Research on AI-assisted Education Based on the "use and Satisfaction" Theory in Communication Studies

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Abstract. With the rapid progress of artificial intelligence technology, especially in the fields of natural language processing, machine learning, deep learning and other significant breakthroughs, AI technology has shown a wide range of application prospects in the field of education. It is of great academic and practical value to conduct in-depth research on AI-assisted education based on the theory of "use and satisfaction". Under this framework, students are no longer limited to passively receiving knowledge, but can actively choose and use AI tools to meet their individual learning needs. This paper focuses on how AI-assisted education can effectively map the "use and satisfaction" theory, and aims to comprehensively explore its potential advantages and possible challenges. At the same time, this paper also deeply analyzes the current problems in AI-assisted education, and puts forward targeted circumvention or solutions, in order to provide strong support for promoting innovation and development in the education field. With the rapid progress of artificial intelligence technology, especially in the fields of natural language processing, machine learning, deep learning and other significant breakthroughs, AI technology has shown a wide range of application prospects in the field of education. It is of great academic and practical value to conduct in-depth research on AI-assisted education based on the theory of "use and satisfaction". Under this framework, students are no longer limited to passively receiving knowledge, but can actively choose and use AI tools to meet their individual learning needs. This paper focuses on how AI-assisted education can effectively map the "use and satisfaction" theory, and aims to comprehensively explore its potential advantages and possible challenges. At the same time, this paper also deeply analyzes the current problems in AI-assisted education, and puts forward targeted circumvention or solutions, in order to provide strong support for promoting innovation and development in the education field.

Keywords: Communication Science; Use and Satisfaction Theory; Ai-assisted Education

1. Introduction

The integration of AI into education has become a new orientation for education development, and how to use AI technology to support education has become a topic that needs to be discussed at present [1].In view of the significant differences in learning ability, interest and background among students, it is difficult for traditional education models to fully meet the individual needs of all students. However, AI-assisted education, with its unique advantages, can accurately grasp the individual needs of each student, and provide customized learning content and learning plans accordingly to meet the diversified learning needs of students. In recent years, in order to promote the in-depth application of AI in the field of education, governments have successively introduced relevant policies. For example, China's "Strong Teacher Plan for Basic Education in the New Era" and "Overall Layout Plan for Digital China Construction" have clearly proposed that they will vigorously implement national digital education strategic actions and constantly improve the national smart education platform, and the introduction of these policies provides solid policy support for the development of AI-assisted education.

As a kind of audience behavior theory, the core point of the "use and satisfaction" theory of communication is that the audience actively contacts the media and seeks satisfaction based on specific needs and motivations. This theory emphasizes the initiative and selectivity of the audience in the communication process, highlighting its important position and role in the whole communication process. Through the "use and satisfaczztion" theory, we can understand the

audience's media contact behavior from a unique perspective, and emphasize the audience's subjective initiative in the process of communication. At the same time, this theory provides a new theoretical support for the study of the effect of mass communication. As a kind of audience behavior theory, the core point of the "use and satisfaction" theory of communication is that the audience actively contacts the media and seeks satisfaction based on specific needs and motivations. This theory emphasizes the initiative and selectivity of the audience in the communication process, highlighting its important position and role in the whole communication process. Through the "use and satisfaction" theory, we can understand the audience's media contact behavior from a unique perspective, and emphasize the audience's subjective initiative in the process of communication. At the same time, this theory provides a new theoretical support for the study of the effect of mass communication.

In the research field of AI-assisted education, the application of "use and satisfaction" theory has far-reaching significance. It helps us to have a deeper insight into the needs and motivations of students when using AI educational tools, and then design educational products that are more in line with the actual needs of students, so as to improve the educational effect. In addition, the theory also reminds us that in the design and promotion process of AI educational products, we must attach great importance to the feedback and needs of the audience, and realize the optimization of education by constantly adjusting and optimizing the product to meet the expectations of the audience.

2. "Use and Satisfaction" in AI-assisted Education

2.1 "Use" in AI-assisted Education. AI technology has the ability to deeply analyze various learning data of students, including but not limited to their learning progress, interests, and specific learning needs. Through careful interpretation and accurate analysis of these data, AI can fully understand the learning status and learning characteristics of each student. On this basis, AI further translates this information into concrete actions, tailoring personalized learning programs and teaching resources for each student. Such a personalized learning program not only takes into account the student's learning progress, but also fully respects the student's personal interests and learning preferences. Students can independently choose the most suitable learning content according to their actual situation and needs, which not only improves the efficiency of learning, but more importantly, encourages students to take the initiative to learn and explore, making the learning process more vivid and interesting, and fully mobilizes students' enthusiasm and initiative in learning. The provision of this personalized education path marks the arrival of the era of personalized education, and also indicates that the education method will be more flexible and efficient.

Ai-assisted education platforms have powerful analytics that can track and evaluate students' learning status in real time and quickly provide personalized feedback. This feedback not only points out the student's strengths and weaknesses, but also provides suggestions for improvement and helps students optimize their learning path. Thanks to this efficient information feedback mechanism, students can more actively use AI education tools to enhance their self-learning ability, while satisfying their desire for academic achievement and relentless pursuit of progress. Such educational models not only enhance the efficiency of learning, but also enhance students' sense of participation and satisfaction in the learning process, thus playing a crucial role in the ever-changing educational environment. Through the application of AI technology, students can obtain customized learning support anytime and anywhere, which not only promotes their personal development, but also contributes to the innovation and progress of the entire education system.

Ai-assisted education completely subverts the existing model of the traditional classroom, making learning no longer limited by the boundaries of physical space and time. Students now enjoy unprecedented freedom to embark on their learning journey whenever and wherever it is convenient for them. This flexibility means that whether it is the early morning hours after waking up in the morning, or the quiet moments before going to bed at night, or even on the road, at home, or any environment with access to the Internet, students can start the learning mode, so that the learning of knowledge is no longer restricted by any external conditions.

With the help of AI technology, access to educational resources has also become extremely convenient, and students can easily access massive learning materials and information through smart devices. This personalized learning experience provides customized learning plans and resources based on the specific needs and progress of each student. Students can choose their own learning pace, explore the knowledge points they are interested in, or practice repeatedly to master the concept that is not solid enough. Ai-assisted education not only improves the efficiency of learning, but also makes learning more enjoyable and autonomous.

The application of AI technology in the field of education not only brings new possibilities for teaching, but also provides more choices and possibilities for students' learning, making education more personalized, intelligent, and full of infinite possibilities.

2.2 "Satisfaction" in AI-assisted Education. The integration of education and digital technology is a key feature of the future development of education [2]. Ai-assisted education, through the efficient analysis of students' learning data, interests and personal learning needs, can be tailored to students a set of learning plans that meet their characteristics. This kind of education model not only pays attention to students' learning progress, but also attaches more importance to students' personalized development. With the help of AI technology, educators can accurately grasp the learning status of each student, including learning efficiency, understanding and knowledge mastery, so as to provide appropriate guidance and support on the way to student learning.

The personalized learning content and path provided by AI-assisted education enable students to give full play to their subjective initiative in the learning process and absorb knowledge in their preferred way and pace, which not only greatly improves the learning efficiency, but also enables students to feel fun and joy in the process of exploring and mastering new knowledge, thus enhancing their sense of self-identity and achievement. This kind of education, truly people-oriented, fully respects the individual differences of students, aims to stimulate each student's learning potential, cultivate their innovative spirit and problem-solving ability, and lay a solid foundation for students' lifelong learning and all-round development.

The AI-assisted education model, through its advanced technical means, can realize the real-time monitoring and accurate feedback of students' learning. This model can not only quickly assess the learning outcomes of students, but also provide customized learning suggestions and programs according to the individual differences of students. For students, through AI-assisted education, they can get timely detailed information about their learning process, which includes not only the assessment of knowledge mastery, but also the effectiveness of learning methods and other aspects of feedback.

When students learn about their learning results through the AI system and see their academic progress, this positive feedback can stimulate their internal motivation, resulting in a strong sense of satisfaction and confidence. The satisfaction comes from the substantial rewards of their efforts, while the enhancement of self-confidence comes from the fact that students can intuitively see their own growth trajectory, which is a positive emotional experience that is very valuable to students.

More importantly, this positive emotional experience and feedback of learning outcomes can encourage students to be more actively involved in learning activities. They will maintain a higher enthusiasm and interest in learning, willing to invest more time and energy to explore the unknown and solve problems. Such a learning attitude will undoubtedly greatly improve the learning efficiency and promote students to grasp knowledge comprehensively and deeply, so as to achieve better results in the long-term learning career.

Because of this, the introduction of AI-assisted education not only optimizes the teaching process and improves the teaching quality, but also greatly promotes the self-drive and self-growth of students, which is of great significance for building a more efficient and more humane education system.

3. Current problems in AI-assisted education

Artificial intelligence has greatly changed the education ecology, and has broad application prospects in the field of education. It is an effective way to overcome the deficiency of traditional education,

and helps to change the education model and form, provide personalized services for students, provide precise teaching for teachers, and provide scientific management for schools [3]. Ai-assisted education has shown significant advantages in the provision of personalized learning content and paths, however, limited by the current level of technology and data resources, its personalized satisfaction ability is still insufficient. AI may not be fully accurate in understanding and meeting the unique needs of each learner, which results in some learners having a poor experience with AI-assisted educational tools.

Ai-assisted education can provide instant learning feedback, but the quality of feedback is affected by a variety of factors. For example, the evaluation criteria for AI may be incomplete or inaccurate, resulting in biased feedback results. In addition, some learners have insufficient adaptability to the feedback method of AI, which affects the feedback effect.

Ai-assisted education actively advocates independent learning, but not all learners have enough self-discipline and motivation. Some learners may rely too much on the assistance of AI, which weakens the ability to actively think and solve problems. At the same time, the autonomous learning mode may also lead to the difficulty of getting timely help and support when learners encounter difficulties.

Ai-assisted education breaks the time and space constraints of traditional education, but it also causes some problems. For example, some learners feel lonely or anxious due to the lack of face-to-face communication and interaction. Over-reliance on electronic devices for learning can also be potentially harmful to learners' eyesight and physical health.

In the process of providing precise and personalized services, AI-assisted education requires the collection and processing of large amounts of learner data. However, this also comes with data privacy and security risks. If this data is not properly protected, it may be at risk of misuse or disclosure, which could adversely affect learners.

4. Ai-assisted education problem solving avoidance strategies

4.1 Improve AI personalization capabilities. Online teaching must rely on professional and stable digital technology platform in order to be effectively implemented[4]. In order to improve the learning experience and effect, more investment can be made in the research and development of AI algorithms, in order to more accurately identify learners' personalized learning styles and needs. At the same time, more learning data will be actively collected and deeply analyzed, which will be used to optimize AI's personalized recommendation and learning path planning, ensuring that each learner can get the most suitable learning content and progress. In addition, learners are encouraged to actively provide feedback so that the AI system can continue to learn and improve, and bring a better learning experience to the learners.

4.2 Improve instant feedback. Perceptual intelligence is the basic intelligence in artificial intelligence, which can be regarded as the 1.0 stage of artificial intelligence, cognitive intelligence is the 2.0 stage of artificial intelligence, emotional intelligence is the 3.0 stage of artificial intelligence, and behavioral intelligence can be regarded as the 4.0 stage of artificial intelligence. The current development of artificial intelligence has entered the era of AI 2.0. Future AI 3.0 and AI 4.0 are still to be worked on [5]. Although AI technology performs better than humans in many areas, such as complex computation and logical reasoning, AI technology performs relatively poorly on human emotions, values and morals [6]. In the process of promoting the development of artificial intelligence technology, in order to ensure the accuracy and comprehensiveness of AI feedback results, it is necessary to constantly improve its evaluation criteria. In order to meet the diverse needs and habits of different learners, multiple forms of feedback should be provided. In addition, in order to ensure the accuracy and professionalism of the feedback results, it is also necessary to introduce a review mechanism of teachers or experts to verify and make necessary corrections to the feedback results generated by AI.

4.3 Encourage independent learning and provide support. The intelligent tutoring system entering the 2.0 stage, after generating students' learning data, focuses on analyzing the reasons why students draw wrong conclusions in the learning process, and realizes continuous training and

learning in the iterative process of "discovering mistakes - analyzing the causes of wrong thinking - correcting wrong thinking" [7]. We are committed to improving the motivation and enthusiasm of learners through carefully designed incentive mechanism. At the same time, it provides a wealth of learning resources and necessary tools to fully support learners in independent exploration and collaborative learning. Online learning communities or forums can also be set up to promote communication and cooperation among learners and realize knowledge sharing and mutual assistance.

4.4 Balance virtual and real learning. In a virtual learning environment, learners are strongly advised to maintain a close connection with the real world, including but not limited to active participation in various social activities and physical exercise. At the same time, in order to improve the learning effect and experience, a series of learning activities that integrate virtual reality and reality are designed, such as virtual reality experiments and comprehensive projects that combine online and offline. In addition, for the sake of visual health and physical health of learners, all learners are especially reminded to pay attention to eye hygiene and avoid the continuous use of electronic devices for long periods of time.

4.5 Strengthen data privacy and security protection. In order to ensure that learners' personal information is properly protected, strict data collection and use norms should be developed and implemented. Under this regulation, learners' personal information will not be misused or disclosed. Advanced data encryption and security protection technology is adopted to ensure the security of learners' data to the highest standards. It is also necessary to conduct regular security checks and vulnerability fixes on the system to prevent any potential hacking and data breach risks. These measures are implemented to ensure that AI services always meet the highest standards of data security and privacy protection.

4.6 Provide diversified services. In the process of product design, it is necessary to strengthen the examination of our local culture, and avoid completely imitating foreign practices and resulting in "acclimatization" [8]. In the process of providing educational services, it is necessary to meet the diverse needs of different learners. In addition to adopting innovative ways of AI-assisted education, it also offers a variety of education forms, including online courses, face-to-face courses and blended teaching, to ensure that each learner can find their own learning style. At the same time, in order to enrich the learning experience of learners, we actively introduce more diversified educational resources, such as books, videos, audio, etc., to provide learners with more abundant and comprehensive learning materials.

5. Summary

When discussing the implementation strategy of AI-assisted education, the "use and satisfaction" theory of communication provides a solid theoretical foundation and clear direction. The theory emphasizes the central position of meeting the needs of learners in the educational process. Through the precise application of AI technology, AI-assisted education can more accurately respond to the personalized learning needs of learners, providing them with instant learning feedback and personalized autonomous learning support. This not only helps to optimize the allocation of educational resources, but also significantly improves the learning efficiency and experience of learners, and creates a more high-quality and efficient learning environment for them.

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