

Offering Calculus to Middle School Students: the Use of Technologies can Clear up One's Doubts

Gao-Xia Wang
Department of Mathematics
Hubei Three Gorges University
wgx87@hotmail.com

Yan Zhu
Department of Mathematics
East China Normal University
zhu_yan16@hotmail.com

Abstract

From the beginning of 20th century, calculus gradually entered into middle schools in many countries. But in China, the contents of calculus have been put into our textbooks for three times and also have been deleted for three times. So now calculus instruction in our country is an open problem. Many people don't believe middle school students can study calculus well. They think the calculus knowledge in students' brains is likely to become "half-cooked food" and even worry these knowledge will disturb their future study. But the authors consider calculus teaching in middle school is necessary and the students also have the ability to accept. And now the key problem is what should be taught and how should be taught. The authors put forward the teaching emphasis in middle school should be the intuitive understanding of fundamental calculus concepts and this is the basis of the understanding of formal concepts. Traditional mathematics course with chalk can't meet the certain needs, meanwhile using modern technologies can realize the above prospective goals, especially the informal, visual calculus teaching. In this paper, the authors further describe in detail how the use of technologies can improve the calculus teaching and learning, and points out the use of technologies can clear up one's doubts.