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Study on Learner-Centered Education Digital Transformation Path

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Abstract: This paper discusses the necessity of digitization of education under the background of high development of modern science and technology, starting from the connotation of learner-centered and the strong technical support that digital transformation of education will provide. This paper also emphasizes the important role of education digital transformation in learner-centered education and teaching reform, puts forward the path and countermeasures to realize learner-centered education digital transformation, and analyzes some risks brought by education digitalization.

Keywords: Learner-Centered; Digital Transformation of Education; Artificial Intelligence

1. Introduction

In 1998, UNESCO proposed in the declaration of the first World Conference on education that education needs to become "learner-centered". It emphasizes students' learning and development as the center, realizing the transformation from "teaching" as the center to "learning" as the center, from "teaching mode" to "learning mode".

In 1999, the United States Educational Technology Initiative (ETS) published the report "Digital Transformation of Education: Challenges and Opportunities in a New Era" for the first time formally put forward the concept of digital transformation of education. The iterative upgrading and popularization of digital technology has promoted the deepening of the digital transformation of education and gradually turned into a practical research hotspot in the ducationn.

With the rapid development of modern information technology, the place and subject of education have gone beyond the scope of schools. New learning models such as online learning, micro-courses, virtual reality and augmented reality learning enhance learners' learning initiative, thus injecting new thinking into the current education system that trains talents in batches in a standardized mode.

2. Motivations

In the new era, how to promote the overall transformation and intelligent upgrading of the learning environment, build a learner-centered intelligent connected learning environment, and accurately push learning services has become a realistic problem that must be faced in the development of digital education. By breaking through key technical problems such as cross-field and multi-scene physical environment perception and monitoring, learning process recording and analysis, learning scene modeling and service, and learning community connection and support, the large-scale intelligent education monitoring platform is developed to form a cross-field, classroom-centered online and offline integrated learning environment, which can effectively promote the improvement of learning experience and performance. And it can accelerate the digital transformation and intelligent upgrading of education, and provide basic technical support for the construction of learner-centered education system.

3. Concept and Constituent Elements of "Learner-Centered"

The concept of "learner-centered" education emphasizes that learners are the core of teaching activities, which means that teachers should not only pay attention to students' learning process, but also pay attention to the individual differences of learners. Weimer (2006) summarizes five elements of learner-centricity, including the distribution of power, the function of content, the role of the teacher, the responsibility of learning, and the process and purpose of evaluation. The American Psychological Association has developed 14 principles of "learner-Centricity," which

include four areas: cognitive and metacognitive factors, motivational and emotional factors, developmental and social factors, and individual differences that affect learners and learning.

On the one hand, "learner-centered" teaching means that teachers help students build knowledge rather than directly transfer knowledge. On the other hand, it emphasizes the autonomy of students in the learning process, and advocates the learning style of cooperation and inquiry. Secondly, "learner-centered" fully respects students' individual differences and internal needs. On this basis, teachers choose appropriate teaching content and methods to stimulate students' willingness and ability to learn actively.

4. Digital Transformation Promoting Learner-Centered Education Reform

Educators recognize that the digital transformation trend represented by generative AI will bring great changes to the educational process. They can generate high-quality teaching materials, problem-solving ideas and teaching cases, and can be customized according to the needs and characteristics of different students. In the interaction with generative AI, learners can get personalized support to improve their learning interest and effectiveness. Using generative artificial intelligence can also build the knowledge graph of the course and establish the relationship between knowledge points, which helps learners to understand and master the correlation between knowledge points, so as to establish a comprehensive knowledge system.

5. Path of Education Digital Transformation Driving "Learner-Centered"

Respecting and adapting learners' individual differences is the core of the "learner-centered" education concept. In the process of educational digital transformation, teachers can improve students' self-assessment ability, strengthen their learning cooperation ability, and finally cultivate their innovative thinking through various technical means, such as AI-assisted instructional design, AI problem setting, AI learning partners, and AI question answering.

There are the following ways to achieve it: (1) Individual difference is an objective and inevitable phenomenon in teaching. The introduction of digital teaching means enables teachers to have technical tools that meet the individual needs of learners in the teaching process. (2) The use of generative artificial intelligence can exert students' self-adaptation, adjust the learning process, and build self-assessment ability. This can give full play to learners' subjective initiative and cultivate learners' sense of responsibility. (3) Teachers should guide students to carry out teamwork in an artificial intelligence environment, solve problems or complete projects together, and expand learners' cooperation mode. (4) Artificial intelligence under the digital transformation of education helps learners to carry out critical and continuous learning, so as to form innovative thinking ability, that is, to cultivate students' creativity, critical thinking, problem solving ability and adaptability.

6. Risks to be Avoided in Education Digital Transformation

First, technology not only accelerates the efficiency of task transmission, but also creates new types and forms of teachers' burden due to the wide application of digital communication media. The techno-rationalist view of education treats teachers as technologists or applied scientists and fails to consider the difference between digital technologists and teachers.

Second, the digital transformation of education is easy to lead to technology dependence, and data supremacy leads to "physical and mental imbalance" in education. Educators teach through electronic devices rather than face to face, and the result is a physical "absence." The dataism model weakens the emotional warmth, humanistic care and value care of education. It is not to deeply talk with the educational object to grasp the ideological confusion and value demands of the educational object, nor is it to use the eyes, emotions, expressions and other warm discourse narrative to infect and impress the educational object.

Third, algorithmic decision-making leads to cognitive defects of teachers and students. As technology becomes more and more "understanding", new ways of knowledge invocation promote the intermingling of human-machine knowledge, and also subtly change the pattern of human knowledge and knowledge. The amount of information

required for efficient decision-making in education will eventually exceed the tolerable limit of the human brain, and the "brain-like intelligence" which was originally in the position of assisting decision-making will inevitably become the main body of decision-making activities.

With the support of super computing power, algorithmic decision making will be better than and replace human decision making. Based on the "data footprint" in the learning environment, intelligent algorithms capture the preferences of educational subjects in all aspects. In the human-computer dialogue, educators and learners fall into the ubiquitous "algorithm agenda" and become the consumer subject who is "fed". The generation logic and data preference of the algorithm specify the value orientation of the generated content, which affects the teachers and students' judgment of information and perception of the real environment, and will hinder their cognitive activities and emotional communication in the long run.

7. Conclusion

Digital means such as artificial intelligence provide effective technical support for personalized learning, lifelong learning and expanding the coverage of high-quality education resources. By integrating the core elements of learning environment with intelligent technology, modeling and recommending learning scenarios across fields, digital technology builds a learner-centered digital learning environment in the teaching process. The digital transformation of education is not only a simple technological change, but also a profound national governance revolution. The construction of corresponding risk governance system is the key task of education digital transformation, and the core of technology governance is to balance the relationship between development and security.

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