

Educational Models on Streaming Media Platforms and in Traditional Settings: A Comparison in the New Media Environment

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Abstract. The rapid development of new media technology has driven the widespread adoption of online education, with new educational models represented by streaming media platforms profoundly changing the way knowledge is disseminated and learned. This study systematically compares the core differences between streaming media education and traditional education, focusing on three dimensions: resource allocation, teaching interaction, and implementation effectiveness. Through literature analysis and comparative research, it was found that Traditional education has significant advantages in terms of systematic course design and face-to-face teacher-student interaction, particularly in the systematic construction of knowledge and classroom management. However, it also has drawbacks such as fixed time and space constraints and insufficient personalized instruction. Streaming media education, on the other hand, breaks through the barriers of traditional education with its flexible learning methods, rich resource integration, and strong interactivity, especially offering new possibilities for regions with scarce resources. However, it also faces challenges such as varying content quality and insufficient self-discipline among students. This study concludes that there are significant differences between the streaming media education platform model and the traditional education model in terms of teaching structure, learning paths, and interaction methods. Further analysis shows that both models have their own advantages and are suitable for different learning needs and educational scenarios, reflecting differences in educational philosophy and implementation methods rather than a comparison of superiority or inferiority.

Keywords: Streaming media, education, online courses, traditional teaching, streaming media platforms

1. Introduction

This study focuses on the rapid development of new media technology in the current environment. Streaming media platforms, with their immediacy, interactivity, wide coverage, and personalized recommendations, have given rise to a new type of educational model. This research is very meaningful for exploring the topic of adapting to new educational models. This study focuses on teaching interaction logic and effectiveness. Literature analysis was used to search for and read

relevant materials and literature. The advantage of this method is that it can effectively analyze the differences between traditional education models and streaming media platform education models, which is conducive to the progress of the research. The ultimate goal of this study is to explore the advantages and disadvantages of the two educational models mentioned above in order to address the issues currently facing educational models. To achieve this goal, this study conducted a comparative study of the two educational models and, based on the literature, listed the differences between the two in terms of teaching methods in various aspects.

2. Background

With the development of media technology and the increase in the number of Internet users, the functions of streaming media platforms are no longer limited to entertainment carriers, but also include the sharing and learning of knowledge content. According to the “2023 China Online Education Platform Development Report,” over 87% of Chinese netizens obtain knowledge through video platforms. This phenomenon reflects a structural transformation in the supply of knowledge content. Bilibili's Knowledge Zone saw a year-on-year increase of 92% in video views. Its category tags show that, in addition to the nine major subjects of the college entrance exam (accounting for 43% of the total), international curriculum systems have experienced explosive growth, AP Calculus courses, A-Level Physics experiment videos, and other foreign curriculum-based knowledge are gradually increasing.

YouTube's global resource integration has even greater economies of scale, with its educational channels averaging over 1 billion minutes of viewing time per day and the official MIT Open Course Ware channel accumulating 8.9 million subscribers. This multifaceted supply of knowledge is changing the way students around the world learn and the channels through which they do so, posing a certain challenge to traditional educational models.

3. Comparative analysis

3.1. Traditional education model

Traditional teaching models typically refer to group teaching activities conducted in fixed campus classrooms or laboratories. Their core feature is that teachers and students conduct teaching and learning activities simultaneously in the same space and must adhere to specific classroom behavior norms and communication methods. Traditional teaching has three characteristics. First, traditional education is based on an institutionalized framework, the core of which is the transfer of knowledge through a state-led standardized system. This model follows a curriculum standards-textbook-classroom approach to achieve a systematic teaching cycle. Second, the curriculum design is structured in stages. Taking the Chinese compulsory education mathematics curriculum as an example, schools must strictly adhere to the National Mathematics Curriculum Standards, breaking down knowledge into spiraling modules. For example, elementary schools focus on developing number sense and computational skills, middle schools introduce algebraic thinking, and high schools deepen understanding of functions and geometric proofs. Third, each stage of education is divided into teaching units by semester, with teaching content or units required to be completed within a specified time frame, reflecting rigid progress constraints.

In traditional teaching models, teachers occupy an absolutely dominant position and are the leaders of the entire teaching situation. The teaching process mainly relies on the teacher's existing experience, with textbooks as the authoritative blueprint. Through systematic and organized oral

explanations, often supplemented by blackboard writing, paper-based teaching materials (assessments), and other traditional media, knowledge is conveyed to students. Students mainly play a passive role in this process, accustomed to absorbing knowledge according to the textbook arrangement and the teacher's teaching progress. Teachers ask questions with predetermined answers through controlled interaction, forming a linear communication path from teacher to student.

3.2. Streaming media platform education methods

Streaming media technology is basically a mix of internet tech, audio tech, and video tech that lets you download and watch stuff at the same time. It's super useful for online education, letting you watch videos on demand or live [1]. Streaming media teaching refers to a modern form of education that relies on the Internet and streaming media technology to impart knowledge and facilitate learning through online video platforms. The core of this approach lies in the real-time transmission and on-demand access of educational content. Educators upload recorded or live-streamed instructional videos, course materials, and other resources to platforms such as Bilibili, YouTube, or specialized online education platforms. Learners can then access and view these materials anytime, anywhere via the internet, without the need to wait for a full download. This teaching model significantly breaks through the time and space constraints of traditional classrooms. Learners are no longer bound by fixed schedules, class hours, course arrangements, and physical classrooms. They can learn flexibly according to their personal schedules, making use of fragmented time. At the same time, the playback control functions provided by the platform (such as pause, replay, and double speed playback) give learners a high degree of autonomy, allowing them to adjust their learning pace according to their own understanding, repeatedly study difficult points, and quickly browse familiar content. The vivid, intuitive, lively, and colorful characteristics of online streaming media content stimulate students' multiple senses, capturing their attention and sparking their interest in learning [2].

Interactivity is another important feature of streaming media teaching. Learners can communicate with educators and other learners through methods such as asking questions via bullet comments, discussing in comment sections, and live streaming. Although this interaction is somewhat unstable, it effectively builds a learning community and provides a channel for answering questions and exchanging ideas.

In terms of resource supply, streaming media platforms demonstrate a high degree of openness and diversity. The teaching content not only comes from school teachers and professional educational institutions, but also widely draws on knowledge shared by industry experts, academic researchers, and outstanding learners (such as Bilibili UP owners Luo Xiang and Dai Jianye, who are university professors). Some of the video courses publicly available online are taught by outstanding professors from top universities. These courses are well-produced and provide a comprehensive knowledge system [2]. This greatly enriches the variety and perspectives of learning resources, enabling learners to access knowledge from different systems (such as domestic high school education, vocational education, international courses such as AP/A-Level, etc.) and different subject areas both domestically and internationally.

Massive Open Online Courses (MOOCs) were first introduced in 2012 and have since been widely adopted in primary and secondary education, higher education, and home education. In high schools, using MOOCs to flip the classroom and design blended learning can reduce dropout rates in K-12 education and help students better prepare for university courses; in universities, MOOCs have global influence, unlimited participation, and open access through social networks, attracting students of different ages, nationalities, abilities, and interests to engage in universal learning,

interaction, and collaboration on a global scale[3]. This demonstrates the positive impact of streaming media platforms on student learning.

4. Strengths and weaknesses

4.1. Advantages of traditional education models

Traditional education uses a step-by-step curriculum design, such as the 12-year curriculum in primary and secondary schools under China's compulsory education system, where the difficulty of the curriculum decreases from difficult to easy, in line with the general cognitive patterns of each age group. Each academic year is divided into units to ensure that knowledge is systematic and to avoid fragmented learning.

Deep interaction between teachers and students in the classroom promotes students' enthusiasm for learning and liveliness in the classroom. Through physical scenarios such as project assignments and group discussions, social skills training is provided to achieve all-round development. Students who encounter problems in their studies can receive timely responses from teachers, who can also help students solve practical problems in their daily lives and studies [4].

In terms of knowledge system construction, traditional teaching models have advantages, as their knowledge transmission systems are comprehensive and systematic. The course design follows the logic of the subject and the cognitive patterns of students, arranging the teaching content in a step-by-step manner to help students build a structured knowledge framework. The teaching process starts with the easy and simple, forming a coherent chain of knowledge that is easy for students to understand, remember, and apply.

In terms of classroom management, traditional teaching models are more conducive to maintaining effective control over classroom order. Fixed teaching venues and clear classroom rules provide a stable and orderly environment for teaching activities. Teachers can observe students' classroom performance in real time, promptly correct their classroom behavior and learning attitudes, thereby ensuring that teaching activities proceed smoothly according to the teaching plan. This orderly learning atmosphere helps students concentrate, and classroom supervision ensures that students can engage in learning activities without requiring a high degree of autonomy.

4.2. Disadvantages of traditional education models

Due to scene and time constraints, students and teachers are required to conduct teaching in the same venue at the same time, while relying on physical teaching materials such as physics teaching aids, experimental equipment, paper-based test papers, and lesson plans. This requires both teachers and students to be present at the same time. In the event of unforeseen circumstances (such as illness or weather disasters), courses are easily interrupted or postponed, making it difficult to quickly adjust the pace of teaching. For example, during the pandemic, traditional classrooms could not be used, and the problem of offline teaching coming to a standstill became apparent. Students' extracurricular time was taken up by fixed classrooms, making it difficult to accommodate individual learning needs (such as interest development and targeted tutoring). This was especially true for students with special schedules (such as those with sports or artistic talents), for whom time conflicts were a major issue.

This model emphasizes systematic knowledge construction and socialization training, but it lacks flexibility and is unable to meet individualized needs (a 2023 survey by the Ministry of Education showed that only 32% of students believe that traditional classrooms can specifically address their

learning difficulties) Due to limitations in classroom time and space, it is difficult to observe and assess each student's level of knowledge and thinking development individually. This group teaching characteristic means that some students' learning difficulties and individual differences cannot be addressed and resolved in a timely manner. Students who cannot keep up with the pace of the class need to digest the knowledge points after class or seek teacher guidance. They find it difficult to solve problems in class in a timely manner, which leads to slow learning progress and low efficiency.

In terms of learning autonomy, in traditional education and teaching, teachers are at the center of the teaching process and dominate everything in the classroom, while students are in a passive position. This not only hinders the development of students' initiative and creativity but also limits their ability to analyze and think critically through independent learning [5]. This one-way method of knowledge transfer causes students to gradually develop a learning habit of relying on teachers' explanations, weakening their subjective initiative in independent thinking and knowledge acquisition, and making it difficult to stimulate their intrinsic motivation to learn.

Traditional teaching evaluation management suffers from issues such as single evaluation standards and single evaluation subjects. It places a high degree of emphasis on exam results and tends to judge students' learning status based on their grades. It does not focus on improving students' comprehensive qualities and cultivating their individual strengths, nor does it take into account the evaluation of teachers' teaching processes, professional development, and innovative abilities [6].

4.3. Advantages of streaming media education platforms

Users who learn on streaming media education platforms and learners with a certain level of media literacy can independently access a wealth of learning resources through online platforms, freely choose instructors and content, and participate in exploring topics of interest [3]. Features such as Billbill's knowledge point slices, note-taking functionality, and adjustable playback speed (1.5x speed, replay) enable students to learn on demand. When encountering difficult-to-understand knowledge points, students can replay those sections repeatedly, while familiar knowledge points can be skipped, resulting in high learning efficiency. The comment and bullet screen functions enable direct communication between viewers and knowledge disseminators, while the learning community facilitates discussion and exchange with learners of related content. Some educational bloggers can conduct live streaming lessons. After the live stream is completed, the digitized audio and video content can be stored in the streaming media platform, allowing students to watch on-demand at a later time [7]. Furthermore, knowledge does not need to be acquired at a specific time and place; students can learn the content at their own pace and according to their own preferences. For example, some students attend classes at school during the day. When faced with additional knowledge points that require further study, they do not need to go to offline institutions or schools to take courses. Instead, they can use streaming media to study at any time or place [8]. The platform integrates teaching resources through live streaming, recorded broadcasts, and on-demand viewing. Students can flexibly choose their learning times according to their own schedules and repeatedly watch course content to reinforce their understanding of the material. For example, working professionals can use their spare time to watch course replays on mobile devices, overcoming the limitations of traditional classroom teaching with fixed schedules. Students in remote areas can also access high-quality educational resources online, alleviating the imbalance of educational resources across regions. This “decentralized” learning model greatly enhances the accessibility and flexibility of education.

Some streaming media platforms can provide real-time assessment of online learning content. For example, on the official IELTS website, after registering for the IELTS exam, candidates can use the video courses launched by the official IELTS website for free and without any restrictions before the exam. In these video courses, the instructor will post questions and ask students to answer them in real time below, thereby assessing their learning effectiveness at any time.

The use of RSS in teaching can help students obtain more learning information, while teachers can track students' learning progress or use it to complete tasks such as grading assignments [1].

AI technology has been applied to all aspects of teaching management, supporting educational activities in all stages of teaching, learning, management, and evaluation, such as intelligent recommendation systems, intelligent grading systems, intelligent assessment tools, and multilingual translation systems, supporting large-scale teaching and personalized learning [3]. Under AI technology, the teaching model of streaming media platforms will become more mature, comprehensively monitoring students' learning progress and accuracy. Students can choose their preferred classroom style. On streaming platforms, there are many video creators for each subject, so students can weigh various factors such as view count, speaking speed, content density, and professionalism to select their favorite videos, creators, and content collections. They can also comment on or make suggestions about teachers' classrooms through comments, private messages, and other means, thereby achieving a positive cycle of content.

4.4. Disadvantages of streaming media education platforms

The quality of teaching on streaming media platforms varies greatly. Videos may contain incorrect information, but as beginners, students find it difficult to identify problems in the videos and may mistakenly regard the incorrect information as correct knowledge. Video uploaders may not necessarily have teaching qualifications, and may lack professional knowledge and skills, which can lead to unprofessional knowledge transfer. Students may also find themselves in a dilemma when choosing videos, as it can be difficult to find suitable teaching videos. Online Q&A sessions often rely on methods such as leaving messages or sending private messages, which can lead to a lag in addressing issues. This results in students lacking targeted guidance, and teachers struggling to address all students' questions. This is particularly challenging for students with weaker self-directed learning skills, who may fall behind as their questions accumulate. The lack of a testing system, unlike traditional education models with regular exams, means that some subjects cannot be tested in a similar way via streaming media to assess the final effectiveness of learning, making it difficult to quantify students' learning outcomes.

At this stage, AI educational applications still face issues such as low technical maturity, data privacy and security, over-reliance leading to skill degradation, and academic integrity and ethics [3]. AI educational applications on streaming media platforms still pose certain risks and are unstable.

Therefore, when using streaming media platforms, students need to have a certain degree of autonomy in their learning, and learners must possess strict self-control and self-discipline. At the same time, as online searches become integrated into coursework, students will frequently use the internet to search for answers to related learning questions. Often, when faced with learning difficulties, students will simply search online for answers rather than thinking through the problem themselves or attempting to solve it independently [8]. At the same time, streaming media platforms do not have the offline supervision systems found in traditional education models, and students' learning medium is the internet platform. Some students, especially younger users, are unable to concentrate fully on the classroom.

5. Conclusion

The results of this study indicate that there are significant differences between the streaming media education platform model and the traditional education model in terms of teaching methods, learning experiences, and information dissemination mechanisms. Based on this, the study further concludes that the two education models each have their own advantages and are suitable for different learning contexts and educational objectives, reflecting differences in direction rather than a simple comparison of superiority and inferiority. This study provides valuable reference for future research in this area, primarily impacting the education industry. Future research should focus more on in-depth exploration of specific directions for education on streaming media platforms.

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