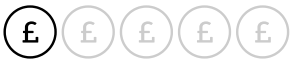
Mastery learning

High impact for very low cost based on limited evidence

In mastery learning, learning outcomes are kept constant but the time needed for pupils to become proficient is varied.

Implementation cost



Evidence strength

Impact (months)

months

Subject breakdown

maths: 34
reading: 10
science: 22
toolkit: 80

School phase breakdown

primary: 38
secondary: 42
toolkit: 80

Technical Appendix

The criteria used to judge the inclusion of studies in the Toolkit are:

- The population sampled involved early years and school age learners from 3-18 learning in their first language.
- The intervention or approach being tested was educational in nature, including named or clearly defined programmes and recognisable approaches classifiable according to the Toolkit strand definitions (e.g. peer tutoring or small group teaching). The intervention or approach is undertaken in a normal educational setting or environment for the learners involved, such as a nursery or school or a typical setting (e.g. an outdoor field centre or museum).
- A valid comparison was made between those receiving the educational intervention or approach and those not receiving it.
- Outcomes include the assessment of educational or cognitive achievement which reports quantitative results from testing of attainment or learning outcomes, such as by standardised tests or other appropriate curriculum assessments or school examinations or appropriate cognitive measures.
- The study design provided a quantitative estimate of the impact of the intervention or approach on the educational attainment of the sample, calculated or estimated in the form of an effect size (standardised mean difference) based on a counterfactual comparison.

Standardised mean differences and confidence intervals for the most appropriate estimates of the impact of the intervention or approach for the Toolkit were extracted from each included study, along with other study variables. These effect sizes were further synthesised into a single pooled effect using a random effects meta-analysis adopting a restricted maximum likelihood (REML) estimation methods.For the full details of the methodology see the Protocol and Analysis Plan (https://educationendowmentfoundation.org.uk/public/files/Toolkit/EEF_Evidence_Database_Protocol_and_Analysis_Plan_June2019.pdf)
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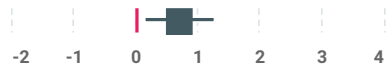
References (80)

The forest plot below is a graphical representation of the results of all included studies in this Toolkit strand. It shows the effect size and confidence interval of each study, and whether the particular intervention in that study was more or less effective than standard practice or other alternative interventions that the study looked at.

Studies that show an effect size result on the right-hand side of the red vertical red indicate that the particular intervention studied was more effective than standard practice. Studies that show an effect size on the left-hand size of the red vertical indicate that the particular intervention studied was less effective than standard practice.

Author	Title	Effect Size	Effect Size (Graph)
Nordin (1979)	The effects of different qualities of instruction on selected cognitive, affective, and time variables. *(ProQuest Dissertations and Theses)*	**Effect Size**: 2.595 **LCI**: 2.123 **UCI**: 3.066 **Weight**: 1.245 **Standard error**: 0.241	
Burrows (1975)	The effects of a mastery learning strategy on achievement. *(NA)*	**Effect Size**: 1.953 **LCI**: 1.206 **UCI**: 2.701 **Weight**: 0.988 **Standard error**: 0.381	
Bonaparte (1990)	The effects of cooperative versus competitive classroom organization for mastery learning on the mathematical achievement and self-esteem of urban second-grade pupils *(NA)*	**Effect Size**: 1.764 **LCI**: 1.326 **UCI**: 2.203 **Weight**: 1.275 **Standard error**: 0.224	
Arblaster (1991)	Same-Age Tutoring, Mastery Learning and the Mixed Ability Teaching of Reading *(School Psychology International)*	**Effect Size**: 1.687 **LCI**: 0.9 **UCI**: 2.474 **Weight**: 0.953 **Standard error**: 0.402	
Bryant (1982)	Applying the mastery learning model to sight word instruction for disabled readers *(Journal of Experimental Education)*	**Effect Size**: 1.661 **LCI**: 0.968 **UCI**: 2.354 **Weight**: 1.038 **Standard error**: 0.354	
Burke (1983) 1_3	Students' potential for learning contrasted under tutorial and group approaches to instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.365 **LCI**: 0.85 **UCI**: 1.881 **Weight**: 1.205 **Standard error**: 0.263	

Author	Title	Effect Size	Effect Size (Graph)
Anania (1981) 1_2	The effects of quality of instruction on the cognitive and affective learning of students. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.323 **LCI**: 0.729 **UCI**: 1.916 **Weight**: 1.132 **Standard error**: 0.303	
Darnowski (1968) 1_3	Three types of programmed learning and the conventional teaching of the nuclear chemistry portion of a high school chemistry course. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.268 **LCI**: 0.674 **UCI**: 1.861 **Weight**: 1.131 **Standard error**: 0.303	
Burke (1983) 1_2	Students' potential for learning contrasted under tutorial and group approaches to instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.208 **LCI**: 0.66 **UCI**: 1.757 **Weight**: 1.174 **Standard error**: 0.28	
Tenenbaum (1982) ML 1_2	A method of group instruction which is as effective as one-to-one tutorial instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.196 **LCI**: 0.638 **UCI**: 1.753 **Weight**: 1.166 **Standard error**: 0.284	
Chiappetta (1980)	Exploring the effects of general remediation on ninth-graders' achievement of the mole concept *(Science Education)*	**Effect Size**: 1.115 **LCI**: 0.51 **UCI**: 1.721 **Weight**: 1.12 **Standard error**: 0.309	
Cabezon (1984)	The effects of marked changes in student achievement pattern on the students, their teachers, and their parents: The Chilean case *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.094 **LCI**: 0.667 **UCI**: 1.52 **Weight**: 1.286 **Standard error**: 0.218	
Tenenbaum (1986) ML	The Effect of Quality of Instruction on Higher and Lower Mental Processes and on the Prediction of Summative Achievement *(The Journal of Educational Research)*	**Effect Size**: 1.064 **LCI**: 0.511 **UCI**: 1.616 **Weight**: 1.17 **Standard error**: 0.282	
Anania (1981) 1_3	The effects of quality of instruction on the cognitive and affective learning of students. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1.037 **LCI**: 0.499 **UCI**: 1.576 **Weight**: 1.184 **Standard error**: 0.275	
Fulton (1970)	An analysis of student outcomes utilizing two approaches to teaching BSCS biology. *(ProQuest Dissertations and Theses)*	**Effect Size**: 1 **LCI**: 0.78 **UCI**: 1.22 **Weight**: 1.439 **Standard error**: 0.112	

Author	Title	Effect Size	Effect Size (Graph)
Tenenbaum (1982) ML 1_1	A method of group instruction which is as effective as one-to-one tutorial instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.999 **LCI**: 0.464 **UCI**: 1.533 **Weight**: 1.188 **Standard error**: 0.273	
Swanson (1977)	Learning for mastery versus personalized system of instruction: A comparison of remediation strategies with secondary school chemistry students *(Journal of Research in Science Teaching)*	**Effect Size**: 0.937 **LCI**: 0.235 **UCI**: 1.64 **Weight**: 1.029 **Standard error**: 0.358	
Mevarech (1986)	The role of a feedback-corrective procedure in developing mathematics achievement and self concept in desegregated classrooms *(Studies in Educational Evaluation)*	**Effect Size**: 0.868 **LCI**: 0.557 **UCI**: 1.18 **Weight**: 1.38 **Standard error**: 0.159	
Burke (1983) 1_1	Students' potential for learning contrasted under tutorial and group approaches to instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.778 **LCI**: 0.265 **UCI**: 1.292 **Weight**: 1.207 **Standard error**: 0.262	
Okey (1974) 1_1	Altering Teacher and Pupil Behavior with Mastery Teaching *(School Science and Mathematics)*	**Effect Size**: 0.768 **LCI**: -0.034 **UCI**: 1.569 **Weight**: 0.94 **Standard error**: 0.409	
Mevarech (1991) ML	Learning Mathematics in Different Mastery Environments *(Journal of Educational Research)*	**Effect Size**: 0.698 **LCI**: 0.135 **UCI**: 1.261 **Weight**: 1.16 **Standard error**: 0.288	
Arlin (1983)	Time costs of mastery learning *(Journal of Educational Psychology)*	**Effect Size**: 0.677 **LCI**: 0.248 **UCI**: 1.106 **Weight**: 1.283 **Standard error**: 0.219	
Crangle (1971)	An evaluative study of the northwest junior high school individualised mathematics program *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.664 **LCI**: -0.059 **UCI**: 1.388 **Weight**: 1.01 **Standard error**: 0.369	
Campbell (1978)	Effects of teacher training in the individualized science materials on achievement of first grade students *(Science Education)*	**Effect Size**: 0.662 **LCI**: 0.332 **UCI**: 0.992 **Weight**: 1.366 **Standard error**: 0.168	

Author	Title	Effect Size	Effect Size (Graph)
Mevarech (1980)	The role of teaching-learning strategies and feedback-corrective procedures in developing higher cognitive achievement. *(Unpublished doctoral dissertation, University of Chicago.)*	**Effect Size**: 0.66 **LCI**: 0.257 **UCI**: 1.064 **Weight**: 1.306 **Standard error**: 0.206	
Anania (1981) 1_1	The effects of quality of instruction on the cognitive and affective learning of students. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.597 **LCI**: 0.029 **UCI**: 1.165 **Weight**: 1.156 **Standard error**: 0.29	
Okey (1974) 1_2	Altering Teacher and Pupil Behavior with Mastery Teaching *(School Science and Mathematics)*	**Effect Size**: 0.586 **LCI**: -0.218 **UCI**: 1.39 **Weight**: 0.937 **Standard error**: 0.41	
Laney (1996) ML	The Effect of Cooperative and Mastery Learning Methods on Primary Grade Students' Learning and Retention of Economic Concepts *(Early Education and Development)*	**Effect Size**: 0.557 **LCI**: 0.04 **UCI**: 1.073 **Weight**: 1.204 **Standard error**: 0.264	
Dolan (1993) 1_4	The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement *(Journal of Applied Developmental Psychology)*	**Effect Size**: 0.548 **LCI**: 0.275 **UCI**: 0.821 **Weight**: 1.407 **Standard error**: 0.139	
Darnowski (1968) 1_2	Three types of programmed learning and the conventional teaching of the nuclear chemistry portion of a high school chemistry course. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.544 **LCI**: -0.01 **UCI**: 1.097 **Weight**: 1.17 **Standard error**: 0.282	
Dolan (1993) 1_3	The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement *(Journal of Applied Developmental Psychology)*	**Effect Size**: 0.529 **LCI**: 0.25 **UCI**: 0.808 **Weight**: 1.402 **Standard error**: 0.142	
Mevarech (1985) 1_2	The Effects of Cooperative Mastery Learning Strategies on Mathematics Achievement *(The Journal of Educational Research)*	**Effect Size**: 0.494 **LCI**: 0.011 **UCI**: 0.977 **Weight**: 1.235 **Standard error**: 0.246	
Miles (2010) ML	Mastery Learning and Academic Achievement *(NA)*	**Effect Size**: 0.49 **LCI**: 0.041 **UCI**: 0.94 **Weight**: 1.265 **Standard error**: 0.229	

Author	Title	Effect Size	Effect Size (Graph)
Mevarech (1985) 1_1	The Effects of Cooperative Mastery Learning Strategies on Mathematics Achievement *(The Journal of Educational Research)*	**Effect Size**: 0.488 **LCI**: 0.005 **UCI**: 0.97 **Weight**: 1.235 **Standard error**: 0.246	
Swanson (1977) 1_2	A comparison of mastery learning feedback systems, affecting achievement in chemistry *(The Annual Meeting of the American Educational Research Association (ERIC Document Rekoduction Service No. ED 139 650))*	**Effect Size**: 0.471 **LCI**: -0.202 **UCI**: 1.144 **Weight**: 1.057 **Standard error**: 0.343	
Beck (1982)	Effects of Long-Term Vocabulary Instruction on Lexical Access and Reading Comprehension *(Journal of Educational Psychology)*	**Effect Size**: 0.43 **LCI**: -0.155 **UCI**: 1.016 **Weight**: 1.14 **Standard error**: 0.299	
Moore (1970)	The Effect of Flexible Modular Scheduling on Student Achievement in BSCS Biology. *(NA)*	**Effect Size**: 0.418 **LCI**: -0.102 **UCI**: 0.939 **Weight**: 1.2 **Standard error**: 0.266	
Saunders-Harris (1981) 1_1	Diagnosis, Remediation, and Locus of Control *(The Journal of Experimental Education)*	**Effect Size**: 0.416 **LCI**: -0.196 **UCI**: 1.028 **Weight**: 1.114 **Standard error**: 0.312	
Okey (1974) 1_3	Altering Teacher and Pupil Behavior with Mastery Teaching *(School Science and Mathematics)*	**Effect Size**: 0.412 **LCI**: -0.383 **UCI**: 1.206 **Weight**: 0.946 **Standard error**: 0.405	
Darnowski (1968) 1_1	Three types of programmed learning and the conventional teaching of the nuclear chemistry portion of a high school chemistry course. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.374 **LCI**: -0.172 **UCI**: 0.921 **Weight**: 1.176 **Standard error**: 0.279	
Wentling (1973)	Mastery versus nonmastery instruction with varying test item feedback treatments *(Journal of Educational Psychology)*	**Effect Size**: 0.362 **LCI**: -0.005 **UCI**: 0.729 **Weight**: 1.336 **Standard error**: 0.187	
Okey (1974) 1_4	Altering Teacher and Pupil Behavior with Mastery Teaching *(School Science and Mathematics)*	**Effect Size**: 0.353 **LCI**: -0.369 **UCI**: 1.075 **Weight**: 1.011 **Standard error**: 0.368	

Author	Title	Effect Size	Effect Size (Graph)
Jones (1979)	Improving Reading Comprehension: Embedding Diverse Learning Strategies within a Mastery Learning Instructional Framework. *(Paper presented at the annual meeting of the American Educational Research Association, San Francisco. (ERIC Document Reproduction Service No. ED 170 698))*	**Effect Size**: 0.35 **LCI**: 0.121 **UCI**: 0.579 **Weight**: 1.434 **Standard error**: 0.117	
Peterson (1970)	Development and evaluation of an individualized learning unit in science for the junior high school *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.336 **LCI**: 0.237 **UCI**: 0.435 **Weight**: 1.491 **Standard error**: 0.051	
Beul (1973)	An evaluation study of teaching seventh grade mathematics incorporating team teaching, individualized instruction, and team supervision utilizing the strategy of learning for mastery *(Dissertation Abstracts International, 1974, 34, 4685A. (University Microfilms No. 74-4479))*	**Effect Size**: 0.33 **LCI**: 0.133 **UCI**: 0.528 **Weight**: 1.452 **Standard error**: 0.101	
Wyckoff (1974)	A study of mastery learning and its effects on achievement of sixth grade social studies students *(NA)*	**Effect Size**: 0.324 **LCI**: -0.057 **UCI**: 0.706 **Weight**: 1.324 **Standard error**: 0.195	
Saunders-Harris (1981) 1_2	Diagnosis, Remediation, and Locus of Control *(The Journal of Experimental Education)*	**Effect Size**: 0.272 **LCI**: -0.343 **UCI**: 0.888 **Weight**: 1.111 **Standard error**: 0.314	
Abelson (1974)	Effects of a four-year Follow Through program on economically disadvantaged children *(Journal of Educational Psychology)*	**Effect Size**: 0.27 **LCI**: -0.24 **UCI**: 0.779 **Weight**: 1.21 **Standard error**: 0.26	
McKim (1977)	Effects of selected mastery learning strategies in terms of articulation problems in French 3 classes at Bellevue High School. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.268 **LCI**: -0.104 **UCI**: 0.64 **Weight**: 1.332 **Standard error**: -0.19	
Lueckemeyer (1981)	An Investigation into the Effects of a Modified Mastery Strategy on Achievement in a High School Human Physiology Unit. *(Journal of Research in Science Teaching)*	**Effect Size**: 0.252 **LCI**: -0.037 **UCI**: 0.542 **Weight**: 1.395 **Standard error**: 0.148	

Author	Title	Effect Size	Effect Size (Graph)
Slavin (1984) ML 1_2	Mastery Learning and Student Teams: A Factorial Experiment in Urban General Mathematics Classes *(American Educational Research Journal)*	**Effect Size**: 0.191 **LCI**: -0.043 **UCI**: 0.426 **Weight**: 1.431 **Standard error**: 0.12	
Okey (1974) 1_5	Altering Teacher and Pupil Behavior with Mastery Teaching *(School Science and Mathematics)*	**Effect Size**: 0.188 **LCI**: -0.614 **UCI**: 0.99 **Weight**: 0.939 **Standard error**: 0.409	
Yildiran (1977) 1_2	The effects of level of cognitive achievement on selected learning criteria under mastery learning and normal classroom instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.187 **LCI**: -0.247 **UCI**: 0.621 **Weight**: 1.279 **Standard error**: 0.221	
Englert (1972) 1_2	A comparative study of the effects on achievement and changes in attitude of senior high school students enrolled in first year algebra under two different teaching approaches *(NA)*	**Effect Size**: 0.175 **LCI**: -0.418 **UCI**: 0.768 **Weight**: 1.132 **Standard error**: 0.302	
Dolan (1993) 1_1	The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement *(Journal of Applied Developmental Psychology)*	**Effect Size**: 0.172 **LCI**: -0.126 **UCI**: 0.471 **Weight**: 1.389 **Standard error**: 0.152	
Stone (1974) 1_1	The effects of individualized learning activity packages in mathematics on the academic achievement of seventh and eighth grade students in the Demopolis City School *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.155 **LCI**: -0.129 **UCI**: 0.439 **Weight**: 1.399 **Standard error**: 0.145	
Halliwell (1975) 1_2	A study of the effect of different approaches to the teaching of vocabulary on reading achievement and vocabulary development at the fifth grade level. *(Dissertation Abstracts International)*	**Effect Size**: 0.115 **LCI**: -0.253 **UCI**: 0.484 **Weight**: 1.335 **Standard error**: 0.188	
Carlson (1975)	The design and evaluation of an individualized, contract-directed high school chemistry course *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.112 **LCI**: -0.309 **UCI**: 0.533 **Weight**: 1.29 **Standard error**: 0.215	
Dolan (1993) 1_2	The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement *(Journal of Applied Developmental Psychology)*	**Effect Size**: 0.095 **LCI**: -0.195 **UCI**: 0.386 **Weight**: 1.395 **Standard error**: 0.148	

Author	Title	Effect Size	Effect Size (Graph)
Netburn (1972)	A comparison of the effectiveness of two methods of presenting science experiments to children of the fourth grade in a northeastern suburb. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.094 **LCI**: -0.275 **UCI**: 0.463 **Weight**: 1.335 **Standard error**: 0.188	
Vignoles (2015)	Mathematics Mastery: Primary Evaluation Report *(NA)*	**Effect Size**: 0.091 **LCI**: -0.015 **UCI**: 0.197 **Weight**: 1.489 **Standard error**: 0.054	
Stone (1974) 1_2	The effects of individualized learning activity packages in mathematics on the academic achievement of seventh and eighth grade students in the Demopolis City School *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.08 **LCI**: -0.279 **UCI**: 0.438 **Weight**: 1.343 **Standard error**: 0.183	
Thomas (1972)	Continuous progress advanced algebra in the Lincoln Public Schools - A study of achievement and attitude toward mathematic *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.076 **LCI**: -0.255 **UCI**: 0.407 **Weight**: 1.365 **Standard error**: 0.169	
Jerrim (2015)	Mathematics Mastery: Secondary Evaluation report *(NA)*	**Effect Size**: 0.06 **LCI**: -0.038 **UCI**: 0.158 **Weight**: 1.491 **Standard error**: 0.05	
Krockover (1970)	A comparison of learning outcomes in CBA chemistry when group and individualized instruction techniques are employed. *(ProQuest Dissertations and Theses)*	**Effect Size**: 0.047 **LCI**: -0.463 **UCI**: 0.556 **Weight**: 1.211 **Standard error**: 0.26	
Swanson (1977) 1_1	A comparison of mastery learning feedback systems, affecting achievement in chemistry *(The Annual Meeting of the American Educational Research Association (ERIC Document Rekoduction Service No. ED 139 650))*	**Effect Size**: 0.044 **LCI**: -0.609 **UCI**: 0.698 **Weight**: 1.075 **Standard error**: 0.333	
Slavin (1984) ML 1_1	Mastery Learning and Student Teams: A Factorial Experiment in Urban General Mathematics Classes *(American Educational Research Journal)*	**Effect Size**: 0.016 **LCI**: -0.201 **UCI**: 0.234 **Weight**: 1.441 **Standard error**: 0.111	
Okey (1977)	Consequences of Training Teachers to Use a Mastery Learning Strategy *(Journal of Teacher Education)*	**Effect Size**: -0.009 **LCI**: -0.216 **UCI**: 0.197 **Weight**: 1.447 **Standard error**: 0.105	

Author	Title	Effect Size	Effect Size (Graph)
Halliwell (1975) 1_1	A study of the effect of different approaches to the teaching of vocabulary on reading achievement and vocabulary development at the fifth grade level. *(Dissertation Abstracts International)*	**Effect Size**: -0.02 **LCI**: -0.376 **UCI**: 0.336 **Weight**: 1.345 **Standard error**: 0.182	
Englert (1972) 1_3	A comparative study of the effects on achievement and changes in attitude of senior high school students enrolled in first year algebra under two different teaching approaches *(NA)*	**Effect Size**: -0.069 **LCI**: -0.686 **UCI**: 0.548 **Weight**: 1.11 **Standard error**: 0.315	
Slavin (1982) ML	Student Teams and Mastery Learning: A Factorial Experiment in Urban Math Nine Classes. *(NA)*	**Effect Size**: -0.078 **LCI**: -0.292 **UCI**: 0.136 **Weight**: 1.443 **Standard error**: 0.109	
Yildiran (1977) 1_1	The effects of level of cognitive achievement on selected learning criteria under mastery learning and normal classroom instruction. *(ProQuest Dissertations and Theses)*	**Effect Size**: -0.129 **LCI**: -0.506 **UCI**: 0.247 **Weight**: 1.328 **Standard error**: 0.192	
Cohen (1970) 1_2	An investigation of the effectiveness of certain scheduling procedures on mathematical achievement of junior high school pupils. *(NA)*	**Effect Size**: -0.16 **LCI**: -0.386 **UCI**: 0.065 **Weight**: 1.436 **Standard error**: 0.115	
Mevarech (1993) ML	Effects of Learning with Cooperative-Mastery Method on Elementary Students *(Journal of Educational Research)*	**Effect Size**: -0.232 **LCI**: -0.57 **UCI**: 0.105 **Weight**: 1.36 **Standard error**: 0.172	
Kersh (1970)	A strategy of mastery learning in fifth grade arithmetic *(Unpublished doctoral dissertation)*	**Effect Size**: -0.25 **LCI**: -0.504 **UCI**: 0.004 **Weight**: 1.419 **Standard error**: 0.13	
Braly (1972)	Independent instruction in high school chemistry: A comparison with a traditional technique *(ProQuest Dissertations and Theses)*	**Effect Size**: -0.258 **LCI**: -0.613 **UCI**: 0.096 **Weight**: 1.346 **Standard error**: 0.181	
Cohen (1970) 1_1	An investigation of the effectiveness of certain scheduling procedures on mathematical achievement of junior high school pupils. *(NA)*	**Effect Size**: -0.419 **LCI**: -0.658 **UCI**: -0.179 **Weight**: 1.428 **Standard error**: 0.122	

Author	Title	Effect Size	Effect Size (Graph)
Summerlin (1971)	A feasibility study of tutorial type computer assisted instruction in selected topics in high school chemistry. *(ProQuest Dissertations and Theses)*	**Effect Size**: -0.44 **LCI**: -0.818 **UCI**: -0.061 **Weight**: 1.327 **Standard error**: 0.193	
Englert (1972) 1_1	A comparative study of the effects on achievement and changes in attitude of senior high school students enrolled in first year algebra under two different teaching approaches *(NA)*	**Effect Size**: -0.629 **LCI**: -1.258 **UCI**: -0.001 **Weight**: 1.098 **Standard error**: 0.321	
Fagan (1976)	Mastery Learning: The Relationship of Mastery Procedures and Aptitude to the Achievement and Retention of Transportation-Environmental Concepts by Seventh Grade Students. *(Dissertation Abstracts International, 36, 5981. (University Microfilms No. 76- 6402))*	**Effect Size**: -0.734 **LCI**: -0.924 **UCI**: -0.543 **Weight**: 1.455 **Standard error**: 0.097