

The Era of AIGC: Strategies for the Transformation of Teachers' Roles

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Abstract:

With the rapid development of artificial intelligence (AI) technology, the application of AIGC (Artificial Intelligence Generated Content) in education has become increasingly widespread, bringing profound changes to the roles of teachers. The paper explores the topic from three perspectives: the current state, the ideal scenario, and practical strategies. The first section reviews the progress of AIGC and its research in education, highlighting the lack of studies on how teachers should respond to role transformations. The second section discusses the requirements outlined in the UNESCO-released frameworks for teachers and students, emphasizing that teachers should become designers and facilitators of AI-assisted learning, as well as guardians of ethical and safe practices. The third section proposes new approaches for teachers to cope with role changes, focusing on enhancing self-awareness, stabilizing teaching priorities, establishing a "shared identity", and balancing rational "compliance" with irrational "dissent". The paper underscores the need for teachers to leverage their irreplaceable qualities, redefine their teaching focus, collaborate with stakeholders, and critically embrace technological advantages. In conclusion, teachers in the AIGC era must actively adapt to changes to promote the sustainable development of intelligent education.

Keywords:

AIGC, Teacher Roles, Role Transformation, Coping Strategies

1. Introduction

The world is undergoing a rapid and profound transformation as it transitions from the digital age to the intelligent era. It impacts all walks of life, presenting unprecedented challenges. Revolutionary technological advancements and cognitive shifts are unfolding simultaneously, and the field of education is no exception. In September 2024, UNESCO officially released the AI Competency Framework for Teachers and the AI Competency Framework for Students, providing guidance and strategies for educational systems in the context of AI's rapid development. These frameworks reflect the global education community's in-depth consideration of AI role in teaching and learning, as well as practical needs, marking a significant transformation and reshaping of the educational ecosystem.

2. Current State: Research on AIGC

AIGC (Artificial Intelligence Generated Content) refers to the rapid development of content generation propelled by advancements in artificial intelligence technology. In 1950, Alan Turing proposed the famous “Turing Test” in his paper “Computing Machinery and Intelligence”, offering an experimental method to determine whether machines possess “intelligence”. [1] Since then, artificial intelligence has been expected to create content and interact with humans, emulating human thought processes. To date, AIGC has evolved from simple tasks like composing music, voice-activated typewriters, writing novels, and simultaneous translation to generating diverse and rich interactive content across various fields today.

Currently, AIGC spans multiple domains including natural language processing, computer vision, healthcare, transportation, finance, culture and arts, and education. Research in education primarily focuses on several aspects: innovation in teaching models, such as human-machine collaborative teaching, exploring the relationship between teachers and machines, personalized teaching, and interdisciplinary teaching; secondly, the development and management of educational resources, like courseware and lesson plans, and the establishment of resource libraries; additionally, assessment of learning outcomes and feedback, including homework grading, student behavior analysis, cultivation of student thinking, enhancement of literacy, and support for special education. [2]

Analyzing existing literature, when AIGC opened the door to education and broke through, the academic community conducted extensive research on the transformation of artificial intelligence in teacher teaching and student learning. However, research on the teaching subject—teachers—seems relatively sparse. Studies related to the transformation of the teacher role or actions mostly compare changes before and after, illustrating what kind of teachers will be needed in the future, linking traditional teacher ecology with future prospective developments, yet lack exploration of how current teachers should respond. In the traditional teacher ecology, teachers were the sole source of information, the “preacher on the podium”, the “textbook craftsman”, the passive executor of the curriculum, and the regulator of standardized testing; to cope with the changes brought by artificial intelligence, the expected status of teachers has evolved into personalized learning guides, innovators of creativity, companions in emotional communication, collaborators with artificial intelligence, and models of lifelong learning. [3] In the analysis of the reconstruction path of the role of American teachers in the era of artificial intelligence, Xu Hui discussed that teachers should transition from the factory-model instructor to a cultural responder oriented towards resources, from passive “containers of technology” to active professional reflectors, and from detached from technology development to leaders in promoting AI development. [4] Under the strong impact of AIGC, how teachers adjust their behavior in the face of technology, teaching, students, the teaching profession, and their own positioning, and how to respond to these challenges, are all issues that require further research.

3. Ideal Scenario: New Concepts in AI Literacy Frameworks

In August 2024, UNESCO released the “AI Competency Framework for Teachers” and the “AI Competency Framework for Students” to the global community, aiming to assist countries and regions in integrating AI capabilities into the development systems for teachers and students more effectively. The guidelines

emphasize that teachers are the primary users of AI in education. “They are expected to become designers and guides for AI-assisted student learning and guardians of safety and ethical practices in the rich AI educational environment.” [5]

Throughout the teaching and learning process, teachers should play a guiding role in applying AI tools to assist student learning. This guidance includes two aspects: on one hand, teachers should guide the application of AI to maximize its value, for instance, setting appropriate instructions for AIGC to obtain high-accuracy and highly relevant generated content to effectively promote teaching; on the other hand, teachers are expected to become guides for students’ use of AI, such as creating suitable environments for students to explore and apply AI to assist their learning. In subject teaching design, AI should also be involved as much as possible. Taking English writing class as an example, teachers can gradually guide students to use AIGC to obtain relevant materials and complete writing tasks in their teaching design. For instance, if the course objective is for students to introduce Chinese traditional Dragon Boat Festival to foreign friends, the teacher can design the following steps in teaching design: “AI generation of festival keywords(brainstorming)→identifying personal keywords→AI generation of Dragon Boat Festival related materials→selecting materials of personal interest→generating similar or contrasting foreign materials→forming cultural communication ideas→sharing and exchanging→completing writing.”

On issues of ethics, privacy, and educational environment safety, teachers are given the new role of guardians. AI enriches the diversity of education and teaching, but its use inevitably involves some unstable factors. For example, when teachers customize learning plans for individual students, they need to input students’ detailed information and personal requirements, which could pose risks of privacy breaches. Additionally, as teachers use AI to personalize their teaching tasks, students will also use AI to complete personal learning tasks, and the potential issues of technology dependence and trust crises during this process are also worth considering.

“AI may simplify the teaching and learning process into computational and automated tasks, thereby diminishing the role and influence of teachers, and weakening their relationship with learners.” [5] It is also essential to recognize the irreplaceable nature of interaction and collaboration between teachers and learners, which is the core of education. The interaction between teachers and students can be said to be turning into a triangle, as AI systems increasingly mediate the preparation, teaching, learning, and assessment. Therefore, the addition of AI makes the teacher’s identity role more diverse, and teachers need to further develop towards a composite educator based on a people-oriented educational philosophy.

The student competency framework looks forward to the future of students while clearly defining the role of teachers and future educational goals. In the era of AI, students need to be prepared to become active co-creators of AI, future leaders, and shape the new iterations of the technology. [6] It helps students acquire the necessary values, knowledge, and skills to critically examine and understand AI from a holistic perspective. Anchored by students’ knowledge, skills, and values, it provides detailed guidance from four core competencies: people-oriented thinking, AI ethics, AI technology and applications, and AI system design.

In summary, AI brings significant changes to education, which can be interpreted from various angles or by multiple subjects, but the ultimate implementation still needs to be led by teachers. The teacher competency framework clearly defines the

future development direction for teachers, and the student framework also outlines the goals that teachers should aim for, to promote the deep integration and development of technology with curricula and students.

4. Practical Strategies: New Approaches for Teachers to Cope with Role Changes

The rapid development of AI has brought significant impacts on the traditional role of teachers, and it is worth exploring how to transform their self-perception, reshape their identity attributes, and internalize their value. [7] Linking the past with the future, how teachers respond to the present is key. “Self-awareness, shared identity, and rational compliance and irrational dissent” become three aspects that open up new ways for teachers to cope with role transformation.

4.1. Enhancing Self-Awareness and Stabilizing Teaching Priorities

Philosopher Daniel Dennett describes the self as the “narrative center”, meaning that we are the core of our own stories. [8] Changing the narrative center leads to a shift in identity and consequently alters goals. Dennett suggests that people construct a narrative self, a continuous narrative composed of personal experiences, memories, and future plans. This narrative self helps us understand our past, interpret the present, and plan for the future. In this context, the narrative center can be understood as the most central and active part of an individual’s narrative, forming the basis of self-identity and self-understanding. The narrative center includes experiences, values, goals, and beliefs that the individual cares most about.

To cope with role transformation, teachers must first stabilize their narrative center and enhance self-awareness. Teachers need to clarify their uniqueness and irreplaceability in education. Although AIGC can provide a vast amount of knowledge and information, replacing some of the teacher’s work and even exhibiting “human-like” emotional characteristics, [9] the “comfort” AIGC offers to testers is procedural, cold, and lacks the core of humanism, losing the passion, pain, desire, experience, imagination, insight, anxiety, and joy of an individual. [10] This highlights that the deep emotional connection between teachers and students, understanding of students’ personalities, and guidance, which are irreplaceable by artificial intelligence. Teachers are guides on students’ growth paths, capable of providing care, encouragement, and support, stimulating students’ learning motivation and creativity. In addition, since some work can be completed by AIGC, this also effectively promotes teachers’ return to the classroom. Teachers should bring out their irreplaceability in the classroom. Teaching is an interactive process between teachers and students, allowing teachers to be freed from tedious work and engage in interactive, strong classroom positions.

Secondly, teachers should regularly reflect on their teaching process, summarize experiences and lessons, and continuously improve teaching methods to form their own teaching thinking. Since teachers have been teaching, they have developed their own unique teaching thinking and logic; similarly, AIGC as intelligent content also has computational algorithms and logic. The confusion of thinking logic will definitely affect teaching quality. However, in the AIGC era, the teaching environment and students’ learning needs are changing, and teachers need to adjust their teaching methods in time to adapt to the new teaching situation. Therefore, with AIGC-assisted teaching, teachers should be good at capturing precise information for

favorable teaching development, using their own teaching thinking as the main line, with AIGC algorithms as auxiliary thinking, to form personal characteristic teaching logic.

Furthermore, with the development of AIGC, students can more conveniently obtain knowledge, and teachers' knowledge authority encounters a crisis of trust. Therefore, while teachers firmly establish their narrative center, they also need to find new teaching centers, that is, the teaching focus should shift from directly imparting factual knowledge to guiding individual knowledge shaping and strengthening procedural knowledge application. Cultivating students' critical thinking, innovative abilities, problem-solving skills, and cooperative abilities has become particularly important, as these abilities are essential for students' survival and development in future society.

All in all, with the entry of new technologies into the field of education, teachers first need to understand the direction of reform, update their teaching status, and self-improvement is the primary method to address changes.

4.2. "Shared Identity" for Collective Adaptation

The wave of the times is coming, and no one can stay complacent in a small domain. The impact of the AIGC era on the role of teachers is ultimately a challenge to student growth. As such, teachers should place themselves in a group identity, sharing identity with related individuals (including but not limited to students, parents, researchers), and this "shared identity" will generate cohesion, allowing teachers to use the power within the community that benefits themselves to cope with role impact.

Shared identity between teachers and students. "Today's students are the natives of the Internet era," Professor Yu said, and the combination of people with computers, intelligent devices, and the Internet will become the basic way of modern people to understand the world. If educators teach today's children as they did yesterday, they will deprive children of their future. [11] Teachers need to recognize that students in the AIGC era are no longer just recipients of knowledge; they are also creators and explorers of knowledge. In the current era, the traditional teacher's "learn first, then teach" method is gradually being replaced by co-learning development between teachers and students. Undoubtedly, the one-way concept of teachers learning first, filtering out beneficial knowledge, and then imparting it to students is outdated, and teachers can learn and explore AIGC technology together with students, encouraging students to share their insights and discoveries, establishing an equal learning partnership. For example, teachers can organize students into groups in the classroom, based on learning objectives, using AIGC tools to jointly create works, with teachers as participants and guides, solving problems and sharing the learning process together with students, growing together as teachers and students.

Shared identity between teachers and parents. Today, a student's development does not rely solely on school education; parents play an irreplaceable role in the educational process of students. At the same time, teachers still need to understand that the negative impacts of technology cannot be avoided or terminated by teachers alone, and family participation occupies half of the student's time, so teachers should establish a close educational partnership with parents, working together to focus on students' learning and growth. Teachers can use parent-teacher conferences, home visits, symposiums, and other forms to popularize AIGC knowledge among parents, share how students use AIGC tools at school, listen to parents' opinions and

suggestions, and jointly formulate educational strategies. In addition, it is important to introduce to parents how AIGC technology is applied in students' independent learning, guide parents on how to guide children to use technology correctly for independent learning and evaluation at home, creating a good learning environment for children.

Shared identity between teachers and educational researchers. Compared to front-line teachers, educational researchers have professional advantages in exploring educational theories and methods, and vice versa, front-line teachers have first-hand resources that researchers lack, such as "insider" perspectives and insights. Teachers and educational researchers can cooperate to jointly carry out educational research projects, which can not only explore new teaching models and methods in the AIGC era but also help advance and deepen educational research. In addition, teachers and educational researchers can jointly participate in related training and discussion activities, laying the foundation for mutual communication and updating and improving both sides' understanding and application capabilities of AIGC technology.

It can be seen that teachers can share identity to share the burden of role conflict, and build an educational community with students, parents, and educational researchers to jointly address the challenges brought by AIGC, not only creating a better educational environment for students' learning and growth but also bringing new strength to their own role transformation.

4.3. Rational "Compliance" and Irrational "Dissent"

In the era of rapid advancements in AI, science is not just a body of knowledge but an attitude that involves rational compliance with what one judges to be reasonable, while also expressing dissent when faced with experiences that seem inappropriate or doubtful. It is essential not to blindly follow authority or accept changes without question. Teachers, in particular, need to maintain this attitude towards AIGC in today's educational landscape.

What is AIGC? What does it bring to education? How does the function? These are the primary questions teachers must clarify. Research has shown that many teachers have never heard of AIGC and have even less understanding of related intelligent software applications. Yet, when discussing AI, there's a tendency to speak with a sense of awe, which is undoubtedly unwise. Consequently, it's crucial for teachers to first understand what AIGC is and then acknowledge and embrace its positive role in teaching, such as generating teaching resources to assist teachers in preparing lessons quickly, providing personalized learning advice for students, aiding teachers in educational assessment, homework evaluation, etc. Rational compliance means recognizing and accepting these advantages and actively exploring and innovating how to deeply integrate them into their teaching practices. Secondly, understanding the technology, following the development trend of technology, and improving one's digital intelligence literacy. Teachers should take the initiative to learn and master AIGC-related technologies to better adapt to changes in the teaching environment. For example, actively participate in AI technology training, learn how to use intelligent tools to assist students in learning, how to formulate and adjust instructions to generate more accurate teaching content; additionally, for the application of technology in teaching, teachers should appropriately "dare" to try, an unchanging teaching model will eventually be eliminated, and the development of "new teaching" is the driving force for sustainable student learning. Teachers can regard AIGC as a

teaching partner, continuously designing and optimizing the teaching process with the assistance of AIGC.

Despite the many advantages of AIGC, intelligence does not equate to omnipotence, and teachers should not blindly rely on technology. It's important to maintain a critical mindset, recognizing the potential limitations of technology, such as hindered teacher-student interaction, lack of emotional understanding, and mismatched knowledge, etc. The current presentation of technical drawbacks is just the tip of the iceberg, and teachers may encounter different levels of difficulties in actual use, which requires teachers to always maintain clear thinking logic and adhere to the educational belief of "people-oriented", emphasizing the value and role of individuals. Education is not just about the transmission of knowledge; more importantly, it is about cultivating students' emotions, values, and creativity. Under the impact of AIGC, teachers must adhere to the essence of education, emphasizing the value and role of individuals. Moreover, as practitioners of teaching, teachers have the most direct feelings and experiences with the application of AIGC in teaching. When finding technology or requirements unreasonable, teachers should dare to express different opinions and promote the improvement and perfection of technology or policies.

In summary, facing the AI revolution, teachers need to combine rational "compliance" with irrational "dissent". They should actively accept and improve their own literacy to innovate in teaching; at the same time, they should maintain a critical mindset, people-oriented, and dare to express different opinions to promote the rational application of AIGC, in order to achieve the sustainable development of intelligent education.

5. Conclusions

In the AIGC era, teachers stand at the forefront of educational transformation. While AI offers immense possibilities, it will never replace the human agency, care, and wisdom that teachers bring to student development. The best AI-enhanced education amplifies human initiative and growth, turning technological potential into reality. Teachers must strengthen self-awareness, uphold educational essence, and build equitable partnerships with students. Collaboration with parents and researchers, coupled with critical engagement with AI, will foster holistic student development. By embracing change, teachers can guide students to thrive in a future shaped by innovation and humanity, redefining success in the intelligent age.

In the wave of AIGC, education is standing at the forefront of unprecedented change. Teachers, as the core force of education, are directly determining the direction and quality of the process and intelligence of education. It can be said that although AIGC has many conveniences and possibilities, it will never be the master of education. The initiative of teachers, their humanistic care, and educational wisdom remain the lighthouse that lights the path of students' growth.

"The best state of education built upon artificial intelligence technology is to display more initiative and growth, and to fully transform the possibilities provided by artificial intelligence into reality." [12] Teachers currently need to continuously enhance self-awareness, adhere to the essence of education, and establish a more equal and interactive learning partnership in the new journey of exploring knowledge and learning with students; work closely with parents to create a healthy technological application environment for children; join hands with educational researchers to

continuously explore innovative teaching models and methods. At the same time, maintain rational and critical thinking, making AIGC a powerful partner in the development of education, rather than a tool that weakens the essence of education. In this era full of challenges and opportunities, teachers should actively embrace change, lead students to master useful things through their own growth and development, face the gap between students, redefine the criteria for educational success, [13] cultivate them into comprehensively developed talents who are adaptable to future society, possess an innovative spirit and humanistic literacy, and jointly write a new chapter in the era of intelligent education, achieving a new vision for education.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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