

Research on the Applications of Multimedia Technique in the Mathematical Teaching and Education

PANG Tong^{1, a}

¹Guangxi Technical College of Machinery and electricity, Nanning 530007, China

^aJD3249466@126.com

Keywords: Multimedia Technique; Mathematical Teaching; Novel Education Pattern.

Abstract. In this paper, we research the applications of multimedia technique in the mathematical teaching and education. Multimedia computer is a collection of text, graphics, images, animation, sound, video and other functions in the integration of computer technology to a large amount of information with graphic expression, voice and image to apply multi-media in math teaching could create a more vivid image teaching atmosphere. Modern mathematics in the way that in both views in the thought and content has higher abstractness and generality it profoundly reveals the inherent law of mathematical sciences and contact and mathematical science and the form of the objective world. The multimedia technique enhances the performance of the current teaching model and pattern. The result proves the effectiveness and feasibility of using the method.

Introduction

The use of multimedia teaching in modern teaching work has been gradually becomes widespread, multimedia technology can help students establish a solid thinking, namely combine various senses which are able to fully show the students the classroom knowledge that help students better understand the knowledge. Multimedia computer is a collection of text, graphics, images, animation, sound, video, and other functions in the integration of computer technology to a large amount of information with graphic expression, voice and image to apply multi-media in math teaching could create a more vivid image teaching atmosphere. Thus arouses student's study enthusiasm, it will improve the efficiency of mathematics classroom teaching. Computer application in the field of education is becoming a new education technology. The education idea, teaching method and the profound reform of education system are three important factors. In the process of education modernization, as important subject of basic education, school mathematics is facing how to update education ideas and teaching methods especially in the elementary education curriculum reform today. When you watch a movie or TV program, superficial and even deep feelings and emotions are elicited, such as excitement, anger, laughter, relaxation, love, whimsy, or even boredom. These emotions are often triggered or heightened by the mood created by specific visual scenes, the actors, and/or the background music that may help the appearance of the courses [1-2].

It has a long history of mathematics is a rational and mature discipline since the 20th century due to the rapid development of science and technology in the mathematical sciences and other scientific mutual penetration and mutual influence of growing. Modern mathematics in the way that in both views in the thought and content has higher abstractness and generality it profoundly reveals the inherent law of mathematical sciences and contact and mathematical science and the form of the objective world and the connection between the change rule so it increasingly permeated various fields of science and engineering technology will become vital ingredients especially in the computer science and modern mathematics influence each other and promote greatly expands the application range of the mathematical sciences. The integration of information technology and mathematics curriculum will lead to curriculum content, curriculum implementation, curriculum evaluation and the transformation of the curriculum resources [3].

Therefore, to illustrate the applications of multimedia in the current education pattern, in this paper, we research the applications of multimedia technique in the mathematical teaching and

education. Courseware development and database construction is very important to strengthen the management of multimedia teaching which is the basic work improve multimedia teaching quality especially high quality courseware development and sharing, is very important. The development of modern information technology has greatly improved the efficiency of the spread of education resources and promotes the education resource sharing. Multimedia technology as the teaching of mathematics teaching provides rich resources [4]. Class time is limited, a lesson to teach knowledge is limited and the intensity of each class is very large, at this time is out of step with the amount of practice the application of multimedia assisted instruction is one of the most reasonable. In the following sub-sections, we will discuss the system in detail. The steps are shown in the figure 1.

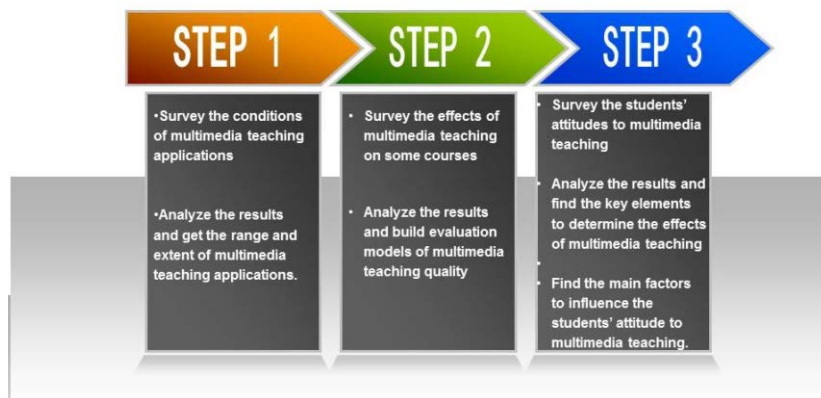


Fig. 1. The Steps for Analyzing the Effect of Multimedia Assisted Teaching Scene

The Application of the Multimedia Technique

The superiority of multimedia in mathematics classroom teaching. Multimedia technology provides a generic network module, image processing module and log management module, etc., through a unified interface encapsulate specific platform and implementation details of the system, and provide a platform for the upper application programming interface. Multimedia presentation framework by general modular encapsulation system function, so that the phase separation media display and system function, convenient multimedia presentation framework quickly migrated to other platform.

Through using multimedia audio-visual effects, establishment situation and guide new lesson stimulate interest, as the saying goes: "a good beginning is half done". At the beginning of the math class we focus the attention of students and bring their thoughts into a specific learning situations, stimulate the students' strong interest in learning and strong thirst for knowledge, success or failure of a math class plays an important role if our mathematics teacher in the daily teaching to capture the opportunity to mobilize students' interested in using multimedia teaching and let the boring became interested in the classroom, students will like mathematics geometric knowledge learning [5-6]. In the figure 2, we compare the traditional teaching method with the multimedia assisted method.

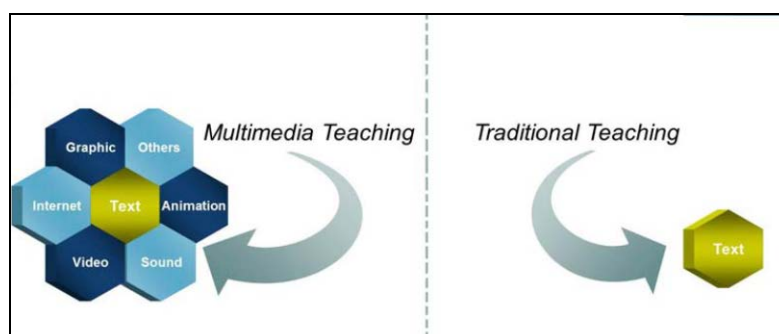


Fig. 2. The Comparison of the Traditional Teaching Method with Multimedia Assisted
It is often said that interest is the best teacher, no interest, it will lack of inspiration and wisdom.

In mathematics teaching course, if the original boring is added in mathematics classroom of multimedia, build a lively and interesting learning atmosphere, would be easier to stimulate students' interest in learning. As online tutors, teachers help learners build their confidence as they get used to working independently online. They post messages to the group as a whole and to each student individually to meet their need for support. They may post explanations to guide learners in more complex tasks, encourage them to communicate, do their individual assignments, and use all the platform tools they have at their disposal to facilitate their work. To make students deeply understand the thinking method of mathematics master basic math knowledge we think in the multimedia teaching of higher mathematics is to give priority to in order to teach" teaching should not only focus on the difficulty will gradually so that the electronic lesson plan has become an important part of classroom teaching.

The Principles of Multimedia Assisted Teaching. It was widely known that teaching was a complicated affair and many factors of different areas concerned. They could be summarized as teachers' factors, students' factors, course knowledge's factors and even society and parents' factors. It was difficult to find out which factors playing key role in determining teaching activities without proper analysis methods. Multivariate analysis method was group of methods facing to multivariate problems. It was almost tailor made for the complicated teaching problems discovering. Mathematics is an abstract of natural science. We use of multimedia technology and using mathematics courseware is nothing more than to abstract concepts in mathematics, geometry transformation process visually displayed in front of students, for students to provide operating model, to facilitate students' operation, the perception, discovery, invention, and in practice to cultivate students thinking ability and oral communication ability. Therefore, use of multimedia in mathematics teaching should make efforts to do the following results. (1) Inject more humanistic ideas, optimize the teaching thought. (2) Pay attention to the multimedia auxiliary, instrumental and adhere to the teacher's dominant position. (3) Focus on thinking training through mathematical thinking. In the figure 3, we show the example for the multimedia combined mathematical teaching steps.

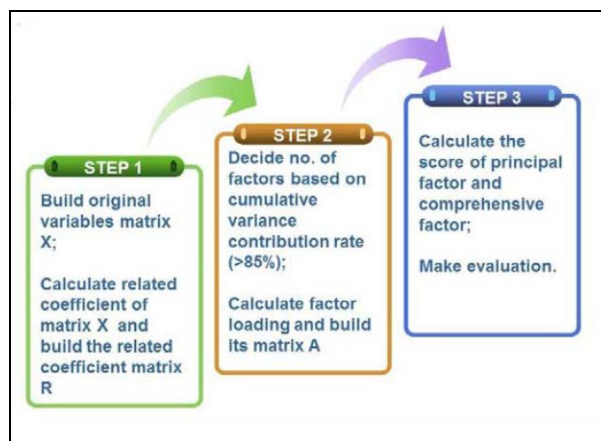


Fig. 3. The Example of Multimedia Assisted Teaching Steps

In the traditional teaching of higher mathematics micro element method thoughts to limit the trace of the space surface method and the content such as the teacher can tell students that whether it on the blackboard could not image intuitively displayed in multimedia classroom by using mathematics software package now powerful symbol calculus graphics animation feature makes more difficult to perform on the blackboard before space function limit process line and surface graphics and animation can be made by multimedia good intuitive vivid demonstration to make the students learn by using the method of drawing some function in higher mathematics involved in the change process. Using dynamic graphic to show students the polynomial approximation function/local approximation and Fourier series part and function integral approximation to the visual effect of mathematics teaching is no longer a boring type of from theory to the blackboard and chalk formula deduction and calculation which can put the theory and practice well afford relate closely to abstract thinking and

the image thinking organically combined the analysis and geometry. The structure of multimedia technique application in the mathematical teaching is shown in figure 4.

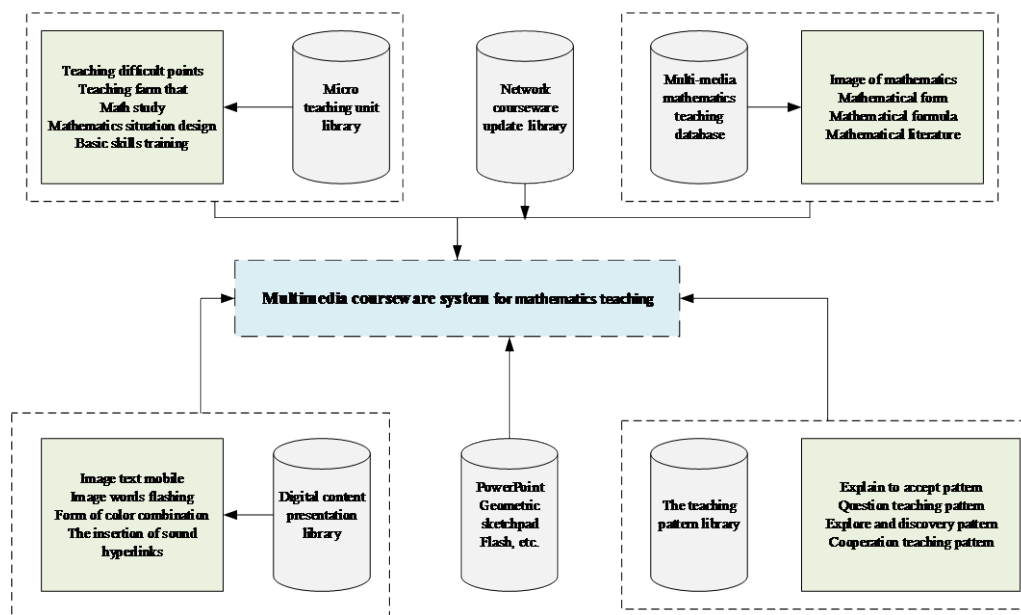


Fig. 4. System structure of the multimedia technique in the mathematical teaching

The Meaning and Advantages of using Multimedia Technique. Mathematical representation is boring and abstract, but mathematical thinking is lively. The cause of the students' interest in mathematics has two kinds, one is a teacher's personality charm and the other is from the charm of mathematics itself. Mathematics teacher's task lies in the nature, the mathematics knowledge when recovery for mathematicians study found that thinking. Through this activity to display the mathematical essence connotation and simple mathematical thinking process, in the classroom, the teacher is the organizer and guide of students learning, to create good teaching situation for students and encouraging students to actively completing exploration process which promote the interaction between students and teachers and cooperative learning. Under the condition of class is the same, mathematics teaching to do for the there is some difficulty and each class the students' mathematics knowledge level, learning ability has a bigger difference. In this case, if in the face of foundation weak students in teaching which is not conducive to the advancement of students with excellent grades and on the other hand, it is not conducive to weak foundation of student learning. Multimedia teaching is both image and intuitive at the same time due to the introduction of multimedia device saves the teacher blackboard writing part time accordingly also reduced the intensity of teachers' teaching work as teachers lecture provides more plenty of time at the same time the requirements we teachers must fluctuate in more information in class give full play to the computer multimedia auxiliary teaching function and advantages of enrich and expand the teaching content increase the amount of information for improving the utilization ratio of class of classroom teaching to expand students' knowledge using computer teaching aids and related software use dynamic and image of the teaching methods and means to motivate and arouse the enthusiasm of students' subjective initiative and improve teaching quality. In the following figure 5 we show the effect after using the combined methodology. The result indicates that 51.5% of all the students hold the opinion that the multimedia combined method is much more effective and attractive.

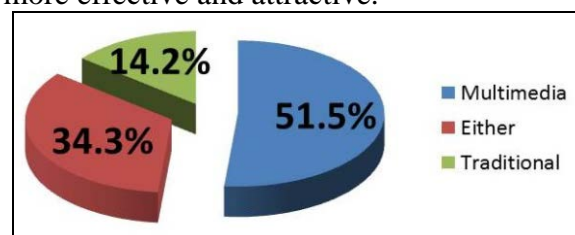


Fig. 5. The Effectiveness of the Multimedia Assisted Teaching Pattern

Conclusion and Summary

In this paper, we research the applications of multimedia technique in the mathematical teaching and education. Computer application in the field of education is becoming a new education technology. The education idea, teaching method and the profound reform of education system are three important factors. Mathematical representation is boring and abstract, but mathematical thinking is lively. The cause of the students' interest in mathematics has two kinds, one is a teacher's personality charm and the other is from the charm of mathematics itself. The survey proves that students prefer multimedia based approaches than the traditional way. In the future, we plan to conduct more related research to modify and polish the current pattern of teaching.

References

- [1] Aydin, S. (2014). Using example generation to explore students' understanding of the concepts of linear dependence/independence in linear algebra. *International Journal of Mathematical Education in Science & Technology*, 45, 6, págs. 813-826.
- [2] Man, Y., & Poon, K. (2014). Exploring the limits of trigonometric functions: results and reflections from a pilot study. *International Journal of Mathematical Education in Science*.
- [3] Volarić, Brajković, T., Sjekavica, E., & Tomo. (2014). Integration of fahp and topsis methods for the selection of appropriate multimedia application for learning and teaching. *International Journal of Mathematical Models & Methods in Applied Sciences*.
- [4] Zaranis N. The use of ICT in kindergarten for teaching addition based on realistic mathematics education[J]. *Education & Information Technologies*, 2014.
- [5] Cook J P. The Emergence of Algebraic Structure: Students Come to Understand Units and Zero-Divisors.[J]. *International Journal of Mathematical Education in Science & Technology*, 2014, 45(3):349-359.
- [6] Kirschner P A, Sweller J, Clark R E. Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching[J]. *Educational psychologist*, 2006, 41(2): 75-86.