What Works Clearinghouse™

Voyages

No studies of *Voyages* that fall within the scope of the Elementary School Mathematics review protocol meet What Works Clearinghouse (WWC) evidence standards. The lack of studies meeting WWC evidence standards means that, at this time, the WWC is unable to draw any conclusions based on research about the effectiveness or ineffectiveness of *Voyages* on elementary school students. Additional research is needed to determine the effectiveness or ineffectiveness of this intervention.

Program Description[1]

Voyages, distributed by Voyager Learning, is a supplementary mathematics curriculum that utilizes activity-based instruction, independent student practice, and regular topic assessments. Grade-specific versions of the curriculum are available for grades K–5. Lessons are intended to link new topics to previously covered concepts and materials through in-class math problems and instruction that emphasizes graphical representations of concepts. The program also focuses on improving students' conceptual understanding of the topics through manipulatives, home exercises, and other materials-based activities. In-class math problems are included to help teachers identify struggling students and provide differentiated instruction. Initial teacher training for the program is conducted on-site and takes four hours.

Research[2]

The WWC identified four studies of *Voyages* for elementary school students that were published or released between 2006 and 2008.

One study is within the scope of the Elementary School Mathematics review protocol but does not meet WWC evidence standards. This study used a quasi-experimental design involving two schools. Classrooms in one school received the *Voyages* intervention, and classrooms in another school did not receive the intervention. Because the intervention and comparison groups each contain one school, the difference in students' performance cannot be attributed solely to *Voyages*.

Three studies are out of the scope of the Elementary School Mathematics review protocol because they have an ineligible study design. Specifically, these studies do not use a comparison group design or a single-case design.

References

Study that does not meet WWC evidence standards

Sopris West Educational Services. (2008). *Voyages mathematics curriculum: A comparative evaluation, grades four and five*. Dallas, TX: Author. The study does not meet WWC evidence standards because the measures of effectiveness cannot be attributed solely to the intervention—there was only one unit assigned to one or both conditions.

Additional source:

Cambium Learning, Inc. (2006). *An evaluation of Voyages mathematics, Fairview public schools 2005-2006: Technical report*. Natick, MA: Author.

Studies that are ineligible for review using the Elementary School Mathematics Evidence Review Protocol

Sopris West Educational Services. (2008). *Voyages mathematics curriculum: A retrospective evaluation, grades four and five*. Dallas, TX: Author. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Additional source:

Cambium Learning, Inc. (2006). *A retrospective evaluation of the Voyages mathematics program, Hilltop public schools 2004-2006: Technical report*. Natick, MA: Author.

Voyager Expanded Learning, Inc. (n.d.). *Poteau public schools 2006-2007 Voyager results*. Dallas, TX: Author. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Voyager Expanded Learning, Inc. (2008). *A summary of the effectiveness of Voyager programs in Texas*. Dallas, TX: Author. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Endnotes

[1] The descriptive information for this program was obtained from publicly available sources: the program distributor's website (http://www.voyagerlearning.com/cs/Satellite/voyages?packedargs=subjectID%3D1277944492605&cmsid=Voyager, downloaded December 2012) and Cambium Learning, Inc. (2006). The WWC requests distributors to review the program description sections for accuracy from their perspective. The program description was provided to the distributor in December 2012; however, the WWC received no response. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review. The literature search reflects documents publicly available by October 2012.

[2] The studies in this report were reviewed using the Evidence Standards from the WWC Procedures and Standards Handbook (version 2.1), along with those described in the Elementary School Mathematics review protocol (version 2.0). The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

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Glossary of Terms

Attrition Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study.

Clustering adjustment If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary.

Confounding factor A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.

Design The design of a study is the method by which intervention and comparison groups were assigned.

Domain A domain is a group of closely related outcomes.

Effect size The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.

Eligibility A study is eligible for review and inclusion in this report if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.

Equivalence A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol.

Extent of evidence An indication of how much evidence supports the findings. The criteria for the extent of evidence levels are given in the WWC Procedures and Standards Handbook (version 2.1).

Improvement index Along a percentile distribution of students, the improvement index represents the gain or loss of the average student due to the intervention. As the average student starts at the 50th percentile, the measure ranges from –50 to +50.

Multiple comparison adjustment When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary.

Quasi-experimental design (QED) A quasi-experimental design (QED) is a research design in which subjects are assigned to intervention and comparison groups through a process that is not random.

Randomized controlled trial (RCT) A randomized controlled trial (RCT) is an experiment in which investigators randomly assign eligible participants into intervention and comparison groups.

Rating of effectiveness The WWC rates the effects of an intervention in each domain based on the quality of the research design and the magnitude, statistical significance, and consistency in findings. The criteria for the ratings of effectiveness are given in the WWC Procedures and Standards Handbook (version 2.1).

Single-case design A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.

Standard deviation The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample tend to be spread out over a large range of values.

Statistical significance Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < 0.05$).

Substantively important A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.

Please see the WWC Procedures and Standards Handbook (version 2.1) for additional details.