

Committee for Mathematics Achievement Review of <i>Cognitive Tutor</i> by Carnegie Learning					Comments
Theoretical/ Research Basis	Program based on solid theories of learning and teaching mathematics conceptually.	Program based on solid theories of learning or teaching that focus on mathematics conceptual development.	Program based on theories of learning and teaching that focus primarily on skill mastery.	Program is not based on any theory of learning or teaching.	Program is based on Anderson's ACT-R theory of learning which reflects 20 years of research on cognition. It is also based on analysis of student errors and reflects a mastery-learning model.
Effects on Student Achievement	Randomized trial experimental research indicates program's effect on student achievement.	Quasi-experimental design research indicates program's effect on student achievement	Non-experimental or anecdotal evidence indicates program's effect on student achievement.	No evidence of program's effect on student achievement is available.	Program was named an exemplary curriculum by USDOE. Cognitive Tutor Algebra I was listed in <i>What Works Clearinghouse</i> .
Mathematics Content	Program's mathematics content aligns highly with Core Content 4.1 (90%)	Program's mathematics content aligns moderately with Core Content 4.1 (75%)	Program's mathematics content aligns minimally with Core Content 4.1 (50%)	Program's mathematics content alignment with Core Content 4.1 not evident.	Program states that it aligns with NCTM Standards and state standards and emphasizes mathematical literacy. Currently aligned with previous Core Content. Alignment with Kentucky Core Content 4.1 available in Feb 2007.
Depth of Knowledge	Program focuses on Webb's Depth of Knowledge Levels 1, 2, and 3.	Program focuses on Webb's Depth of Knowledge Levels 1 and 2 only.	Program focuses on Webb's Depth of Knowledge Level 1 only.	Program's focus on Depth of Knowledge is not evident.	Program is strongly conceptually based and is designed to develop algebraic thinking and understanding. (DOK Levels 2 and 3)
Instructional Strategies	Program employs multiple and appropriate instructional strategies to develop all DOK levels.	Program employs limited but appropriate instructional strategies to develop most DOK levels.	Program employs limited instructional strategies to develop some DOK levels	Instructional strategies employed by the program are not clear.	Program incorporates a variety of instructional strategies such as "suggestions for key actions on the part of the teacher, hints about pitfalls, and information about alternative solution paths." Multiple representations of mathematical concepts are used.
Assessment Strategies	Program utilizes formative and summative assessments focused on all DOK levels.	Program utilizes formative and summative assessments focused on DOK levels 1 & 2.	Program utilizes summative assessments focused on all DOK levels.	Program utilizes summative assessments focused on DOK level 1 and 2.	Formative and summative assessment at all DOK levels provided through the technology to both the students and the teachers.
Remediation Strategies	Program provides specific remediation strategies for common misconceptions.	Program provides general remediation strategies for common misconceptions.	Program's remediation strategies focus on specific factual/computation errors.	Program's remediation strategies do not have a focus.	Program adapts as students respond to various questions and leads students to understand their own remediation needs. Provides "just in time" remediation. Features such as "Take Note" remind students of information already learned or common errors.

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Reporting System	Reporting system includes individual and composite data for teachers, parents and students.	Reporting system includes individual or composite data for teachers, parents and students.	Reporting system includes individual or composite data for teachers.	Program does not include a reporting system.	Teacher Toolkit tracks and reports individual and class progress. It offers student visual tracking of dynamic feedback of student progress. Reports at specific time intervals can be printed for teacher, student and parent use.
Professional Development	Program offers PD that assists teachers in diagnosis and remediation.	Program offers PD that assists teachers in limited diagnosis or remediation.	Program offers PD that assists teachers in technical aspects of program.	Program does not offer PD for teachers.	Onsite and regional training are available and include "questioning strategies, assessment, common student errors and instructional planning." Additional charge for training (regional \$600/teacher or \$6000 for 3 days onsite)
Teacher Materials/Technology	Teacher materials/technology provide substantial assistance to teachers in diagnosis and remediation.	Teacher materials/technology provide some assistance to teachers in diagnosis and remediation	Teacher materials/technology provides minimal support to teachers.	No materials or technology are available to teachers.	Program assists teachers in tracking student learning in order to provide for just-in-time remediation customized for each student.
Student Materials/Technology	Student materials/technology are user friendly and developmentally appropriate.	Student materials/technology are user friendly or developmentally appropriate.	Student materials/technology provide minimal support for students.	No materials or technology are available for students.	Materials are appealing to students and developmentally appropriate.
Diverse Learners	Program allows students to progress individually at an appropriate pace AND addresses the needs of diverse learners.	Program allows for student to progress individually at an appropriate pace OR addresses the needs of diverse learners.	Program has some individualized components and/or addresses the needs of some diverse learners.	Program is essentially the same for all students.	Program allows for individual progression based on diagnosis and remediation of individual student understandings. Program improved test scores for ESE and LEP students in a Miami-Dade Co study.
Program Purpose and Use	The <i>Cognitive Tutor</i> was designed as a technology support for specified full curricula (<i>Bridge to Algebra, Algebra I, Algebra II, Geometry, Integrated Math</i>). It can also be used as in intervention program for students who are performing below grade level or as an extended program for gifted students.				
Costs	Site license for <i>Cognitive Tutor</i> software only is \$35,000 per curriculum per school. Full curriculum (textbook and software) is \$40 - \$60 per student per year depending upon the number of students. Teacher implementation guides, assessment books, skill and assignment textbooks are included with purchase of Implementation Professional Development which costs \$6500 for three-day full curriculum implementation and \$2500 for one-day software only implementation. Additional teacher text is \$85.				
Time	As a full curriculum, the software requires 40% of the instructional time, and classroom activities with the textbook require the remaining 60%. With software only implementation as a supplementary curriculum, <i>Cognitive Tutor</i> can be used 20 minutes three times a week.				