



## INNOVATION IN MATHEMATICS COURSES USE OF TECHNOLOGIES

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### ABSTRACT

*The article reveals the psychological aspects of increasing students' interest in science through the use of innovative technologies in mathematics lessons, as well as teaching them speed and responsiveness. It is thought that modern methods or technological trainings that help to increase the effectiveness of teaching will help students to form logical, intellectual, creative, critical, independent thinking, to develop their abilities.*

After the independence of the Republic of Uzbekistan, a lot of attention was paid to school education. In particular, on August 29, 1997, at the IX session of the Oliy Majlis of Uzbekistan, a national program of training based on the law on education was adopted. According to the law, the system of continuing education is based on state educational standards, which include the following types of education: Preschool education, primary education, general secondary education, secondary special vocational education, higher education, postgraduate education, professional development and retraining them, out-of-school education. A distinctive feature of the

national model of training is the introduction of nine years of independent general secondary education and three years of specialized secondary vocational education.

By education we mean the conscious and goal-oriented cognitive activity between teacher and students. Every education has two goals.

In developing this feature in students, we need to use innovative technologies and, interactive methods more effectively in the classroom. From primary education, which is the basis of the educational process, it is necessary to



increase students' interest in science and teach them speed through various mathematical games in mathematics lessons. At the same time, the organization of games "Silence", "Chain Counting", "Bridge", "Quick Calculation" increases the effectiveness of the lesson. In particular, the game "Chain Counting" teaches students to count and think quickly. The children in this game are divided into two equal teams and sit on opposite chairs. A player from the first team tells an example ( $12 * 5$ ) and throws the ball to one of the children in the second team. shots, etc. The knowledge acquired by a student in primary education can be the basis for mastering not only mathematics, but also all subjects in the upper grades. Modern times also require a deep mastery of mathematics. As a clear proof of this we can cite the decision of President Sh.M.Mirziyoyev dated May 7, 2020 "On measures to improve the quality of education and development of research in the field of mathematics." In our country, mathematics has been identified as one of the priorities for the development of science in 2020. Therefore, we need to use innovative technologies, interactive methods, using the available opportunities for students to master mathematical knowledge. Through these methods, we prepare students for international competitions and similar competitions based on world standards. In conclusion, in the professional thinking of the teacher, the predominance of teaching methods and the idea of developing the student as a subject of activity as the main goal of the educational process in general is important for increasing the effectiveness of education and the development of learning independence in students, can be guaranteed. The ways in which digital

technology is often used in university teaching of mathematics can be quite different from how it is employed in schools. This has the potential to form a discontinuity between school and university, making the transition less than smooth for students. In this chapter we consider several examples of how digital technology has been used with first year mathematics students in both New Zealand and South Korea. The approaches employed include: intensive use of technology, including formative and summative assessment practice; lecturer modelling and privileging of technology use; a versatile approach to calculus concepts that encourages epistemic exploration of local properties of functions; and novel orchestration of mathematical thinking through smartphone communication technology. We analyse each of these approaches using the theory of instrumental orchestration and outline some innovative aspects and benefits of them. The student perspective is also considered, with some evidence of the influence on student engagement and attitudes. We conclude by suggesting that in order to teach with digital technology in the manner described here good pedagogical technology knowledge (PTK) is required. Once the COVID-19 crisis is over, will everything "return to normal" or will we instead witness an ongoing boom in online learning? A time of crisis is an opportunity for all education systems to look to the future; there is enormous potential for digital technology in mathematics education, regardless of the impact of COVID-19. In this paper, the researcher focuses on answering two research questions: (1) Is COVID-19 the gateway for digital learning in mathematics education?



(2) What type of digital technology is being used in mathematics education during the COVID-19 pandemic? The study also provided a discussion on the implications that such digital technologies could have on research into the field of mathematics education and practice in addition to suggestions for future research directions on this topic. Interviews were chosen as techniques for the purpose of this research, which were undertaken with hundred and twenty mathematics teachers from different secondary schools in the Kingdom of Saudi Arabia. The researcher found that 98% of participants believed that COVID-19 is the gateway for digital learning in mathematics education. In addition, 97% claimed that the use of online education by schools had expanded greatly following the coronavirus outbreak. This has resulted in various forms of software being used to facilitate communicate between teachers and students included mobile technologies, touchscreens and pen tablets, digital library and designing learning objects in mathematics education, Massive Open Online Courses (MOOCs) in mathematics, and computer algebra systems (CAS) such as Mathematical, Maple, MuPAD, MathCAD, Derive and Maxima. The response of educational organisations across the globe to travel bans and quarantines has resulted in a shift towards learning online. This could lead to an

upsurge in education – and better prepare us to deal with subsequent emergencies. The nature of global digital education is such that COVID-19 may fuel the development of strong capabilities in areas where there is sufficient connectivity. Thematic analysis, which is one of the tools of grounded theory was utilized in order to analyze the interview data. Initially, every interview was recorded and subsequently transcribed and the data were then read and re-read. The next stage involved the application of thematic coding (underlining the text in various colors) and then the data were matched to separate categories, thereby enabling reduction and synthesis of the large amount of data. Subsequent to this, every recognized commonality was divided into topics. It was necessary to supply the following three categories of the most significant with ethical issues. In the first category, all participants were informed that they were volunteers in this study and had the right to ask for any of the that responses they had given previously to be removed. In the second category, the confidentiality of participants' identities and personal details was guaranteed, meaning that their names would not be included in the course of the translation procedure. The third category involved providing the participants comprehensive details regarding the purposes of the research.

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