to the motherland [13].

The Four Correlates of Harmonization. Put forward the “four unity” requirements of college teachers, that is, adhere to the unity of teaching and educating people, the unity of speech and teaching by example, the unity of study and concern for society, academic freedom and academic standards [14]. The Party has always attached great importance to the construction of the teaching force, especially since the 18th National Congress of the Party, from the implementation of the Party's education policy and adhere to the socialist direction of the school, put the teacher morality and ethics of teachers to the primary position of the construction of the teaching force, guiding the majority of teachers to morality, moral standing, moral education, moral teaching, and strive for the “four” of “Ideal beliefs, moral sentiments, solid knowledge, and benevolence. “The “four” good teachers [15], this is the new era of the party's educational development of the majority of teachers put forward new expectations and new requirements.

In the context of the digital transformation of education, more attention should be paid to strengthening the construction of teacher ethics. By improving the evaluation mechanism of teacher ethics, strengthening the education and training of teacher ethics, and setting up teacher ethics models and other measures, we can continuously improve the level of teacher ethics of teachers and contribute to the cultivation of socialist builders and successors who are all-rounded in morality, intelligence, physical fitness and aesthetics [16].

2.3 Practice-Based Theories of Education

Practice is the only standard for verifying the truth, which is not only the source of knowledge, but also an important way to verify and apply knowledge. Practice nurturing is an intrinsic demand of education, a basic requirement for students' development, the main way to help students understand the state of the country, love the motherland, broaden their horizons, and increase their knowledge, and the fundamental task of implementing the principle of establishing morality and educating people [17]. General Secretary Xi Jinping said in his reply to the students of Beijing Bayi School's science popularization mini-satellite development team, “I hope that you will maintain your desire for knowledge, keep your interest in exploration, cultivate the spirit of science,

study hard, practice hard, and drive more young people to talk about science, love science, learn science, and use science"^[18] This shows that education attaches great importance to students' practical activities.

3 The “Change” in Teacher Literacy

3.1 Strengthening Research Awareness and Enhancing Professional Knowledge

During his visit to Renmin University of China in 2022, General Secretary Xi Jinping emphasized that “good schools have different characteristics, but they have one common feature, they all have a team of excellent teachers.” This requires that teachers must have solid academic knowledge, superb business skills, and superior ability to educate people, which are the prerequisites for the reason why teachers preach and teach. General Secretary Xi Jinping said, “Solid knowledge, excellent teaching ability, diligent teaching attitude, and scientific teaching methods are the basic qualities of a teacher, of which knowledge is the fundamental basis, and students can often forgive a teacher for being harsh and stereotypical, but they cannot forgive a teacher for being shallowly educated^[19].”

3.2 Changing Teaching Concepts and Updating Teaching Methods

In the era of artificial intelligence, we should return to the discussion on the nature of human education in the field of “artificial intelligence + education”^[20]. The traditional “duck-filling” and “classroom filling” teaching can no longer meet the needs of students in the digital era. This approach is actually a one-way output centered on the teacher and aimed at imparting knowledge. In order to change the concept of teaching, we need to abandon a single teaching method and flexibly utilize various teaching tools and resources according to the needs of students and the characteristics of the subject, pay attention to the strengths and interests of each student, and provide them with diversified learning experiences.

Updating teaching methods is an inevitable extension of changing the concept of teaching, which requires us to look around the world, absorb various advanced teaching concepts and methods, and continuously enrich the teaching means and enhance the teaching effect. Firstly, we have to make full use of modern technological means, such as intelligent teaching platforms and virtual laboratories, to expand students' learning space and enhance their learning experience. Secondly, we should emphasize practical teaching, encourage students to master knowledge and skills through actual operation, and cultivate their hands-on ability and sense of innovation.

3.3 Creating a “Dual-Teacher” Classroom to Facilitate Human-Computer Collaboration

In November 2018, Artificial Intelligence+Education (Blue Book) analyzed that intelligent robots can support the intelligent learning process, and intelligent teacher assistants will replace the repetitive, monotonous and rule-based work of teachers in their

daily work^[21]. A foreign study points out that educational robots are mainly used to provide language, science or technology education^[22]. Domestic research, educational robots also have a variety of types, such as “AI good teacher” moral education robot, “intelligent learning companion” educational robots and so on. In short, educational robots can play a variety of roles in teaching. In this era of “artificial intelligence + education”, future teachers need to master artificial intelligence technology, through technology to assist in the completion of daily teaching work, the new classroom model of educational robots and teachers to share the teaching work, forming a new human-machine collaboration of the “dual-teacher classroom” “Teaching form.

3.4 Moving from “Teaching for Learning” to “Teaching for Learning”

The shift from “teaching to learning” to “teaching according to learning” is an important change in the field of education, reflecting the updating of educational concepts and the improvement of teaching methods. In the traditional teaching model of “teaching to learn”, the teacher, the textbook and the classroom are often at the center. Teachers mainly organize teaching activities based on their own lesson plans and teaching plans, while students are mainly in a passive state of acceptance. In contrast, “teaching according to learning” emphasizes the importance of determining teachers' teaching behaviors and strategies according to students' actual situation and learning needs. It requires teachers to pay full attention to students' learning status, learning difficulties and problems in the teaching process, and adjust the teaching content and methods accordingly. In this model, students become the main body of learning, while teachers become the guides and supporters in the learning process. Teachers need to pay attention to students' needs during the whole teaching process, guide students to learn independently, and make timely feedback and adjustment.

4 Conclusion

In the context of the digital transformation of education, the “changes” and “constants” in teacher quality have jointly constructed a solid foundation for education in the new era. The “changes” and “constants” are like a harmonious symphony, which not only highlights the progress of the times, but also upholds the original intention of education.

“What has changed is the positive embrace and adaptation to the wave of digitalization, the innovation of teaching methods and the deep integration of technology, the transformation of teaching concepts, and the enhancement of scientific research awareness, which have given education more possibilities and made the roles of teachers richer and more diversified. However, what remains unchanged is the firm adherence to the essence of education, the deep concern for the comprehensive development of students, and the eternal pursuit of teacher ethics, which are the cornerstones for maintaining stability and not losing direction in the digital transformation.

References

1. ZHOU Liubo, ZHANG Mengyao, ZHANG Chenghao. Cultivation of teachers' digital literacy in the context of digital transformation: the value of the times, realistic dilemma and breakthrough path[J]. *China Educational Technology*,2023(10):98-105.
2. UNESCO(2021).Reimagining Our Futures Together: A New Social Contract for Education[EB/OL].[2022-05-22].
3. Central People's Government of the People's Republic of China (2017).2017 Government Work Report [EB/OL]. [2022-06-20]. <http://www.gov.cn/guowuyuan/2017zfgzbg.htm>.
4. Zhu Zhiting,Hu Jiao. The Practical Logic and Development Opportunities of Digital Transformation in Education[J].*e-Education Research*,2022,43(01):5-15.
5. YUAN Zhenguo. Digital transformation of education: what and how to transform[J].*Journal of East China Normal University(Humanities and Social Sciences)*,2023,41(03):1-11.
6. The University College of Virtual Teacher Education.Das digi.komp P-Kompetenzmodell[EB/OL].(2016-07)[2022-12-23].<https://www.virtuelle-ph.at/digikompl/>.
7. European Commission's Joint Research Centre.European Framework for the Digital Competence of Educators: DigCompEdu [EB/OL]. (2017-11-29) [2022-12-23]. <https://ec.europa.eu/jrc/en/digcompedu/framework>.
8. Education and Teaching Foundation (ETF).Digital Teaching Professional Framework[EB/OL].(2019-01-30)[2022-12-23].<https://www.et-foundation.co.uk/wp-content/uploads/2018/11/181101-RGB-Spreads-ETF-Digital-Teaching-ProfessionalFramework-Short.pdf>.
9. Our Commentator. Teachers should be good “guides” for students: five on learning and implementing the spirit of Xi Jinping's important speech on his visit to Beijing's Bayi School[N].*China Education Press Agency*,2016-09-15(001).
10. Yang Zongkai,Wang Jun,Wu Main et al.Exploring the Impact of ChatGPT/Generative Artificial Intelligence on Education and Coping Strategies[J].*Journal of East China Normal University(Humanities and Social Sciences)*, 2023, 41(07):26-35. DOI: 10.16382/j.cnki.1000-5560.2023.07.003.
11. Li, D. Y., and N. Ma. (2023). Artificial intelligence looking at education. *Research on Higher Engineering Education*(03),1-7.
12. Xi Jinping. Being a good teacher to the satisfaction of the Party and the people: remarks by Xi Jinping during a talk with representatives of teachers and students of Beijing Normal University.[EB/OL].(2014-09-09)[2017-04-21].
13. Xi Jinping. Comprehensively implement party's education policy and strive to make China's basic education better and better[N]. *People's Daily*,2016-09-09(1).
14. Xi Jinping. On the Party's Propaganda and Ideological Work [M]. Beijing: Central Literature Publishing House,2020.
15. Han Songhang. Establishing Good Teacher Ethics [N]. *China Education News*,2019-01-10.
16. DU Shizhong,FENG Jianjun,LIU Tiefang,et al. Written Discussion: Chinese Educator's Spirit and Modern Education[J]. *Modern University Education*,2024,40(01):1-13+111.
17. Xue Eryong,Liu Ailing. Xi Jinping's thought on education: the flag and direction of China's education reform.[J].*Journal of the Chinese Society of Education*,2017(05):9-16.
18. General Secretary Xi Jinping's letter to the students of Beijing Bayi School's science popularization mini-satellite development team[EB/OL].(2016-12-28)[2017-04-28].
19. Xi Jinping. Be a Good Teacher to the Satisfaction of the Party and the People[N].*people.cn*, 2014-09-10(002).
20. Feng Yuhuan.The Value, Potential Ethical Risks, and Governance Paths of ChatGPT in Education[J].*ideological and theoretical education*,2023(04):26-32.

21. Yu Shengquan, Lu Yu, Chen Chen. Artificial Intelligence + Education Blue Book[R]. Beijing: Beijing Normal University High Precision Innovation Center for Future Education, 2018.
22. Sharkey Amanda J. Should We Welcome Robot Teachers?[J]. Ethics and Information Technology, 2016 (4) :283-297.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

