

What Works Clearinghouse



Doors to Discovery™

Program Description²

Doors to Discovery™, an early childhood curriculum, focuses on the development of children’s vocabulary and expressive and receptive language through a learning process called “shared literacy,” where adults and children work together to develop literacy-related skills. Literacy activities, organized into thematic

units, encourage children’s development in a number of areas identified by research as the foundation for early literacy success: oral language, phonological awareness, concepts of print, alphabet knowledge, writing, and comprehension. Each unit is available as a kit that includes various teacher resources.

Research³

One study of *Doors to Discovery™* meets What Works Clearinghouse (WWC) evidence standards, and one study meets WWC evidence standards with reservations. The two studies included 33 preschool classrooms and 220 prekindergarten children from three to five years of age in two locations in the southwest United States.⁴

Based on these two studies, the WWC considers the extent of evidence for *Doors to Discovery™* to be medium to large for oral language and print knowledge, and small for phonological processing and math. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Doors to Discovery™* in the early reading and writing or cognition domains.

Effectiveness

Doors to Discovery™ was found to have potentially positive effects on oral language and print knowledge, and no discernible effects on phonological processing and math.

	Oral language	Print knowledge	Phonological processing	Early reading and writing	Cognition	Math
Rating of effectiveness	Potentially positive effects	Potentially positive effects	No discernible effects	na	na	No discernible effects
Improvement index⁵	Average: +9 percentile points	Average: +16 percentile points	Average: +7 percentile points	na	na	Average: 0 percentile points
	Range: +6 to +12 percentile points	Range: +2 to +37 percentile points	na	na	na	Range: –5 to +5 percentile points

na = not applicable

- This report has been updated to include reviews of three studies that were released since 2007, a review of one study that was released in 2005 but was not reviewed for the previous report, and a re-review of two studies that were included in the previous report. The findings described in the previous *Doors to Discovery™* intervention report were based on a study by Assel et al. (2007). A re-review of that study for the present report revealed that the subcluster attrition rate of children exceeded standards, as specified in the Early Childhood Education protocol. Hence, results from the Assel et al. (2007) study were not considered when preparing the present intervention report.
- The descriptive information for this program was obtained from publicly available sources: the program’s website (<https://www.wrightgroup.com/family.html?PHPSESSID=ae71226df93c0a0211ac7a57f5d22c66&gid=183&longCopy=Y>, downloaded November 5, 2008) and the research literature (Assel et al., 2007; PCER Consortium, 2008). The WWC requests developers to review the program description sections for accuracy from their perspective. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review.
- The studies in this report were reviewed using WWC Evidence Standards, Version 1.0 (see the WWC Standards).
- The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.
- These numbers show the average and range of student-level improvement indices for all findings across the studies.

Absence of conflict of interest

The PCER Consortium (2008) study summarized in this intervention report had numerous contributors, including staff of Mathematica Policy Research, Inc. (MPR). Because the principal investigator for the WWC Early Childhood Education review is also a MPR staff member, the study was rated by

Chesapeake Research Associates, who also prepared the intervention report. The report was then reviewed by the principal investigator, a WWC Quality Assurance reviewer, and an external peer reviewer.

Additional program information

Developer and contact

Doors to Discovery™ was developed and is distributed by Wright Group/McGraw-Hill. Address: 220 East Daniieldale Road, DeSoto, TX 75115. Web: www.wrightgroup.com, Telephone: (800) 648-2970. Fax: (800) 593-4418.

Scope of use

According to the developer, the curriculum is used in various early childhood settings, including Head Start, private child care, public schools, and Early Reading First Centers of Excellence. Information is not available on the number or demographics of children or centers using this program.

Teaching

Doors to Discovery™, an early childhood curriculum, uses thematic units of literacy activities to encourage children's development in a number of areas identified by research as the foundation for early literacy success: oral language, phonological awareness, concepts of print, alphabet knowledge, writing, and comprehension. *Doors to Discovery™* includes eight thematic units: Backyard Detectives; Build it Big!; Discovery Street; Healthy Me!; New Places, New Faces; Our Water Wonderland; Tabby Tiger's Diner; and Vroom! Vroom!. Each unit is available as

a kit that includes various teacher resources. Children are taught using specific teacher techniques (such as cloze techniques, student retelling, think aloud activities, and scaffolding to build oral language skills) within literacy-enriched learning centers. Family literacy activities are available to encourage partnerships between the school and the home. The focus of the curriculum is the development of children's vocabulary and expressive and receptive language through a learning process called "shared literacy" (where adults and children work together to develop literacy related skills). Teachers are trained during professional development activities and with other resources like the *Discovery Guide* (a built-in professional development resource).

Cost

The complete *Doors to Discovery™* set is available to education professionals for \$2,348.40. Alternatively, each theme kit can be purchased separately for \$327.45. Teacher resources, such as alphabet posters and an assessment handbook, are also available for purchase. Additional pricing information for other materials (e.g., teacher resources and children's books) is available on the website. The prices listed on the website are for education professionals only. Information about the cost of professional development is not available.

Research

Six studies reviewed by the WWC investigated the effects of *Doors to Discovery™*. One study (PCER Consortium, 2008) is a randomized controlled trial that meets WWC evidence standards. One study (Christie, Roskos, Vukelich, & Han, 2003) is a randomized controlled trial that meets WWC evidence standards with reservations. The remaining four studies do not meet either WWC evidence standards or eligibility screens.

Meets evidence standards

One study reviewed by the WWC (PCER Consortium, 2008) assessed the effectiveness of *Doors to Discovery™* as part of the Preschool Curriculum Evaluation Research (PCER) effort.⁶ The PCER Consortium (2008) used a randomized controlled trial design in which 29 full day Head Start and public prekindergarten preschool classrooms in Texas were randomly assigned either

6. The PCER Consortium (2008) evaluated a total of 14 preschool curricula, including *Doors to Discovery™*, in comparison to respective control conditions.

Research (continued)

to implement *Doors to Discovery*TM or to a control group.⁷ Data were collected on 183 children (94 *Doors to Discovery*TM and 89 control). Pretest data were collected in the fall, and posttest data were collected in the spring, of the preschool year. The study investigated effects on oral language, print knowledge, phonological processing, and math. The control condition varied across sites and included teacher-developed, nonspecific curricula.

Meets evidence standards with reservations

One study (Christie et al., 2003) was a randomized controlled trial with severe subcluster attrition and baseline equivalence of the analytic sample. In this study, four Head Start classrooms in a large metropolitan area in the southwest United States were randomly assigned⁸ to implement either *Doors to Discovery*TM or the control group, which used materials based on *Creative Curriculum*[®].⁹ Data were collected on 37 children (21 *Doors to Discovery*TM and 16 control group). Pretest data were collected during November and December of the preschool year; the *Doors*

*to Discovery*TM curriculum was implemented from January through early April, and posttest data were collected in late April and May. The study investigated effects on oral language and print knowledge.

Extent of evidence

The WWC categorizes the extent of evidence in each domain as small or medium to large (see the WWC Procedures and Standards Handbook, Appendix G). The extent of evidence takes into account the number of studies and the total sample size across the studies that meet WWC evidence standards with or without reservations.¹⁰

The WWC considers the extent of evidence for *Doors to Discovery*TM to be medium to large for oral language and print knowledge and small for phonological processing and math. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Doors to Discovery*TM in the early reading and writing or cognition domains.

Effectiveness Findings

The WWC review of interventions for Early Childhood Education addresses student outcomes in six domains: oral language, print knowledge, phonological processing, early reading and writing, cognition, and math. The studies included in this report cover four domains: oral language, print knowledge, phonological processing,

and math. The findings below present the authors' estimates and WWC-calculated estimates of the size and the statistical significance of the effects of *Doors to Discovery*TM on students.¹¹

Oral Language. The PCER Consortium (2008) analyzed the effectiveness of *Doors to Discovery*TM on oral language using the Peabody Picture Vocabulary Test-III (PPVT-III) and the Test of

7. The study indicated, and the authors' confirmed, that the unit of assignment was the classroom; however, all classrooms within a school were assigned to the same treatment condition.
8. A fifth classroom participated in the study and implemented the *Doors to Discovery*TM curriculum. Since this classroom was not randomly assigned, it was omitted from the WWC review.
9. According to Christie et al. (2003), the comparison group was "loosely based" on *Creative Curriculum*[®], a curriculum designed to foster children's social-emotional, physical, cognitive, and language development, relying heavily on the use of play centers (Han et al. 2005).
10. The extent of evidence categorization was developed to tell readers how much evidence was used to determine the intervention rating, focusing on the number and size of studies. Additional factors associated with a related concept external validity, such as the students' demographics and the types of settings in which studies took place are not taken into account for the categorization. Information about how the extent of evidence rating was determined for *Doors to Discovery*TM is in Appendix A6.
11. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate the statistical significance, see WWC Procedures and Standards Handbook, Appendix C for clustering and WWC Procedures and Standards Handbook, Appendix D for multiple comparisons. No correction for clustering was needed for the study by the PCER Consortium (2008) because their analysis corrected for clustering by using hierarchical linear modeling (HLM), but a correction for multiple comparisons was needed, so the significance levels in this report may differ from those reported in the original study. For the study by Christie et al. (2003), the WWC excluded the one non-randomly assigned classroom and corrected for clustering, so the significance levels in this report may differ from those reported in the original study.

Effectiveness (continued)

Language Development-Primary III (TOLD-P:3) Grammatical Understanding subtest. The authors report, and the WWC confirms, that differences between the *Doors to Discovery*TM group and the control group are not statistically significant or substantively important on any of these measures. According to WWC criteria, this study shows no discernible effects on oral language.

Christie et al. (2003) analyzed the effectiveness of *Doors to Discovery*TM on oral language using the PPVT-III. WWC analyses of the Christie et al. (2003) data show a substantively important, but not statistically significant, positive effect of 0.30 when the *Doors to Discovery*TM group was compared to the control group.¹²

Print Knowledge. The PCER Consortium (2008) analyzed the effectiveness of *Doors to Discovery*TM on print knowledge using the Test of Early Reading Ability-III (TERA-3), the Woodcock-Johnson III (WJ-III) Letter-Word Identification subtest, and the WJ-III Spelling subtest. The authors report, and the WWC confirms, that differences between the *Doors to Discovery*TM group and the control group are not statistically significant or substantively important on any of these measures. According to WWC criteria, this study shows no discernible effects on print knowledge.

Christie et al. (2003) analyzed the effectiveness of *Doors to Discovery*TM on print knowledge using Get Ready to Read! and the Concepts of Print. WWC analyses of the Christie et al. (2003) data show a substantively important, but not statistically significant, positive effect of 0.74 when *Doors to Discovery*TM was compared to the control group.

Phonological Processing. The PCER Consortium (2008) analyzed the effectiveness of *Doors to Discovery*TM on phonological processing using the Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPPP) Elision subtest. The authors report, and the WWC confirms, that differences between the *Doors to Discovery*TM group and the control group are not statistically significant or substantively important on any of these measures. According to WWC criteria, this study shows no discernible effects on phonological processing.

Math. The PCER Consortium (2008) analyzed the effectiveness of *Doors to Discovery*TM on math using the WJ-III Applied Problems subtest, the Child Math Assessment-Abbreviated (CMA-A), and the Shape Composition task. The authors report, and the WWC confirms, that differences between the *Doors to Discovery*TM group and the control group are not statistically significant or substantively important on any of these measures. According to WWC criteria, this study shows no discernible effects on math.

Rating of effectiveness

The WWC rates the effects of an intervention in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative. The rating of effectiveness takes into account four factors: the quality of the research design, the statistical significance of the findings, the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies (see the WWC Procedures and Standards Handbook, Appendix E).

The WWC found *Doors to Discovery*TM to have potentially positive effects on oral language and print knowledge, and no discernible effects on phonological processing and math

Improvement index

The WWC computes an improvement index for each individual finding. In addition, within each outcome domain, the WWC computes an average improvement index for each study and an average improvement index across studies (see WWC Procedures and Standards Handbook, Appendix F). The improvement index represents the difference between the percentile rank of the average student in the intervention condition versus

the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement index is based entirely on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analyses. The improvement index can take on values between -50 and +50, with positive numbers denoting results favorable to the intervention group.

12. Christie et al. (2003) report a statistically significant difference for the PPVT-III, but the results are based on a sample of five classrooms. As noted in Appendix A1.2, one of these classrooms was not randomly assigned, and thus excluded from the review.

**The WWC found
Doors to Discovery™
to have potentially positive
effects on oral language
and print knowledge, and
no discernible effects on
phonological processing
and math (continued)**

Based on two studies, the average improvement index for *Doors to Discovery™* on two measures of oral language is +9 percentile points, with a range of +6 to +12 percentile points across findings, and the average improvement index on five measures of print knowledge is +16 percentile points, with a range of +2 to +37 percentile points. Based on one study, the average improvement index for *Doors to Discovery™* on one measure of phonological processing is +7 percentile points, and the average improvement index on three measures of math is 0 percentile points, with a range of -5 to +5 percentile points.

Summary

The WWC reviewed six studies on *Doors to Discovery™*. One of these studies meets WWC evidence standards, one study meets WWC evidence standards with reservations, and the remaining four studies do not meet either WWC evidence standards or eligibility screens. Based on the two studies, the WWC found potentially positive effects on oral language and print knowledge, and no discernible effects on phonological processing and math. The conclusions presented in this report may change as new research emerges.

References

Meets WWC evidence standards

Preschool Curriculum Evaluation Research (PCER) Consortium. (2008). *Doors to Discovery and Let's Begin with the Letter People*. In *Effects of preschool curriculum programs on school readiness* (pp. 85–98). Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education.

Meets WWC evidence standards with reservations

Christie, J., Roskos, K., Vukelich, C., & Han, M. (2003, June). The effects of a well-designed literacy program on young children's language and literacy development. In F. Lamb-Parker, J. Hagen, R. Robinson, & H. Rhee (Eds.), *The first eight years—pathways to the future: Implications for research, policy, and practice* (pp. 447–448). Proceedings of the Head Start National Research Conference. New York: Mailman School of Public Health, Columbia University.

Studies that fall outside the Early Childhood Education protocol or do not meet WWC evidence standards

Assel, M., Landry, S., Swank, P., & Gunnewig, S. (2007). An evaluation of curriculum, setting, and mentoring on the performance of children enrolled in pre-kindergarten. *Reading and Writing*, 20(5), 463–494. The study does not meet WWC

evidence standards because the overall attrition rate exceeds WWC standards for this area.

Han, M., Roskos, K., Christie, J., Mandzuk, S., & Vukelich, C. (2005). Learning words: Large group time as a vocabulary development opportunity. *Journal of Research in Childhood Education*, 19(4). The study does not meet WWC evidence standards because it only includes outcomes that are overaligned with the intervention or measured in a way that is inconsistent with the protocol.¹³

Roskos, K., Ergul, C., Bryan, T., Burstein, K., Christie, J., & Han, M. (2008). Who's learning what words and how fast? Preschoolers' vocabulary growth in an early literacy program. *Journal of Research in Childhood Education*, 22(3), 275–290. The study is ineligible for review because it does not use a comparison group.

Wahlstrom, K., Hornbacher, J., & Rader, S. (2007). *Bloomington/Richfield—Early Reading First Get Ready Centers of Excellence year II report*. Minneapolis, MN: Center for Applied Research and Educational Improvement. The study does not meet WWC evidence standards because the intervention and comparison groups are not shown to be equivalent at baseline.

13. This source describes two studies; one that is also described in Christie et al. (2003) that meets standards with reservations, and another that does not meet evidence standards for the reason described above.