

Position Statement

The Use of Technology in the Teaching and Learning of Mathematics in the First Two Years

Any tool or technique implemented to achieve a specified outcome may be termed a technology. The word "technology" in this document will refer to a digital or physical tool used as an aid in teaching and learning. Improvements in technology can lead to changes in what is taught in mathematics and how it is taught. Educators need to keep abreast of technological changes and use technologies to enhance teaching, learning, and assessment.

Technology has the potential to enhance the student's understanding and use of mathematics in all types of learning environments and in society. Examples of desirable mathematical student behaviors enhanced by technology may include:

- Interpreting problems using appropriate mathematical representations.
- Devising strategies to solve problems and to follow logical processes toward solutions.
- Communicating mathematical thinking and solution strategies effectively.
- Identifying and utilizing appropriate tools to investigate, model, and carry out strategies in an accurate and complete manner.
- Understanding the deeper structure of problems and seeing how the processes used to solve problems relate to other contexts.
- Analyzing the appropriateness of solutions.

AMATYC makes the following recommendations to help faculty evaluate and adopt technologies that enhance and assess the mathematical behavior of students.

Recommendations:

- Faculty should implement the results of academic research on the use of technology to enhance the mathematical behavior of students.
- Faculty should anticipate and evaluate the effects of the use of technology on mathematical procedures and skills.
- Faculty should document how the use of technology affects the mathematical thinking of students and communicate these results to other faculty.
- Faculty and institutions should consider the constraints a technology imposes on the student and faculty before adopting it. These constraints may be ethical, economical, pedagogical, mental, or physical.
- Faculty should regularly review the feedback from stakeholders and revise the use of technology for teaching and for assessment as appropriate.
- Institutions should provide professional development opportunities on the use of technology to enhance teaching and learning, to support faculty in evaluating the effects of technology on students' mathematical behavior, and to promote changes in technology use based on objective data.

Other documents we may want to reference and use to guide us:

NCTM Position:

<https://www.nctm.org/Standards-and-Positions/Position-Statements/Strategic-Use-of-Technology-in-Teaching-and-Learning-Mathematics/>

[NCTM Position Strategic use of technology in the teaching and learning of mathematics is the use of digital and physical tools by students and teachers in thoughtfully designed ways and at carefully determined times so that the capabilities of the technology enhance how students and educators learn, experience, communicate, and do mathematics. Technology must be used in this way in all classrooms to support all students' learning of mathematical concepts and procedures, including those that students eventually employ without the aid of technology. Strategic uses support effective teaching practices and are consistent with research in teaching and learning.](#)

US Department of Education Office of Educational Technology <https://tech.ed.gov/>

National Educational Technology Plan <https://tech.ed.gov/netp/>

Higher Ed Supplement to the Plan <https://tech.ed.gov/higherednetp/>

Australian: www.aamt.edu.au/content/download/32750/463134/file/Digital_learning.pdf

<http://www.citejournal.org/volume-5/issue-3-05/mathematics/technology-in-mathematics-education-preparing-teachers-for-the-future>

<https://www.texthelp.com/en-us/company/education-blog/march-2018/what-are-the-benefits-of-using-technology-for-math/>

Common Core State Standards, CCSS-M, Standards for Mathematical Practice

<http://www.corestandards.org/Math/Practice/>