

COVER SHEET for POSITION STATEMENT

On

The Use of Technology in Mathematics Education

Submitted by the Technology in Mathematics Education Committee

Concept Approval by the AMATYC Board

First Review by the AMATYC Editing Director

Board Review

Input Hearing

Second Review by AMATYC Editing Director

Professional Editing

Board Review for Endorsement

Final Hearing

Delegate Assembly Approval

Hearing Dates:

Nov 2, 2006 in Cincinnati

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- What need does this position statement address?
 Since 1984, the Technology in Mathematics Education (TiME) Committee has proposed several position statements regarding technology. The Computer Education Position Statement, the Position Statement on Use of Internet Resources to Enhance Mathematics Instruction and the Position Statement on the Instructional Use of Technology in Mathematics were each approved by delegate assemblies to address different aspects of technology use in mathematics instruction. Over time these position statements have become outdated and difficult to update. The intent of this position statement is to combine and update the content of these statements by utilizing a new perspective. By examining the mathematical behaviors we wish to instill in our students, this position statement will make recommendations on how technology can affect these behaviors.

- What is the rationale for the position statement?
 This position statement is designed to help faculty evaluate the utility of technology in the classroom. Instead of prescribing a particular type of technology, the position statement defines technology broadly. In the tradition of assessment of learning, a list of desired mathematical behaviors are given and faculty are encouraged to use any technology that is documented to enhance these behaviors.

- What change do you hope to effect?
 The intent of this position statement is to encourage faculty and institutions to document their successes and failures regarding technology use in the mathematics classroom. By documenting technology usage, the larger mathematics community can establish a baseline for growth regarding technology and mathematical behavior.

- Who will implement the recommendations of the position statement?
 This position statement reflects the recent scholarship of teaching strand at recent AMATYC conferences as well as the Crossroads and Beyond Crossroads documents. The TiME Committee in coordination with the AMATYC leadership will lead the effort to motivate faculty to implement the recommendations of this position statement at the national and local level.

- Give a summary of the proposed recommendations.
 This position statement defines a list of desired mathematical behaviors in students and encourages the use of technology to enhance and assess those behaviors. This use includes documenting the effects of technology and using this documentation to improve instruction. The statement also advocates for professional development regarding technology.

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**Position Statement of the
AMERICAN MATHEMATICAL ASSOCIATION OF TWO-YEAR COLLEGES**

The Use of Technology in Mathematics Education

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 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 that enhance teaching, learning, and assessment of teaching and learning.

Technology has the potential to enhance the mathematical behavior of students in all types of learning environments and society. Examples of such desirable mathematical behaviors include:

- Interpret problems using appropriate mathematical representations.
- Devise strategies to solve problems and follow logical processes toward solutions.
- Communicate solution strategies effectively.
- Carry out strategies in an accurate and complete manner.
- Understand the deeper structure of problems and see how the processes used to solve problems relate to other contexts.
- Effectively analyze the appropriateness of solutions.

It is recognized that technology can be successfully utilized to assess the mathematical behavior of students.

Rationale:

Technologies are constantly evolving. Faculty need to examine how technology can help enhance the learning process instead of focusing on a particular type of technology. Almost any technology currently available in the mathematics classroom can arguably be said to enhance the mathematical behavior of students. Often such arguments are made based on human judgments and not objective data. Scholarship on the effects of technology should drive the use of technology in the teaching and learning of mathematics.

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

Recommendations:

1. Faculty should use the results of academic research on the use of technology to enhance the mathematical behavior of students.
2. Faculty should anticipate and evaluate the effects of the use of technology on mathematical behavior.
3. Faculty should document how the use of technology affects the mathematical behavior of students and communicate these results to other faculty.
4. 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.
5. Faculty should regularly review the feedback from stakeholders and revise the use of technology as appropriate.
6. Institutions should provide professional development opportunities on the use of technology to enhance teaching and learning, support faculty in evaluating the effects of technology on students' mathematical behavior, and promote changes in technology use based on objective data.