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MATH
Expressions
Common Core

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Houghton
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Case Studies from
Selected Wisconsin School Districts using
Houghton Mifflin Harcourt Math Expressions

Math Expressions is a comprehensive Kindergarten–Grade 6 mathematics curriculum that offers new ways to teach and learn mathematics. Combining the most powerful elements of standards-based instruction with the best of traditional approaches, **Math Expressions** uses objects, drawings, conceptual language, and real-world situations to help students build mathematical ideas that make sense to them. In **Math Expressions**, teachers create an inquiry environment and encourage constructive discussion. Students invent, question, and explore, but also learn and practice important math strategies. Through daily Math Talk, students explain their methods, and in turn, become more fluent in them. In **Math Expressions**, students use simple math drawings to show the mathematical aspects of a problem situation. Students make math drawings on their MathBoards, where parts of a drawing can be pointed to while a student is explaining his/her solution method for the problem. Such drawings enable the listeners to understand the presenting student's thinking much better than just a verbal explanation. This gives the teacher continual windows into each student's thinking. **Math Expressions** provides many pathways to mathematical tasks. The program starts at the student's level and continually elicits their thinking, provides visual and linguistic supports to move them rapidly to understanding, and ends with extended fluency practice and application, while continuing the emphasis on understanding and explaining. The current copyright, **Math Expressions Common Core ©2013**, is fully aligned with the Common Core State Standards. The program includes the content, math practices, and progressions of the Common Core State Standards.

The research for the development of the **Math Expressions** program was funded in part through grants from the National Science Foundation (NSF). Effectiveness research on the program continues on an ongoing basis. Part of the research includes assessing the program's impact on learning mathematics in school districts throughout the country. **Math Expressions** has become the mathematics program of choice for school districts throughout the state of Wisconsin. The following pages include case studies showing the impact that **Math Expressions** has had on mathematics achievement in selected Wisconsin school districts.

Ashwaubenon School District consists of a total of five schools and employs over 210 teachers[1] that during the 2011-2012 school year served a student enrollment of 3,192 students in grades Pre-K to 12.[2] The student body consists of mostly Caucasian students (81%), with 5% of students being Hispanic, 4% Asian, 4% Black, 3% Native American- 3% of students in the district are labeled as English Language Learners (ELLs). Thirteen percent of students in the district are identified as having a learning disability with 31% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[3]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[4]
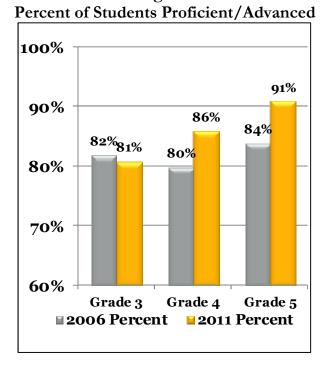
Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[5]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2006 (prior to using the program) and the Fall of 2011 (after four years of usage) were obtained for students at Ashwaubenon School District at grades 3, 4, and 5. These findings are presented in Figure 1.

Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program, with an average gain of over 4%.

Conclusion

This multi-year examination of Ashwaubenon School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with further increases in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[1] http://nces.ed.gov/ccd/districtsearch/
[2] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[3] http://oea.dpi.wi.gov/oea_wkce
[4] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[5] http://oea.dpi.wi.gov/oea_kce_q&a

Darlington Community School District in Wisconsin consists of a total of 2 schools and employs over 55 teachers[6] that during the 2011-2012 school year served a student enrollment of 786 students in grades Pre-K to 12.[7] The district has a predominately Caucasian student body (88%), with 10% of students being Hispanic, and about 1% Asian and 1% Black-eight percent of students are labeled as Limited English Proficient (LEP). Eleven percent of students in the district are identified as having a learning disability with 32% of students eligible for Free/Reduced Lunch programs.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.
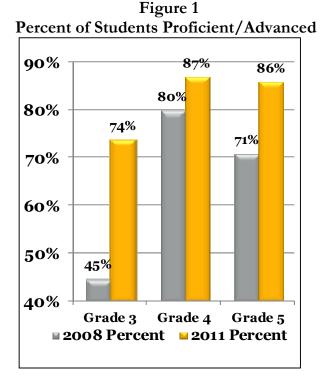
According to the Wisconsin Department of Public Instruction, this test is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[8]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[9]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[10]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Darlington Community School District at grades 3, 4, and 5. These findings are presented in Figure 1.

Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program, with an average gain of over 15%.

Conclusion

This multi-year examination of Darlington Community School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. Over the course of two years, the adoption of **Math Expressions** was associated with an increase in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

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[6] http://nces.ed.gov/ccd/districtsearch/
[7] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[8] http://oea.dpi.wi.gov/oea_wkce
[9] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[10] http://oea.dpi.wi.gov/oea_kce_q&a

Ellsworth Community School District in Wisconsin consists of a total of five schools and employs over 100 teachers[11] that during the 2011-2012 school year served a student enrollment of 1,687 students in grades Pre-K to 12.[12] The student body consists of mostly Caucasian students (95%), with 2% of students being Hispanic. Twelve percent of students in the district are identified as having a learning disability with 27% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[13]
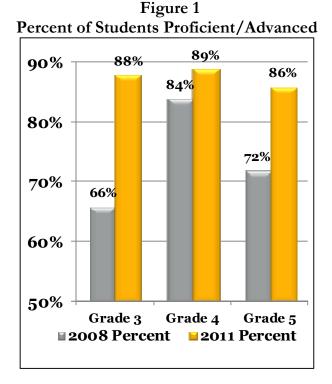
The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[14]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[15]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Ellsworth Community School District at grades 3, 4, and 5. These findings are presented in Figure 1.

Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 13%.

Conclusion

This multi-year examination of Ellsworth Community School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with marked improvement in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[11] http://nces.ed.gov/ccd/districtsearch/
[12] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[13] http://oea.dpi.wi.gov/oea_wkce
[14] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[15] http://oea.dpi.wi.gov/oea_kce_q&a

Glenwood City School District in Wisconsin consists of a total of four schools and employs over 45 teachers[16] that during the 2011-2012 school year served a student enrollment of 711 students in grades Pre-K to 12.[17] The student body consists of mostly Caucasian students (923%), with 3% of students being Hispanic, 2% Asian, and 1% Black- 1% of students in the district are labeled as English Language Learners (ELLs). Thirteen percent of students in the district are identified as having a learning disability with 32% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[18]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[19]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[20]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Glenwood City School District at grades 3, 4, and 5. These findings are presented in Figure 1.
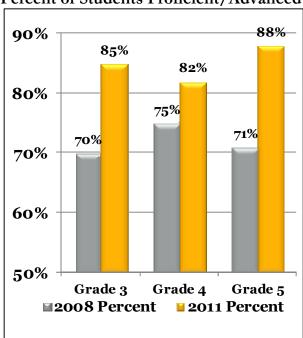
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 12%.

Conclusion

This multi-year examination of Glenwood City School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with marked improvement in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[16] http://nces.ed.gov/ccd/districtsearch/
[17] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[18] http://oea.dpi.wi.gov/oea_wkce
[19] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[20] http://oea.dpi.wi.gov/oea_kce_q&a

Hayward Community School District in Wisconsin consists of a total of eight schools and employs over 140 teachers[21] that during the 2011-2012 school year served a student enrollment of 1,952 students in grades Pre-K to 12.[22] The district has a diverse student body with 69% of students being Caucasian, 24% Native American, 2% Hispanic, 1% Asian, and 1% Black. Fifteen percent of students in the district are identified as having a learning disability with 58% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[23]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[24]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[25]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Hayward Community School District at grades 3, 4, and 5. These findings are presented in Figure 1.
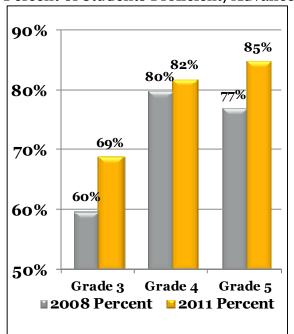
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 6%.

Conclusion

This multi-year examination of Hayward Community School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with an increase in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[21] http://nces.ed.gov/ccd/districtsearch/
[22] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[23] http://oea.dpi.wi.gov/oea_wkce
[24] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[25] http://oea.dpi.wi.gov/oea_kce_q&a

Kaukauna Area School District in Wisconsin consists of a total of 7 schools and employs over 215 teachers[26] that during the 2011-2012 school year served a student enrollment of 3,931 students in grades Pre-K to 12.[27] The district has a predominately Caucasian student body (90%), with 5% of students being Hispanic, 2% Asian, 1% Black, and 1% Native American-3% of students are labeled as English Language Learners (ELLs). Thirteen percent of students in the district are identified as having a learning disability with 27% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[28]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[29]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[30]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2010 (prior to using the program) and the Fall of 2011 (after the first year of usage) were obtained for students at Kaukauna Area School District at grades 3, 4, and 5. These findings are presented in Figure 1.
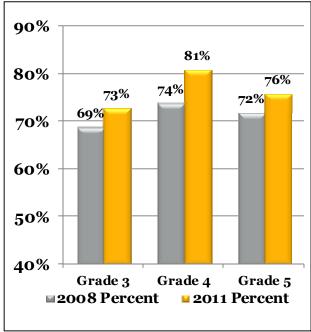
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than the prior year, with an average gain of 5%.

Conclusion

This one year examination of Kaukauna Area School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district, one year of using the **Math Expressions** program was associated with further increases in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

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[26] http://nces.ed.gov/ccd/districtsearch/
[27] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[28] http://oea.dpi.wi.gov/oea_wkce
[29] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[30] http://oea.dpi.wi.gov/oea_kce_q&a

Marion School District in Wisconsin consists of a total of 2 schools and employs over 40 teachers[31] that during the 2011-2012 school year served a student enrollment of 520 students in grades Pre-K to 12.[32] The district has a predominately Caucasian student body (95%), with 2% of students being Hispanic, 2% Native American, and 1% Asian. Twelve percent of students in the district are identified as having a learning disability with 40% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[33]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[34]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[35]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Marion School District at grades 3, 4, and 5. These findings are presented in Figure 1.
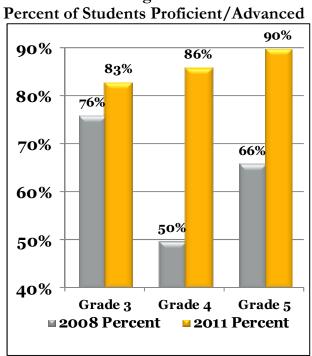
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 20%.

Conclusion

This multi-year examination of Marion School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. Over the course of only two years of using of using **Math Expressions** the district saw a drastic improvement in the percentage of students meeting proficiency on the Wisconsin state assessment with over 33% more students at/above proficiency. This case study provides evidence that **Math Expressions** is an effective math program.

[31] http://nces.ed.gov/ccd/districtsearch/
[32] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[33] http://oea.dpi.wi.gov/oea_wkce
[34] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[35] http://oea.dpi.wi.gov/oea_kce_q&a

Neenah Joint School District in Wisconsin consists of a total of thirteen schools and employs over 380 teachers[36] that during the 2011-2012 school year served a student enrollment of 6,274 students in grades Pre-K to 12.[37] The student body consists of mostly Caucasian students (88%), with 6% of students being Hispanic, 2% Asian, and 2% Black - 3% of students in the district are labeled as English Language Learners (ELLs). Fifteen percent of students in the district are identified as having a learning disability with 29% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[38]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[39]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[40]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2006 (prior to using the program) and the Fall of 2011 (after four years of usage) were obtained for students at Neenah Joint School District at grades 3, 4, and 5. These findings are presented in Figure 1.
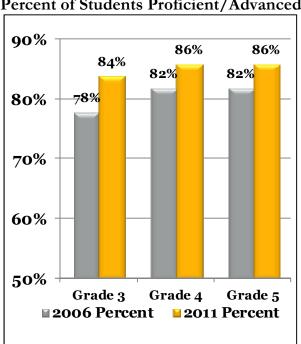
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 4%.

Conclusion

This multi-year examination of Neenah Joint School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with further increases in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[36] http://nces.ed.gov/ccd/districtsearch/
[37] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[38] http://oea.dpi.wi.gov/oea_wkce
[39] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[40] http://oea.dpi.wi.gov/oea_kce_q&a

New London School District in Wisconsin consists of a total of seven schools and employs over 160 teachers[41] that during the 2011-2012 school year served a student enrollment of 2,472 students in grades Pre-K to 12.[42] The student body consists of mostly Caucasian students (90%), with 7% of students being Hispanic, 1% Asian, and 1% Black - 5% of students in the district are labeled as English Language Learners (ELLs). Fourteen percent of students in the district are identified as having a learning disability with 34% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[43]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[44]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[45]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at New London District at grades 3, 4, and 5. These findings are presented in Figure 1.
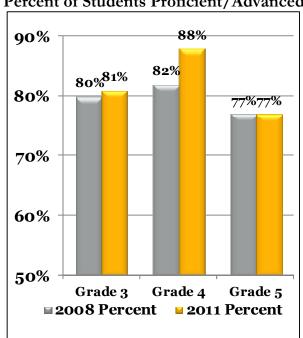
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 2%.

Conclusion

This multi-year examination of New London District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with further increases in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[41] http://nces.ed.gov/ccd/districtsearch/
[42] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[43] http://oea.dpi.wi.gov/oea_wkce
[44] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[45] http://oea.dpi.wi.gov/oea_kce_q&a

Onalaska School District in Wisconsin consists of a total of six schools and employs over 200 teachers[46] that during the 2011-2012 school year served a student enrollment of 2,996 students in grades Pre-K to 12.[47] The student body consists of mostly Caucasian students (83%), with 8% of students being Asian, 2% Hispanic, and 2% Black- 2% of students in the district are labeled as English Language Learners (ELLs). Eleven percent of students in the district are identified as having a learning disability with 30% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[48]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[49]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[50]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2005 (prior to using the program) and the Fall of 2011 (after five years of usage) were obtained for students at Onalaska School District at grades 3, 4, and 5. These findings are presented in Figure 1.
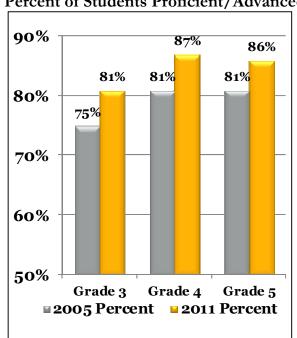
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels examined, **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program, with an average gain of over 5%.

Conclusion

This multi-year examination of Onalaska School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with further increases in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

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[46] http://nces.ed.gov/ccd/districtsearch/
[47] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[48] http://oea.dpi.wi.gov/oea_wkce
[49] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[50] http://oea.dpi.wi.gov/oea_kce_q&a

Richland School District in Wisconsin consists of a total of 5 schools and employs over 105 teachers[51] that during the 2011-2012 school year served a student enrollment of 1,363 students in grades Pre-K to 12.[52] The district has a predominately Caucasian student body (92%), with 4% of students being Hispanic, and about 1% Asian and 1% Black. Nineteen percent of students in the district are identified as having a learning disability with 55% of students eligible for Free/Reduced Lunch programs.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this test is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[53]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[54]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[55]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2006 (prior to using the program) and the Fall of 2011 (after four years of usage) were obtained for students at Richland School District at grades 3, 4, and 5. These findings are presented in Figure 1.
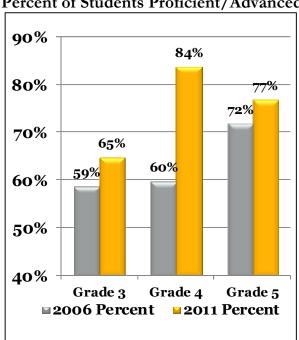
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program, with an average gain of over 11%.

Conclusion

This multi-year examination of Richland School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. Over the course of four years, the adoption of **Math Expressions** was associated with an increase in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[51] http://nces.ed.gov/ccd/districtsearch/
[52] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[53] http://oea.dpi.wi.gov/oea_wkce
[54] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[55] http://oea.dpi.wi.gov/oea_kce_q&a

Richfield J1 School District in Wisconsin consists of a total of 2 schools and employs over 26 teachers[56] that during the 2011-2012 school year served a student enrollment of 403 students in grades Pre-K to 8.[57] The district has a predominately Caucasian student body (93%), with 4% of students being Hispanic, and about 1% Asian and 1% Black. Thirteen percent of students in the district are identified as having a learning disability with 8% of students eligible for Free/Reduced Lunch programs.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.
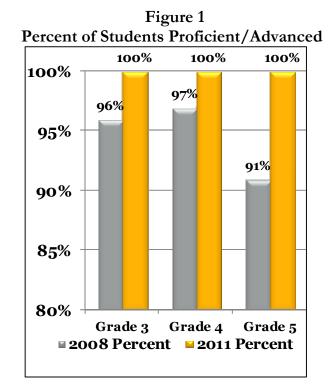
According to the Wisconsin Department of Public Instruction, this test is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[58]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[59]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[60]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Richfield J1 School District at grades 3, 4, and 5. These findings are presented in Figure 1.

Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program, with an average gain of over 15%.

Conclusion

This multi-year examination of Richfield J1School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. Over the course of two years, the adoption of **Math Expressions** was associated with an increase in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

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[56] http://nces.ed.gov/ccd/districtsearch/
[57] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[58] http://oea.dpi.wi.gov/oea_wkce
[59] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[60] http://oea.dpi.wi.gov/oea_kce_q&a

Sparta Area School District in Wisconsin consists of a total of eleven schools and employs over 180 teachers[61] that during the 2011-2012 school year served a student enrollment of 2,643 students in grades Pre-K to 12.[62] The student body consists of mostly Caucasian students (87%), with 9% of students being Hispanic, 2% Black, and 1% Asian, - 3% of students in the district are labeled as English Language Learners (ELLs). Fifteen percent of students in the district are identified as having a learning disability with 47% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[63]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[64]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[65]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 20076 (prior to using the program) and the Fall of 2011 (after three years of usage) were obtained for students at Sparta Area School District at grades 3, 4, and 5. These findings are presented in Figure 1.
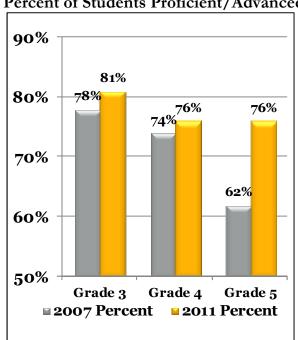
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 6%.

Conclusion

This multi-year examination of Sparta Area School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with further increases in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

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[61] http://nces.ed.gov/ccd/districtsearch/
[62] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[63] http://oea.dpi.wi.gov/oea_wkce
[64] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[65] http://oea.dpi.wi.gov/oea_kce_q&a

Westfield School District in Wisconsin consists of a total of six schools and employs over 90 teachers[66] that during the 2011-2012 school year served a student enrollment of 1,142 students in grades Pre-K to 12.[67] The student body consists of mostly Caucasian students (93%), with 1% of students being Hispanic, 1% Black- 1% of students in the district are labeled as English Language Learners (ELLs). Thirteen percent of students in the district are identified as having a learning disability with 50% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[68]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[69]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[70]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2007 (prior to using the program) and the Fall of 2011 (after three years of usage) were obtained for students at Westfield School District at grades 3, 4, and 5. These findings are presented in Figure 1.
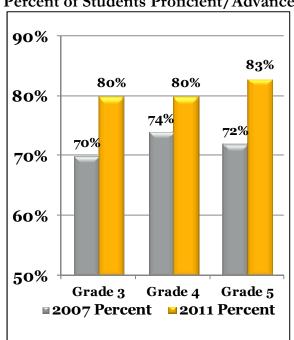
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 8%.

Conclusion

This multi-year examination of Westfield School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. While the district was already a high achieving district prior to using the program, the adoption of **Math Expressions** was associated with marked improvement in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

[66] http://nces.ed.gov/ccd/districtsearch/
[67] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[68] http://oea.dpi.wi.gov/oea_wkce
[69] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[70] http://oea.dpi.wi.gov/oea_kce_q&a

Whitehall School District in Wisconsin consists of a total of 4 schools and employs over 60 teachers[71] that during the 2011-2012 school year served a student enrollment of 742 students in grades Pre-K to 12.[72] The district has a predominately Caucasian student body (93%), with 5% of students being Hispanic, 1% Asian, and 1% Black. Twelve percent of students in the district are identified as having a learning disability with 49% of students eligible for Free/Reduced Lunch.

Wisconsin State Assessment Program

The Wisconsin Knowledge and Concept Examination (WCKE) in Mathematics is administered annually, during the fall of the academic year for students in grades 3-8, and 10th grade.

According to the Wisconsin Department of Public Instruction, this tests is custom designed for the state to assess students' progress toward the Wisconsin Model Standards in Mathematics using a mix of specific and commercially available items from test publisher CTB/McGraw Hill[73]

The Mathematics assessments consist of between 45 and 51 items which are expected to be completed over the course of 3 testing sessions lasting between 85 to 105 minutes. The test is constructed utilizing both multiple choice responses and student constructed responses with approximately 80% of the points on the test coming from multiple choice items. The test composition varies slightly at each grade level, but students' performance is reported in six categories which make up the Model Standards: Mathematical Processes, Number Operations and Relationships, Geometry, Measurement, Statistics and Probability, and Algebraic Relationships.[74]

Students' achievement on the test can be categorized into one of four performance levels: Advanced, Proficient, Basic, and Minimal Performance. These categories were not created using an algorithm; rather, state officials identified the prerequisite skills for each performance level with the long term goal of having almost all students achieve proficient or advanced levels of performance in all subjects.[75]

Student Success with *Math Expressions*

To assess if implementing HMH **Math Expressions** had an impact on learning, student test scores from the Fall of 2008 (prior to using the program) and the Fall of 2011 (after two years of usage) were obtained for students at Whitehall School District at grades 3, 4, and 5. These findings are presented in Figure 1.
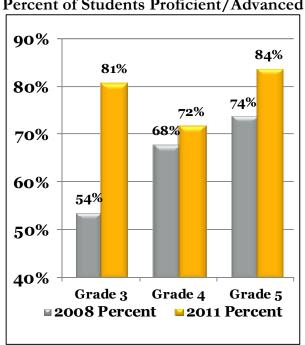
Figure 1
Percent of Students Proficient/Advanced

The comparison of assessment scores revealed that at all grade levels **the percentage of students rated as Proficient or Advanced on the WCKE was greater in 2011,** after using *Math Expressions*, than prior to the district adopting the program with an average gain of over 12%.

Conclusion

This multi-year examination of Whitehall School District's implementation of HMH **Math Expressions** revealed that the program was associated with increased mathematics achievement. Over the course of just two years, the adoption of **Math Expressions** was associated with an increase in the percentage of students meeting proficiency on the Wisconsin state assessment. This case study provides evidence that **Math Expressions** is an effective math program.

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[71] http://nces.ed.gov/ccd/districtsearch/
[72] http://data.dpi.state.wi.us/data/?403;http://data.dpi.state.wi.us:80/
[73] http://oea.dpi.wi.gov/oea_wkce
[74] http://oea.dpi.wi.gov/files/oea/pdf/math_framework.pdf
[75] http://oea.dpi.wi.gov/oea_kce_q&a