Artificial Intelligence Versus Human Teachers: Multimedia Class Design in the Context of Artificial Intelligence

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Abstract: In the information age, multimedia has been applied across various fields. By integrating text, images, audio, video, and animation, multimedia provides diverse interactive experiences that enhance human understanding and feedback. In education, multimedia teaching has been widely adopted. It has not only become a common teaching method in traditional offline classrooms but has also facilitated online teaching, overcoming the constraints of time and space. With the global interest in generative Artificial Intelligence, exemplified by ChatGPT, the application of Artificial Intelligence in multimedia teaching has become a significant topic of discussion. This essay aims to address this gap by investigating multimedia teaching activities within the context of human-AI interaction, exploring issues related to AI-driven teaching and AI-assisted student learning. In the realm of human-computer interaction, this essay will apply communication theories, such as the theory of planned behavior, to examine the design principles and considerations for Artificial Intelligence teaching.

Keywords: Artificial Intelligence, Theory of Planned Behavior, Multimedia Class Design, Human-AI Interaction

1. Introduction

The Information Age is a time in history that began in the middle of the 1900s [1]. The usual way of learning has changed today because of multimedia in education. This has created interesting and interactive courses that cater to different training needs. Multimedia includes terms, pictures, music, videos, and pictures, which make learning easier and more satisfying. Colleges are changing how they teach and learn because they are using more multimedia technology. This technology allows learning to appear anywhere and everywhere, making it more personalized and versatile for children. Many people are paying attention to how Artificial Intelligence (AI) is being used in education because it is improving quickly. AI has the power to enhance education wonderfully. It can help create personalized learning programs, beautiful education systems, and informative posts made by AI.

This article looks at how people and AI work cooperatively in multimedia education to fill this gap. It mainly explores how AI may function as a teacher on its own, doing and leading film education, instead of just being a useful tool. This article seeks to understand how individuals and AI communicate and how these relations affect learning by using communication theories, such as the Theory of Planned Behavior (TPB).

This article is important because it can help situate the rules for using AI in multimedia education. It shows how AI can quickly improve learning while also pursuing social laws. It's important to see how Artificial Intelligence (AI) can act as a teacher, not just a tool. This knowledge will help us create teaching methods that make the most of AI's knowledge as it becomes more prevalent in education. In this essay, I highlight the importance of understanding what AI is and what it can be used in education. This adds to the bigger discussion about what education will look like in the age of AI.

2. Theory of planned behavior

The theory of Planned Behavior is a way to understand why people make certain options. It suggests that our reasons to do something result from three important things: what we think others expect us to do, how we feel about those steps, and how much energy we believe we have over it. These three factors simultaneously help determine our behavior.

The Theory of Planned Behavior was created based on the Theory of Rational Behavior, which was suggested by Ajzen and Fishbein [2]. In their 1975 book called *Believe, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Fishbein, and Ajzen defined some important terms related to view and suggested a connection between attitude and behavior. The design was called the Theory of Reasoned Action in 1980. The Theory of Reasoned Action focuses on four key concepts: conduct, intention, attitude, and belief. However, Ajzen discovered that the thought had a hard time describing activities that are hard to do because it assumed people have full authority over their decisions [3]. To overcome this problem, he proposed a third aspect of intention: perceived behavioral control, which can be described as people's beliefs about their ability to perform a specific behavior.

According to the TPB, Attitudes, Subjective Norms, and Perceived Behavioral Control are the three primary elements that impact an individual's intentions, which in turn impact their conduct [4]. Attitudes are that readily accessible beliefs about the probable consequences of that activity. Subjective Norms are the pressures that people discern from their surroundings, which results from their normative views and propensity to follow them [5]. Perceived Behavioral Control means the ability to assume you can manage your actions based on things that can help or get in the way, like how much time, money, and other resources you have, as well as how many people are willing to help you [6]. Intention is how willing someone is to do a certain action [5].

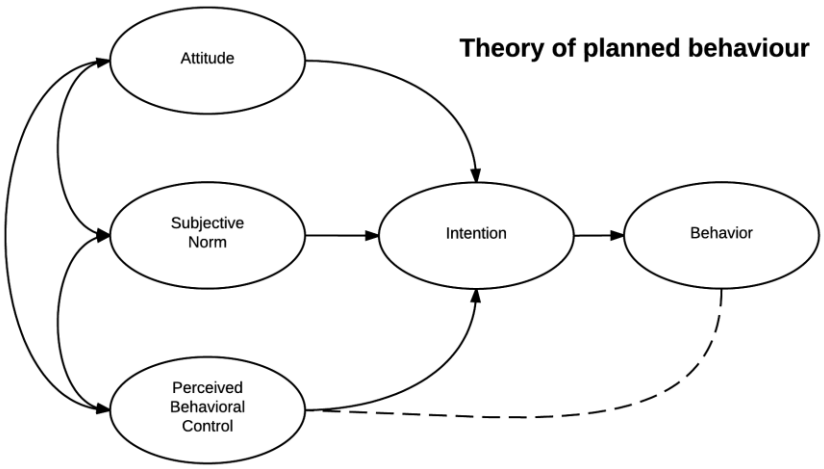

Figure 1: Theory of planned behavior

Students' ideas about Artificial Intelligence are shaped by how they see its advantages and disadvantages in supporting learning and teaching. Perceived Behavioral Control is about how secure feelings in using AI tools in education. This confidence depends on problems like how easy it is to get the tools, how even they're trained to use them, and the help they can get with techniques.

TPB highlights that attitudes, subjective norms, and perceived control behaviors are important factors to consider when getting out how people use and accept Artificial Intelligence strategies. People involved in education can make teaching and learning better by using TPB to develop clear plans. This will help create a great environment for applying Artificial Intelligence in schools.

3. The mechanism of human-AI interaction in education

Teaching and learning are transforming because new ways for people and AI to work are being used in schools. This component looks at how Artificial Intelligence is used to report how instructors work, enable produce interesting and dynamic learning places, and address the challenges that come with these innovative technologies.

AI can document how humans teach because it can look at a lot of information and apply certain computer programs to learn patterns and make wise decisions. Chen, Chen & Lin say that Artificial Intelligence (AI) can provide smart tutoring systems, personalized feedback, and customized learning paths that aim to imitate how human teachers work [7].

Ali says that using AI analysis can help students get more involved by giving them personalized learning and instant feedback [8]. Dogan, Goru, and Bozkurt say that Artificial Intelligence (AI) is very important in online learning [9]. AI may affect how individuals receive information based on how efficiently they do and what they like.

Mageira et al. present a case study of Educational AI Chatbots for Content and Language Integrated Learning (CLIL), demonstrating how AI can be used to facilitate language learning in an engaging and interactive manner [10]. To create a better educational experience, Liu, Li, and Zheng look into teaching methods that use AI to work together with the skills of human teachers [11]. This approach could lead to new teaching methods that make the most of the unique abilities of both people and AI.

4. Using artificial intelligence to design multimedia classes

A big change in education methods is using Artificial Intelligence to help make multimedia education. Artificial Intelligence is changing traditional rooms by helping children learn in their own way, creating a little education, and growing student consideration using information from data. Using Artificial Intelligence (AI) to create multimedia classes means using AI tools to make fun, interactive, and flexible learning experiences that fit the needs of every student.

It is important to follow directions that ensure AI is used correctly and that the value of education remains higher when doing multimedia applications with AI. Doing learning privately is one of the key ideas. AI systems perhaps look at a lot of data to understand how people like to hear, what students are great at, and where they need help, and this information helps to modify the materials and frequency [7].

The technique people use in the learning environment is also very significant. Using devices like AI calculations, online laboratories, and brilliant education systems, Artificial Intelligence can assist build engaging learning experiences. Students can learn by using products and finding them because these resources give quick comments. For example, AI systems can give quick feedback and help with group work, which has shown that using AI in collaborative learning makes students more interested and better at working together in visual communication design [11].

AI-driven multimedia courses may rely on readily combining different types of press. Great multimedia understanding conditions combine words, pictures, videos, and engaging works to provide a complete learning experience. Artificial Intelligence helps arrange these items so that people may know better and think less hard. Study shows that nicely- made Artificial Intelligence techniques can improve education by providing clear and organized content that matches training targets [12].

Some instances show how even Artificial Intelligence has been used in making multimedia courses. For example, a study done by Lo et al. showed that implementing AI in education, especially with different ways of learning, helps students get more creative and come up with new ideas [13]. The AI strategy in this essay was made to improve the multimedia content according to how people like to hear, which helped them discover much.

In the same way, AI machines are being used efficiently in colleges where students learn content and dialects collectively. They offer people help and advice that is tailored to their needs. Mageira et al. discovered that AI machines for education boost learning. They provide fast feedback, answer questions, and help with conversations, making learning more engaging and versatile [10].

Another example is using AI technology to improve how kids get involved in college. Ali talks about how Artificial Intelligence can look at student habits and performance data to find engagement trends and foresee possible problems. This data may help improve the multimedia content to keep children critical and focused, which can lead to better school performance [8].

It is important to examine how successfully AI-created multimedia organizations work to make sure they meet education requirements and achieve the desired studying effects. One common way to determine people is through tests and quizzes that determine how well they are doing before, during, and after a plan. These tests can help teachers see how AI-made content affects student learning and find ways to make it better [14].

Another approach is to conduct user experience (UX) research, which involves collecting feedback from students regarding their interactions with the AI system. UX research can help us understand how people view AI-based multimedia content, how involved they are with it, and any problems they do have. This feedback is important for improving the design of AI-based classes to make sure they are easy to use and accessible to everyone [15].

Also, with AI systems, resources can be seen how well they are working and give changes to their performance. These insights do show how concerned folks are, how much they spend on things, and how well various videos or graphics work. By regularly looking at this data, teachers can make informed choices to improve the multimedia learning environment [9].

Using Artificial Intelligence to create multimedia education is a good way to make knowledge better. Teachers can create exciting and effective AI-based learning spaces by focusing on personalizing lessons, making activities engaging, and using different types of media swiftly away. Review practices help ensure that these methods are constantly updated to meet students' needs. Situations show that Artificial Intelligence enhances learning outcomes. As AI systems improve, they will probably be used more in education with videos and other marketing, opening up new strategies for teaching and learning.

5. Ethical considerations

It's important to deal with ethical problems that arise as Artificial Intelligence is used more in building multimedia parties. Using Artificial Intelligence in schools has many benefits, but there are major societal issues that must be thought of to keep these tools used appropriately and justly. This place looks at the main cultural issues in AI-created multimedia courses, quite as fairness, privacy, responsibility, and how people and AI work together in the classroom.

One of the main issues with AI systems is that the software can be biased, which may cause severe outcomes in schools. Excellent sets of data that may provide existing biases in society are often used to train Artificial Intelligence methods. Artificial Intelligence creates disparities in the classroom better or worse if prejudices are not adequately dealt with. For instance, some groups of people have become favored by AI-based personalized learning practices more than others, which can lead to cruel access to education outcomes and resources [7]. To make sure AI is good, we need to use unique and standard education information, design the algorithms cautiously, and keep checking the algorithms to find and fix any bias.

To offer personalized learning, researchers need to gather and examine a lot of student information for artificial-based multimedia courses. This is a great risk to child's privacy and the safety of their data. To prevent misuse and unauthorized access, important information like students' grades, studying habits, and personal details should be protected [9]. To keep scholarly data safe, institutions and AI designers need to use effective surveillance methods like encryption, an authority who can see the data, and follow data privacy laws. Also, to keep trust in AI systems, we need to be clear about how we collect data and communicate openly with parents and kids about how the data is used [16].

Using Artificial Intelligence in education raises worries about responsibility—mainly, who is to scold when an AI system makes a mistake or causes problems? In traditional educational settings, teachers and administrators are accountable for their actions and decisions. However, when Artificial Intelligence systems are involved, determining accountability can become complex, particularly when Artificial Intelligence operates autonomously or in a black-box manner [14]. Artificial Intelligence systems must make sure that their decision-making procedures are transparent in order to meet this issue. To identify and fix probable fears, academics and manufacturers need to clearly understand how AI systems operate and make decisions. It is important to create clear rules for using AI in education, including ways to handle disagreements or mistakes, to make sure people are held responsible [11].

Getting Artificial Intelligence into areas affects how people and AI talk, primarily in how trainers do their job. While Artificial Intelligence does aid in strengthening education by providing private training and support, it is essential to understand that AI does relate to what people instructors do instead of taking their place [17]. Teachers play a critical role in fostering social and emotional learning, providing mentorship, and addressing the unique needs of students—tasks that Artificial Intelligence systems are currently ill-equipped to perform. As such, ethical considerations must include the preservation of the human element in education, ensuring that Artificial Intelligence serves as a tool to empower teachers rather than diminish their role [18].

Another ethical concern is the impact of Artificial Intelligence on student autonomy and agency. AI-driven systems can provide students with tailored learning experiences, but there is a risk that excessive reliance on Artificial Intelligence could undermine students' ability to make independent decisions about their learning. If Artificial Intelligence systems dictate the learning path too rigidly, students may have fewer opportunities to explore their interests, think critically, or develop problem-solving skills. To address this, Artificial Intelligence systems should be designed to encourage student agency by providing choices, promoting self-directed learning, and supporting students in setting and achieving their own learning goals [8].

When designing and implementing AI-driven multimedia courses, ethical considerations are crucial. To ensure that Artificial Intelligence is used moderately and correctly in education, we need to address issues about bias, privacy, accountability, and how people socialize with AI. By following cultural guidelines, teachers and developers may apply AI to enhance knowledge while ensuring that students ' rights and correctly- being are respected. To address the social problems that come up and create the best guidelines for using Artificial in education, we need to keep thinking and understanding Synthetic changes.

6. Conclusion

A big change in education is happening with the use of Artificial Intelligence (AI) in creating multimedia classes. This post has explained the hard connections between people and AI in multimedia education. It shows how AI can be used as a principal teacher or a caregiver. We have gained a better understanding of how teachers and students view their ability to control behavior, cultural influences, and their feelings about learning with AI by using the Theory of Planned Behavior (TPB).

There's no issue that Artificial Intelligence helps build multimedia areas. Using statistics, Artificial Intelligence produces training better, preserves children's interest, and creates personalized learning contacts. AI systems can change training and speed to match each person's wants by looking at a lot of information, making learning easier and more enjoyable. The soft mixture of text, pictures, videos, and interactive features in AI-created multimedia training makes learning better. It makes it easier for individuals to understand the components and keeps them more engaged.

Nevertheless, there are considerable ethical concerns about using AI in education that should be carefully thought out. To use Artificial Intelligence (AI) fairly and responsibly, we need to deal with issues like unfairness in algorithms, privacy concerns, accountability, and how people interact with AI. We need to protect the vital role that personal teachers have in helping children learn about feelings and emotional skills. Teachers and programmers may work together to lessen bias, protect student facts, and create clear guidelines for applying Artificial Intelligence.

The images and techniques discussed in this study demonstrate how Artificial Intelligence enhances learning outcomes. They even show the need for regular growth and improvement. As Artificial Intelligence technology keeps improving, it is expected to be used more in multimedia education, leading to new ways to teach and research.

To sum up, this article talks about how education does change with the boost of Artificial Intelligence. We have found out a little about how Artificial Intelligence can help with knowing while chasing societal rules. We did this by studying how people and AI work and looking at the cultural problems in applying AI to produce multimedia instruction. As experts and professors, we have a responsibility to manage the spiritual challenges that come up when using Artificial Intelligence to improve instruction. This could lead to a possibility in education that is more flexible, secret, and fair.

References

[1] *Castells, M., The information age: Economy, society and culture (3 volumes). Blackwell, Oxford, 1996.* ***1997****: p. 1998.*

[2] *Fishbein, M. and I. Ajzen, Belief, attitude, intention and behaviour: An introduction to theory and research. Vol. 27. 1975.*

[3] *Ajzen, I., Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology, in Advances in experimental social psychology. 1987, Elsevier. p. 1-63.*

[4] *Ajzen, I., The theory of planned behavior. Organizational Behavior and Human Decision Processes, 1991.* ***50****(2): p. 179-211.*

[5] *Zhang, Y. and Q. Yuan, Theory of Reasoned Behavior and Its Application and Prospect in The Research of Information System. Journal of Modern Information, 2018.* ***38****(11): p. 145-153.*

[6] *Ajzen, I., The theory of planned behavior: Frequently asked questions. Human behavior and emerging technologies, 2020.* ***2****(4): p. 314-324.*

[7] *Chen, L., P. Chen, and Z. Lin, Artificial Intelligence in Education: A Review. IEEE Access, 2020.* ***8****: p. 75264-75278.*

[8] *Ali, A., Enhancing Student Engagement Through AI-driven Analytics in Higher Education Institutions. 2024, EasyChair.*

[9] *Dogan, M.E., T. Goru Dogan, and A. Bozkurt, The Use of Artificial Intelligence (AI) in Online Learning and Distance Education Processes: A Systematic Review of Empirical Studies. Applied Sciences, 2023.* ***13****(5): p. 3056.*

[10] *Mageira, K., et al., Educational AI Chatbots for Content and Language Integrated Learning. Applied Sciences, 2022.* ***12****(7): p. 3239.*

[11] *Liu, S., J. Li, and J. Zheng, AI-Based Collaborative Teaching: Strategies and Analysis in Visual Communication Design. International Journal of Emerging Technologies in Learning (iJET), 2023.* ***18****(23): p. pp. 182-196.*
[12] *Luckin, R. and M. Cukurova, Designing educational technologies in the age of AI: A learning sciences-driven approach. British Journal of Educational Technology, 2019.* ***50****(6): p. 2824-2838.*
[13] *Lo, F., et al. Artificial Intelligence Aided Innovation Education Based on Multiple Intelligence. in 2021 IEEE International Conference on Artificial Intelligence, Robotics, and Communication (ICAIRC). 2021.*
[14] *Ifenthaler, D. and C. Schumacher, Reciprocal issues of artificial and human intelligence in education. Journal of Research on Technology in Education, 2023.* ***55****(1): p. 1-6.*
[15] *Rokhayani, A., et al., Integrating Technology in Online Learning Based on Computer-Mediated Communication Artificial Intelligence to Improve Students' Achievement. Journal of Higher Education Theory and Practice, 2022.* ***22****(15).*
[16] *Watson, S. and J. Romic, ChatGPT and the entangled evolution of society, education, and technology: A systems theory perspective. European Educational Research Journal, 2024.*
[17] *Zhang, S., et al., Beyond learning with cold machine: interpersonal communication skills as anthropomorphic cue of AI instructor. International Journal of Educational Technology in Higher Education, 2024.* ***21****(1): p. 27.*
[18] *Laksani, H., Addressing Beliefs in the Implementation of Artifical Intelligence in Visual Communication Design: Theory of Planned Behaviour Perspectives. Jurnal Desain, 2023.* ***10****(3): p. 636-645.*