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Several Problems in Multimedia Technology in Advanced Mathematics Teaching

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Abstract: *The application of multimedia technology in advanced mathematics teaching has become a tendency, and it meets with some dispute during the process of application. In this article, we will analyse the position and superiority of multimedia technology in advanced mathematics teaching, and traditional teaching and traditional teaching. Besides, we will also study the problems about how to make the proper application of multimedia technology in advanced mathematics teaching*
Keywords: *Advanced mathematics; Multimedia technology, Auxiliary teaching.*

I. Introduction

Along with the development of the computer software and hardware technology, multimedia technology with its unique charm is widely used in the teaching platform, it integrates clear images, authoritative characters, rich colors, graphics, audio-visual, animation, etc. into one, and makes the mediatechnology as cognitive tools for learners and the tools to change teaching methods for teachers, impacting on the traditional teaching model. However, excessive use of multimedia in recent years has caused many disputes. Huisheng-Guan who is the expert of Steering Committee in Ministry of Education in the computer curriculum said "Consecutive four-year slide teaching has seriously caused students' visual fatigue ... ..." particularly, there are constant computes after introducing the multimedia technology in advanced mathematics teaching. Through questionnaire investigation and discussion to our students, we have found some problems in application of multimedia technology. Therefore, we have always been studying how tounderstand the position of multimedia technology in advanced mathematics teaching, and how to make the proper application of multimedia technology in teaching. We are going to examine issues within the new frontier of integrating technology into mathematics education. We present an approach on how to teach mathematics courses by integrating meaningful multimedia technology to foster the learning process.

II. The Course Content And Features Of Advanced Mathematics Show That Multimedia Technology Is Only An Auxiliary Means Of Teaching

Advanced Mathematics is an important basic course for the colleges of science and engineering, finance and economics etc. non-mathematics. It includes Functions, Limits and Continuity, The Derivative, The Integration, ordinary differential equation, Vectors and Analytic Geometry, Derivatives, Integration and Series, with the level of knowledge increasing in order and linking together[2]. The goal of mathematics teaching is to train students' thinking ability and analytical ability to the phenomenon using mathematical tools. It emphasizes to master the important basic concepts, the basic operations, and focus on the application of theoreticalknowledge. It provides basic knowledge and skills to otherprofessional education, while different specialties needdifferent mathematical tools and application methods.Conversely, other professional content guide the idea and thescientific method of the study in Advanced Mathematics, anddeepen the Advanced Mathematics. We will improving theteaching effectiveness only if we study characteristics of thecourse carefully and do not use multimedia teaching blindly.

Advanced Mathematics is the classical theory, and it has formed the mature systems theory and the customary teaching style. The teaching process is used to the design ideas that we train solving techniques from theoretical discussion and theorem formula verify, according to the established method.

Through the necessary training of abstraction, logic, and application, students will be gradually trained to use mathematical ideas and methods to solve practical problems. However, the traditional deduction can not be replaced by multimedia teaching, which set up layers of doubt, inspiring and guiding, then a little bit of showing thinking.

Teaching is the process of emotional communication掌 teacher's language, expressions, gestures, and body language can greatly act emotions of the students. Teacher's, eyes, expressions, posture, gestures can affect mood and attitude of students, then hint and infect the mood of the students, these are helpful to teaching information acquisition, processing and storage, and can stimulate the students motivation to learn. Through the responses of students in teaching, we give students prompt timely, or make the necessary

guidance, this two-way communication process is essential to teaching. These are multimedia technology can not match.

Reasonable and standard writing on the blackboard can promote students to receive knowledge; it can also encourage students to develop good study habits and rigorous style of work. Teacher's handsome fonts, smooth handwritten symbols, the elegant mapping is a good example of students to learn. But the mathematical operations and assessment process are completed in the paper finally. These subtle actions can not be exhibited in the multimedia teaching process. Therefore, multimedia technology is only teaching aids, the excessive use of multimedia will weaken the thought and practical ability of students. The aim of using multimedia is to fill up a deficiency of traditional teaching aids, and makes teachers playing a leading role.

III. Multimedia Technology In Higher Mathematics Teaching Compared With Traditional Teaching

A. The advantages of multimedia teaching

Multimedia teaching has expanded the amount ofknowledge and information in the classroom, and also hasimproved teaching efficiency. Teachers can design beforeclass, and make the most of teaching contents into thecourseware, so that the teacher in the classroom save a lot oftime and effort writing on the blackboard. For example, whenwe explain the definite integral, the definition account for halfpages in length, the teacher should take up a lot of time writingon the blackboard[5]. However, we can achieve its effectthough one page using PowerPoint courseware. It saves timeand strength which pay on writing on the blackboard. Teachers can make great effort to explain. It not only wins thevaluable class time, but also allows time for a bettercommunication and discussion between teachers and students,and teaching more content within the limited time, so theteaching process is easy and efficient[1].

The strong function of graphics and animation. Lots ofgraphics are used in advanced mathematics. Some certificationprocess also requires the combination of digits and graphics.Some graphics are hard to be drawn on the blackboard. Orbecause of the limitation of time and writing on the blackboardgraphics may not be drawn according to standards. But themultimedia technology is able to show various graphics visuallyand intuitively, and even the formation of the geometry. So themultimedia technology has many image display functions thatcan not be compared with the traditional teaching. For example,we will use the graphics of space curve and space surface inmulti-function calculus, curve and surface integral. For anotherexample, function of the power series expansion and Fourierseries need the help of graphics. Especially in analytic geometry,

geometry enclosed by rotate surface or space curved can beperfectly showed through animation. Multimedia courseware isillustrated, accurately and intuitively, easy to understand, andincreases vivid feeling of the classroom. And then, it attractsmore attention of students, and greatly stimulates the positivityand initiative of the students' ability of thinking.

Super link function. If requiring knowledge in front as aprelude before introduction of new concepts or new theorems aregiven, or in mathematics proof, multimedia courseware can beswitched to the relevant chapters by means of hyperlinks. Atexercise class, by using the function of multimedia hyperlinks,we can connect the important concepts, typical examples into anetwork structure, make the various knowledge points to form awhole system, and master the relationship between the precedingand the following. This is unmatched by writing on theblackboard.

Combination with mathematical software, it is convenient formathematical modeling and numerical analysis, and developingstudents' ability to innovate. Combining mathematical knowledgeand their professional, through using mathematical software, we can built up students' interest in learning and motivation, andimprove students' ability of mathematical modeling and usingcomputer to solve the problems of mathematical modeling.

B. The advantages of traditional teaching

It is convenient for the teaching interaction and emotionalcommunication. By observing students' face lectures, teacherscan understand the students' mastery of knowledge, with aauxiliary simple question to examine whether students understand fully. Two-way communication and interaction makethe teaching content coordinated with classroom atmosphere.

It is easy to control the rhythm of teaching. Teachersexplaining as writing, students will have enough time to think. Itallows students to think synchronously with writing on theblackboard and follow the teacher's ideas[2], ensuring students'thinking continuously.

The process of explanation is flexible. In the process ofexplanation, teachers can changes methods properly according tothe students' reaction[3]. From a sudden inspiration in teaching,teachers can play timely. In particular, because of strongcorrelation of every chapter in advanced mathematics, teacherscan

extract knowledge points to illustrate the problems flexibly.For example, when explaining the Fourier series, we choosespecial point to take into number, and obtain convergent sum ofconstant term series. Flexible teaching will make classroomlively.

C. Using the multimedia technology reasonably to improveteaching quality

Select the appropriate knowledge points. The mathematicsteacher is supposed to have a deep understanding of subjectcontent of the courseware, and pick the proper knowledge pointduring the courseware development. When explaining somecontents, there will be a lot of text description, and with regard tosome contents having to be written and be brushed immediatelyafter writing, the advantages of multimedia will be fully reflected,for example, when explaining the definition of the secondsurface integral, the oriented surface, the introduction ofprojection, the introduction of the definition and the writing ofthe definition etc., it can fully show up the effect by usingmultimedia at one go. It will play a multiplier effect by selectingthe appropriate knowledge points to use the multimedia ratherthan entirely depending on the multimedia, and will greatlyimprove the classroom effectiveness.

Combined with the traditional teaching methods, Themultimedia application is combined with the blackboard-writing.The blackboard has strong real performance and can be brushed immediately after writing and explaining, you can better controlthe teaching rhythm, so it has many advantages that can not bereplaced by multimedia courseware. As for the key and difficultpoints of the mathematics, except for the demonstration in thecourseware, it needs further detailed explanation on the board, donot overlook the role of the blackboard and chalk. Furthermorethe use of multimedia should be combined with the bodylanguage. Teaching is a complex and delicate process, a flexiblegesture or a favorable smile of the teacher will play a negligiblerole in enhancing the teaching effectiveness, and the form ofappropriately using the body language and interactively posing inthe teaching can active the class atmosphere and make up for thelack of multimedia teaching

Focus on the innovation and extension of the multimediatechnology. Only if developing and producing the excellentmultimedia courseware can the modern educational technologygive full play to the role in teaching, which requires teachers tobe proficient in general computer operation, have solidmathematics knowledge and teaching skills, and combinemultimedia technology with advanced mathematics teaching, soas to use the courseware to teach the students' knowledgeaccurately and effectively. As an extension of multimediatechnology, by combining the multimedia technology withnetwork technology to develop the virtual teaching system, whichgoes beyond the time and space constraints, you can browse theteaching community, download the courseware, and access tocounseling and learning materials outside of the classroomteaching after class[1]. The electronic books of school library canalso be connected to the network, in order to share information,enhance learning efficiency, and stimulate student interest andenthusiasm for learning, to play the role that traditional teachingcannot match.

In the national long-term education reform anddevelopment plan, it clearly pointed out that the higher educationmust adapt to the goals of national economic and socialdevelopment, and regard the reform and innovation as a powerfulforce of the higher education development. Moreover the reformand innovation of the university is bound to bring the innovativeteaching methods. So apply the modern teaching methods tomake the media technology and the course content, coursestructure, curriculum resources, curriculum implementation and other elements of mathematics form a harmonious and interactive organism, must able to play a huge advantage in AdvancedMathematics teaching and improving the teaching quality.

IV. Conclusion

The introduction of multimedia technology to leads several problems in multimedia technology in advanced mathematics teaching, the needs of the new situation of social development, yet there is still a long way to go to put its potentials to full play as it has led to many challenges for both teachers and students and

it has caused a lot of difficulties regarding teaching materials and methods, learning materials and styles, and the real integration of multimedia technology into English teaching in colleges' classroom. Suggestions on making the bright prospect come true involve attaching more importance to teachers' education and development, provoking students' learning potential and triggering their initiatives, perfecting the integration of multi-media teaching and traditionalclassroom teaching, and setting up a practical and effective system of teaching evaluation and management.

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