

Analysis of the change in teachers' professional satisfaction under the AI era

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Abstract: With the advent of the artificial intelligence (AI) era, the education industry has entered a stage of high-quality development. Based on the concept of smart education driven by educational modernization, innovative propositions need to be proposed to better meet the needs of teacher career development. Based on the dynamic evolution of AI technology, a theoretical analysis framework for the changes in teacher professional satisfaction is constructed according to the internal logic of upgrading the education ecosystem. This framework can explain the new development path of the education industry generated by the participation of technological innovation and teacher role evolution, as well as the cycle mechanism of teaching effectiveness. From the perspective of multi-dimensional changes and practical deduction in teacher work content, teacher-student relationships, and personal development, we will continue to explore the possibility of moving towards the goal of high-quality education development. AI technology aims to provide teaching aids that meet the teacher's expected standards and work to perfect teaching quality and improve teacher professional satisfaction. To this end, measures such as strengthening the application control of educational technology based on the internal circulation of teaching quality, constructing a quality perception interaction mechanism between teachers and AI technology integration, and establishing a continuing education and ability evaluation system should be taken to achieve high-quality development of the education industry, promote the professional growth of teachers, and truly meet the professional development and psychological demands of teachers in the AI era.

1. Introduction

Teacher professional satisfaction is an important component of the education field and a comprehensive indicator for measuring the quality of educational work and teacher happiness. It can be divided into internal and external satisfaction, respectively: personal achievement and social recognition. Various sectors of society often entrust educational institutions to conduct surveys and enhance the professional satisfaction of teachers to improve the quality of education and the stability of the teaching staff. Since the 21st century, the application of artificial intelligence (AI) technology has become the key to educational innovation, and the acceptance and adaptability of teachers to new technologies have become a new indicator for evaluating the level of educational modernization. Unlike traditional teaching methods, AI-enabled education emphasizes personalized learning, efficient allocation of teaching resources, and deep utilization of educational data. Therefore, the issue of changes in teacher professional satisfaction in the AI era has been raised, and AI technology provides new opportunities and challenges for teacher career development.

The research on teacher professional satisfaction originates from the educational philosophy centered on humanism, whose core values contain attention to the individual growth and career happiness of teachers, and are also key tools for promoting sustainable development of education. From the perspective of educational ecological structure, modern education pursues the harmonious unity of technology and humanities and achieves educational modernization through the combination of digital tools and teacher-teaching experience. However, this conclusion is only in theory. To this day, global educational practice has stepped on a unique path of deep integration of technology and education. The comprehensive promotion of AI education not only rewrites the teaching mode which

reflects the leap of educational technology, but also the role positioning of teachers, which has a profound impact on their professional satisfaction. Therefore, discussing teacher professional satisfaction in the AI era must have a forward-looking and global perspective. Therefore, how to enhance teacher professional satisfaction and promote educational equity with the support of AI technology has been proposed in the field of educational research.

In short, understanding and optimizing the professional satisfaction of teachers in the AI era provide the necessary conditions and guarantee for achieving high-quality development of education. From the current research and practical progress, although AI education has made certain achievements, it also exposes shortcomings such as insufficient adaptive training and immature human-machine cooperation models. The education sector has not yet fully identified an effective path to ensure the integration of teacher professional satisfaction and technology and is still continuously exploring and striving. Therefore, future research and practice still need to deepen insights into the psychology and behavior of teachers, which is not only related to the improvement of the personal well-being of teachers but also the cornerstone of the healthy development of the entire education system.

After analysis based on the above background, this article proposes a comprehensive analysis framework aimed at exploring the changing trend of teacher professional satisfaction under the penetration of AI technology. Through interdisciplinary theory and empirical research methods, it solves the problem of how teachers can maintain their professional enthusiasm and growth in technological change. The main content includes improving teaching efficiency, reconstructing interpersonal relationships, developing professional abilities, and balancing work and life strategies. It effectively addresses the risks of decreased occupational security caused by technological shocks and has important theoretical and practical guidance significance [1] [2] [3].

2. The Research Background of Teachers ' Professional Satisfaction Under the Background of the AI Era

2.1. The Reform of Educational Technology and the Rise of AI in Education

Teacher professional satisfaction is a concept that has developed in parallel with educational technology innovation. It is imbued with a people-oriented educational philosophy, highlighting the high importance placed on the subject status and emotional experience of teachers in the process of educational modernization. It reflects the comprehensive strategies of the education field to improve the quality of teaching and the quality of teachers' professional lives since the 21st century. However, when we attempt to construct a precise definition and essential characteristics of teacher professional satisfaction using a single quantitative or qualitative standard, it is still difficult to fully capture the full picture of this complex emotional state, as it involves the interweaving influence of multiple factors such as individual emotions, social environment, and technological application [4].

2.2. The Transformation of Teachers ' Role: From Traditional to Intelligent-Assisted Teaching

The transformation of teacher roles is an important criterion for the development of education, and it is a repositioning and interpretation of teacher responsibilities and functions in the new era. Sociologists and education experts have discussed the diverse definitions of teacher roles from the perspectives of technological progress and changes in educational concepts. Some scholars argue that the transformation of teacher roles refers to the ability of teachers to adapt to new technological environments, or the new guiding role that teachers play in intelligent assisted teaching. Transformation of the teacher role belongs to the educational practice science aimed at promoting educational innovation, just because of its contemporaneity and forward-looking to some degree. The historical evolution of the role of teachers can be traced back to ancient civilizations, and their main activities include knowledge imparting and moral cultivation. The role concept and technological application ability of modern teachers are closely related to the rapid development of educational informatization. Improving teaching quality through the integration of emerging technologies such as artificial intelligence has become an important responsibility of teachers. The theory of educational

technology integration in the early 21st century mainly contributed to providing theoretical support for the diversified expansion of teacher roles. Therefore, the concept of teacher role transformation initially focused on measuring the effectiveness of technology integration ability attributes.

2.3. The Concept of professional Satisfaction and Significance in the Field of Education

Compared to general professional satisfaction, professional satisfaction emphasizes the relationship between personal achievement and the professional environment and has deep-seated psychological experience characteristics. Although some scholars question whether there may be a direct causal relationship between an individual's professional satisfaction and professional performance, most scholars advocate that professional satisfaction can positively impact a teacher's teaching attitude and quality through rational evaluation. Herzberg et al. proposed a classic professional satisfaction model that includes two main categories: motivational and health factors. Since then, this model has become a typical tool for measuring teacher professional satisfaction, thus developing the concept of teacher professional satisfaction that focuses more on the characteristics of educational contexts. These scholars believe that professional satisfaction is dynamic and a "continuous process". Only when teachers realize self-worth and career growth can their teaching enthusiasm and creativity be stimulated. Therefore, professional satisfaction is seen as a positive result of the personal development of teachers and the improvement of teaching quality. Some scholars have summarized the research on professional satisfaction as a multidimensional model, namely an intrinsic satisfaction model based on job content and an extrinsic satisfaction model based on work conditions. The former focuses on the teacher's love and innovation of teaching content, while the latter focuses on the teacher's recognition of school management and support, that is, the dual satisfaction of "hardware" and "software". Although professional satisfaction enhancement strategies have encountered some challenges and failures in practice, from a long-term development perspective, they can promote the stability of the teaching staff and the continuous improvement of teaching quality. As a result, the concept of enhancing teacher professional satisfaction has gradually become a common consensus in the field of educational research and practice [5].

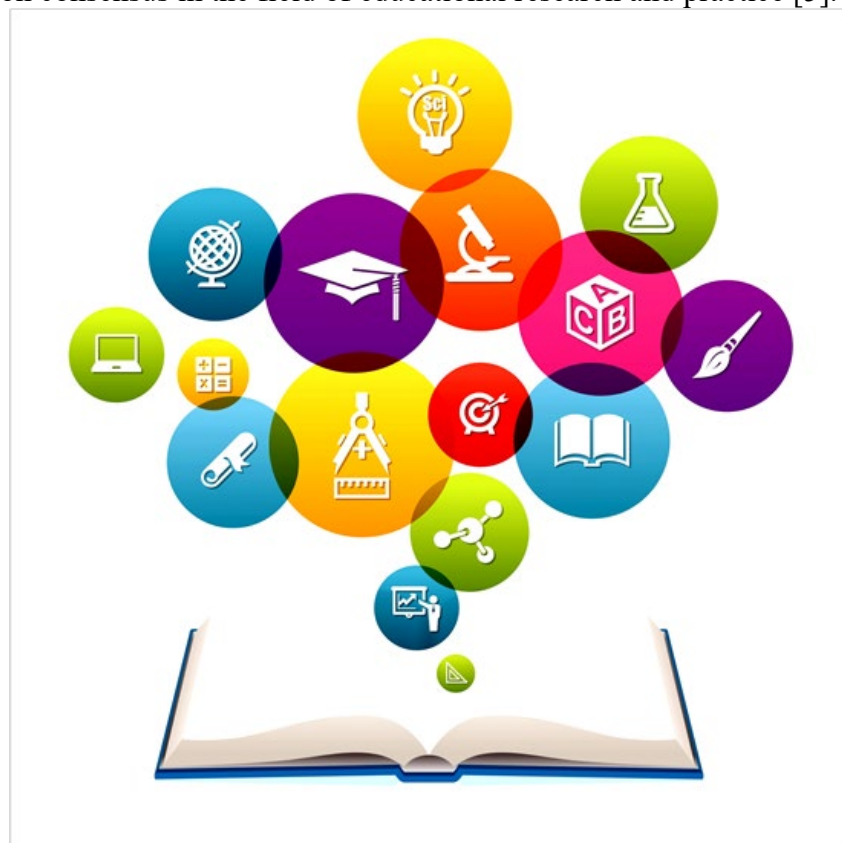


Figure 1: The research basis and challenges of teachers' professional satisfaction under the infiltration of AI technology

3. The Research Basis and Challenges of Teachers ' Professional Satisfaction under the Infiltration of AI Technology

3.1. The Theoretical Framework and Evaluation Dimensions of Teachers ' Professional Satisfaction

The concept of teacher professional satisfaction focuses on the intrinsic motivation and quality of work and life of educators. As shown in Figure 1, the application of educational psychology thinking in professional satisfaction research aims to overcome the superficial shortcomings of traditional satisfaction surveys and enter the research field as a new alternative model - a multidimensional comprehensive evaluation framework. The basic idea of this framework is that the teaching professional environment should ensure the effective stimulation of individual potential; Set comprehensive professional standards for teaching outcomes output; Capture the true feelings and needs of teachers through technical means such as questionnaire surveys and interviews; Use a combination of quantitative and qualitative methods to measure the satisfaction level of teachers in terms of achievement, work engagement, school support, and personal growth. The multidimensional comprehensive evaluation framework reconstructs the evaluation system of teacher professional satisfaction, emphasizing the need to enhance the comprehensiveness of evaluation, and constructing a panoramic map of teacher professional satisfaction that includes emotional dimensions, cognitive dimensions, environmental adaptability, and development sustainability [6].

3.2. the Impact Analysis of AI Technology on the Content and Methods of Teacher Work

Artificial intelligence (AI) technology is the main driving force for the transformation of the education sector, emphasizing the innovation of information technology in traditional teaching models, which is directly reflected in the optimization of teacher work content and innovation of teaching methods through intelligent tools. The development components of AI education applications, such as intelligent assisted teaching and personalized learning path design, are gradually forming a scale in the education field, and the accompanying teacher performance evaluation and student progress monitoring systems are also receiving attention from the industry. However, from a practical application perspective, the practice of some AI teaching assistance systems is still at the initial stage of simple content push or automated testing, and there is still a mismatch with the expected AI education logic framework and generation mechanism that can deeply understand student needs and dynamically adjust teaching strategies. This reality has led to issues such as how to effectively integrate AI technology with teacher professional judgment, and maintain the warmth of educational humanity [7].

3.3. Challenges Faced: Technological Adaptability, Occupational Security, and Ethical Boundaries

From the perspective of educational practice, technological adaptability is the fundamental link between educational informatization and the core embodiment of the modernization of teacher abilities. Therefore, the education system is driven by the logic of promoting the upgrading of teacher skills. Teachers are the main drivers of educational reform and the primary response to challenges. At present, the way that the education sector strengthens control over the integration of technology and education from multiple perspectives is divided into three forms: the first is teacher training. Clarify the path for teachers to achieve role transition between traditional teaching and intelligent assistance; The second is to standardize construction, which achieves standardized control of AI education applications by formulating AI education application standards and data security standards, and making these standards public; The third is the internal process reengineering of school management. In recent years, many schools and educational institutions have used digital means to improve teaching efficiency and enhance the rationality of educational resource allocation. However, compared with the rapidly developing AI technology, the technological adaptability of the current education system, the professional security of teachers, and the grasp of ethical boundaries in AI applications still need to be further improved and perfected.

4. Analysis of Changes in Teacher Professional Satisfaction Core Content in the AI Era

4.1. The Impact of Improving Teaching Efficiency and Quality with the Assistance of AI on Teacher Satisfaction

The fundamental difference between artificial intelligence (AI) and traditional teaching lies in its intelligent nature. The teaching efficiency standards and personalized teaching guidelines of AI are aimed at optimizing learning outcomes. The development of AI educational technology is mainly reflected in enhancing teaching interactivity and promoting students' self-learning ability. In the AI-assisted educational transformation framework, accurately identifying learning needs, customizing teaching content, providing immediate feedback and continuous evaluation are the core values and highest principles for the development of AI education. The diversity of educational technology types and differences in application scenarios have led to uneven acceptance of AI assisted teaching by teachers. Although AI technology has improved teaching efficiency and quality to a certain extent, the adaptability of technology is still not perfect, and the teacher community itself lacks effective skills updating and psychological adjustment mechanisms. Therefore, a "weakness" for teachers in the application of technology emerged, which affects the improvement of their sense of professional satisfaction and self-efficacy [8].

4.2. Interpersonal Relations and Emotional Interaction: Changes in Teacher-Student Relationships under the Intervention of AI Technology

From the perspective of emotional interaction, AI technology currently cannot accurately provide students with the emotional support and personalized care they need during the learning process. The evaluation of student satisfaction in the education system often takes a quantitative form, but this evaluation system lacks a detailed tracking and timely intervention mechanism for changes in student psychological status. The reason of this problem may be the lack of humanistic care in educational technology. In educational psychology, the teacher-student relationship is often described as a promotion for teaching effectiveness, and its stimulating effect on learning motivation directly reflects the temperature of the educational process [9]. However, existing data analysis mostly focuses on objective information such as knowledge mastery and learning behavior, and there is a lack of insight into students' emotional responses and psychological needs. Usually, these subtle emotional interaction details are difficult to obtain or accurately measure through conventional channels. Asymmetric information and imperfect emotional feedback mechanisms directly lead to obstacles in deep communication between teachers and students, affecting the comprehensive improvement of humanistic care and educational quality.

4.3. Continuing Education and Professional Development: A New Path for Improving Teacher Competence in the AI Era

From the perspective of the long-term development of teacher professional growth, the uneven distribution of educational resources and the limitations of training systems have constrained the comprehensive improvement of teacher abilities for a long time. Since the 21st century, digital platforms that integrate online learning, resource sharing, and interactive communication have reshaped the form of teacher continuing education through flexible learning models. However, the drawbacks of traditional training models: fixed curriculum and one-size-fits-all, still constrain the satisfaction of personalized learning needs. Not only due to the disconnect between course content and actual teaching, but also due to the lack of continuous follow-up and practical feedback mechanisms, the teacher professional development system still needs to be improved. With the widespread application of intelligent technology, AI-assisted personalized learning is seen as a direct way to enhance teacher abilities. However, the practical improvement of teachers' teaching skills through online courses that focus on theoretical learning still needs further exploration. At the same time, geographical and time constraints make the lack of opportunities for communication and cooperation among teacher groups, and insufficient sharing of practical wisdom. Therefore, relying solely on technology-driven continuing education does not always seem to achieve the expected improvement effect. Improving the abilities of teachers is not only a technical challenge to overcome

but also a challenge to innovate educational concepts and practical models.

4.4. Balancing Work and Life: The Role of Intelligent Tools in Teacher Workload and Personal Time Management

Undoubtedly, intelligent tools cannot avoid the "technological dependence" that serves as a double-edged sword in improving work efficiency. In the modern education management system, AI-assisted teaching is a standard and effective tool for reducing workload and increasing efficiency, playing an important role in optimizing teacher workflows, which also makes work-life balance not only a time management concept but also a technology integration concept. Therefore, the teacher support system, mainly based on human-machine collaboration, has become a regulatory mechanism for achieving work-life balance. The practical interpretation of intelligence is generally a gradually formed path of educational technology integration based on teachers as the core, although this path involves many explorations and trial and error. From teaching preparation to student evaluation, technology is closely focused on improving teacher work efficiency and quality of life from beginning to end. Nevertheless, teachers should strive to enhance their technical literacy to meet the requirements of intelligent education. However, the reliance on amplification technology also brings a dilemma: teachers overwork and personal time is squeezed. Overall, intelligent tools still need to be improved in reducing teacher workload and promoting personal time management. Their humanized design and application strategies also need to be further improved, which is an important task in promoting the harmonious development of educational technology [10].

5. Conclusion

The AI era has profoundly changed the face of education, posing new challenges and requirements for the professional development of teachers and the quality of education. The sense of professional satisfaction of teachers is not only a symbol of their sense of happiness but also an important means to improve educational efficiency. It is an urgent need to achieve modernization of education and maintain the stability of the teaching staff. Essentially, it reflects the inherent requirement of putting education first. The research on teacher professional satisfaction is under the guidance of educational informatization, constructing a theoretical analysis framework and practical mechanism that integrates technology and humanistic care. In recent years, modern information technologies such as artificial intelligence and big data have promoted the transformation and upgrading of education models. Through intelligent tools, teachers are empowered to improve their teaching abilities and the accuracy and scientificity of educational evaluation. Its value aligns with the inherent logic of high-quality development of education. Therefore, education innovation based on AI technology also provides a new path for improving teachers' professional satisfaction. In short, continuously improving the professional satisfaction and educational quality of teachers can better stimulate their teaching enthusiasm and innovation ability, and help build a more harmonious and efficient educational environment.

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