Research on Student Learning

Typical student beliefs about mathematical inquiry include the following: There is only one correct way to solve any mathematics problem; mathematics problems have only one correct answer; mathematics is done by individuals in isolation; mathematical problems can be solved quickly or not at all; mathematical problems and their solutions do not have to make sense; and that formal proof is irrelevant to processes of discovery and invention. [1] These beliefs limit students' mathematical behavior. [2] Further research is needed to assess when and how students can understand that mathematical inquiry is a cycle in which ideas are represented abstractly, the abstractions are manipulated, and the results are tested against the original ideas. We must also learn at what age students can begin to represent something by a symbol or expression, and what standards students use to judge when solutions to mathematical problems are useful or adequate. [3]

References

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[2] Schoenfeld, A. (1985). Mathematical problem solving. *Mathematical problem solving.*.

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