Pilot Study of
Millmark Education's *ConceptLinks*™ Ecosystems Instructional Module

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Report Highlights

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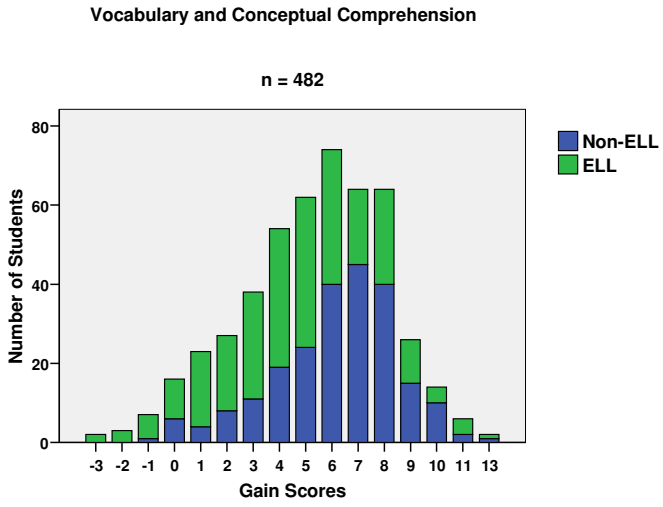
Final Report Executive Summary

A pilot study of the *ConceptLinks*™ Ecosystems instructional module was conducted by Learning Gauge, Inc. in partnership with Millmark Education during spring 2007. The purpose of the pilot study was to field test a prototype of Millmark Education's new *ConceptLinks*™ instructional module with regard to its impact on students' content literacy and academic vocabulary, and teacher's ability to implement it effectively in the classroom. The study surveyed teachers about their instruction and the subsequent impact of Millmark's *ConceptLinks*™ Ecosystems module on students' content area knowledge and content literacy development. The module provides instructional resources for vocabulary building, concept development, and comprehension development along with language development. Comprehension development in the *ConceptLinks*™ Ecosystems module focused on determining importance when reading non-fiction texts. The materials are designed for multi-need instruction of students with Reading Levels 4 through 8 including grade level readers, English language learners (ELL), and struggling readers below grade level.

The pilot study involved 482 students and 11 teachers from nine public schools in urban and suburban settings in the Southeastern, Northeastern, Midwestern, Southwestern and Southern regions of the United States. Teachers were recruited to participate in the pilot study by Millmark Education and received 60 to 90 minutes of professional development from Millmark consultants. Duration of teacher training depended upon the size of the group. Students completed an average of 8 lessons with an average of 58 instructional minutes per lesson. The range of student gains was larger among struggling readers than among regular education students or those reading at grade level. There was not a direct correlation between type of student (Non-ELL or ELL) and reading at grade level. Of the 382 students reading at grade level, 44% of them were ELL students.

Chart 1. Learning gains in vocabulary and conceptual comprehension per student type.



Gain Scores = Increase in # of questions answered correctly out of total of 16 questions

Overall, students had a 33% gain in their vocabulary and conceptual comprehension. The mean difference in students' pre- and post-test performance on the combined vocabulary and conceptual comprehension subscales of the criterion-referenced test was 5.33, which is a statistically significant gain in student performance attributable to the instruction they received with the *ConceptLinks*™ Ecosystems module.

Highlights from Final Report

Methodology

The pilot study for the module involved a two-fold design. First, Learning Gauge conducted a validation study of the criterion-referenced test developed by the Millmark Education consultant to measure students' vocabulary development, and comprehension of text features, visuals and science concepts. For details about the validity and reliability of the measurement used in this study, refer to Appendix A of the full report.

Second, the pre-and post-test results from the validated measurement were statically analyzed for evidence of students' learning. Additional data about the instruction students received were gathered with a pre- and post-survey of participating teachers. Teachers were recruited to participate in the study through Millmark Education marketing consultants. Prior to initiating instruction within the *ConceptLinks*™ Ecosystems module, teachers attended one training session. Following the training session, teachers were asked to administer and score the pretest, then return all pretest materials for statistical analysis. After administration of the pretest, teachers initiated instruction. Teachers administered the post-test at the end of the instructional period, which ranged from 2 to 3 weeks in duration.

Classroom Adoption Practices

Overall, teachers rated the Millmark educational program as useful in helping to achieve their district's instructional goals. Most of the teachers (11 of 13) felt that the expectation of what could be accomplished in one lesson was appropriate for the duration of one instructional session and that the overall instructional plan was meaningful for their students. These teachers also reported that the small group instructional plan was effective.

Most of the teachers (11 out of 13) reported that the *ConceptLinks*™ Ecosystems module was effective for teaching reading, as well as teaching science. Teachers would use it again as designed or with some modifications. Teachers stated that because the books were interesting, students wanted to read more. They also stated that the activities were engaging and aligned to district standards of learning. The fact that the books were written in clear and precise language enabled the students to comprehend the content and respond well to the instruction. The books were also reported as an excellent resource for integrating science instruction with hands-on learning in a science lab.

With regard to assessment, teachers reported that the Millmark instructional program assessments were useful for informing their instruction as well as informing students about their learning progress. Teachers stated that the leveled assessments enabled students to evaluate their knowledge on information learned at their level. They found the assessments to be well-written, helpful in clarifying which concepts needed re-teaching, and useful in gauging student understanding. Teachers also reported that the Millmark study guides and black line masters both useful and helpful. Several teachers stated that the students found them engaging and it helped the teachers to focus and guide instruction.

Teachers were asked to provide insights about using Millmark in three specific areas: comprehension strategy instruction; vocabulary and academic knowledge development; writing instruction and student writing products. With regard to comprehension strategy instruction several teachers mentioned the value of text features in the *ConceptLinks*™ Ecosystems student books, i.e. titles, heading, photographs, captions, and bold print as an aid to comprehension. They felt that the comprehension strategy instruction enabled students to assess their own learning and apply fix-up strategies.

All teachers found the vocabulary and academic knowledge development in the *ConceptLinks*™ Ecosystems module to be particularly well done. Many teachers mentioned that the vocabulary focus in all student books was excellent. Some features of the vocabulary instruction that they found most useful were focusing on key vocabulary before reading, using visuals to determine the meaning of the word, and on page definitions of key vocabulary.

When asked about the strengths of the Millmark instructional program, nearly all teachers mentioned the leveled books as a primary strength. Teachers felt that use of a common theme with differentiated texts was good for all learners, but particularly effective with ELL students. Students had an opportunity to learn core concepts, and then build on that concept with the next level text that built on what they had already learned, while also providing new information. Teachers also mentioned that the students enjoyed the books and the small group instruction. . .

Conclusions and Recommendations

Teacher survey results indicate that teachers rated the *ConceptLinks*™ module effective with small group instruction and aligned to their district goals for learning. Teachers also reported that students had high levels of interest and engagement with the books. They reported the differentiated texts as a primary strength of the module. They felt these texts supported learning for all students, but worked particularly well with ELL students. They stated that the language and text feature were supportive of their students' needs for content area learning. Teachers reported that the books were useful for teaching both content and literacy, especially in the area of content vocabulary. Teachers also reported ease of use with the teacher's guide. The structure of the guide provided effective delivery of instruction and supported classroom management of small group instruction.

The large learning gains found among the regular education students who were reading at grade level during the treatment show the value of providing all types of students with opportunities to learn from the Millmark *ConceptLinks*™ module. Comprehending non-fiction text can be more challenging for readers than other types of literature. As a result, readers can be challenged to determine importance even if the reading level of the text is at or below their reading level. In other words, students reading at 6th grade level do not necessarily comprehend specific vocabulary or academic concepts unless the instructional program assists with building their content vocabulary and conceptual understanding. While struggling readers and some ELL students in this study benefited more than grade level readers, the emphasis on preparing students to read technical literature and non-fiction academic text is steadily increasing in America's schools. All students need effective instruction to acquire these higher-order reading and vocabulary development skills.

Selected Data Tables from Final Report

Table 2. Shows the results of the Student Type cross tabulation.

Student Type	**Grade**					**Total**
n = 550	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	
Non-ELL at grade level	84	70	83	1	0	238
Non-ELL 0.5 below grade level	4	7	1	0	0	12
Non-ELL 1.5 below grade level	0	2	2	0	0	4
Non-ELL 2.5 below grade level	0	0	4	0	0	4
ELL at grade level	59	32	36	33	25	185
ELL 0.5 below grade level	3	2	2	1	0	8
ELL 1.5 below grade level	0	1	6	0	0	7
ELL 2.5 below grade level	0	0	18	33	41	92
Total	150	114	152	68	66	550

Table 5. Combined Vocabulary and Conceptual comprehension Paired Samples T-Test.

	Paired Differences					t	df	Sig. (1-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Combined Vocabulary and Conceptual Comprehension	5.33	2.777	.126	5.079	5.576	42.127*	481	.0005

* indicates significant difference between pre- and post-test performance when p < 0.01

Table 2. Paired Samples Tests for all test questions

Paired Differences between Pre- and Post-Test Scores					t	df	Sig. (1-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
2.199	3.428	.156	1.892	2.506	14.086*	481	.0005