The Research Behind CompassLearning Odyssey

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Introduction

CompassLearning instructional design, content, and technology take advantage of the very latest current and confirmed research. CompassLearning solutions are built using input from: universally accepted theories and guidelines from cognitive psychology and instructional design experts; market research, including state student performance data, industry association studies, and ongoing customer feedback; and external product research through focus groups and efficacy studies. This paper will take a deeper look at these areas and help explain what theories and data drive the development of CompassLearning solutions.

CompassLearning Odyssey is based on the recommendations and research of leading cognitive psychologists, experts in instructional design, and independent research groups. The company’s solutions meet NCLB accountability requirements and the curriculum is based on scientific research, pursuant to NCLB guidelines.

CompassLearning solutions also reflect the latest information from national professional organizations, federal advisory panels, and schools and districts across the country. The result of this market-based research is that CompassLearning Odyssey meets state standards for all 50 states. It is also important to continually look at each state’s student performance data and address skill gaps and needs. CompassLearning listens to customer needs and uses that information to drive our decision making and product design.

Finally, CompassLearning conducts regular primary research about its products to ensure that the content is relevant, the interface is intuitive and easy to use, and the students who use it continue to improve their academic performance. This research includes focus groups with various members of the education community, surveys conducted to the broader education world, and efficacy studies that measure how the students using CompassLearning Odyssey are performing.

The CompassLearning teams were built from the ground up with the most highly qualified people involved at each stage of the product development process. Groups are structured to encourage teamwork and collaborative development. The structure of the teams and the multi-step product development process ensure the incorporation of the most current and confirmed research available in the educational and cognitive fields.
Research Theories and Guidelines

“CompassLearning believes that the key to successful students and educators is meeting NCLB accountability requirements through comprehensive coverage of state academic standards and teaching in a way that motivates students to learn and encourages retention of critical content. It’s time to take all that we know about how the brain works and put that information to work for today’s students. Our approach is to take instructionally rigorous content and make it highly engaging.”

Ann Henson, VP of Curriculum and Instruction, CompassLearning

At CompassLearning, instructional design, curriculum content, and technology are all driven by the latest research about how students think and learn.

“So what should we do with our knowledge about the brain? Is it useless theory? Just trivia? Not for the professional educator. As long as we are in the business of learning, the brain is relevant. Many studies present enough clear and solid information to be transformed into classroom practice.”

Eric Jensen, researcher
CompassLearning takes cues from a variety of experts and researchers in the field of cognitive and instructional theory. The following theories are incorporated into the design, content and delivery methods of CompassLearning Odyssey.

**Richard Mayer’s Principle of Personalization**
Richard Mayer’s Principle of Personalization shows that students performed up to 40% better when content was delivered in a first-person, conversational style rather than with a formal tone (Mayer 2000).

In a study published in the *Journal of Educational Psychology*, Mayer and research partner Roxana Moreno conclude, “The reported results have strong implications for teaching. The most direct practical implication of the present study is that multimedia science programs can result in broader learning if the communication model is centered around shared environments in which the student is addressed as a participant rather than as an observer.”

CompassLearning has a team of entertainment writers to take the rigorous instructional content from the curriculum and instruction team and turn it into conversational, age-appropriate activities. Delivering content using an interactive conversational interface, or ICI, allows CompassLearning products to:
- Stimulate the brain
- Connect response to prerecorded characters
- Create suspension of disbelief and give the computer human-like qualities
- Create feelings of personal connection

**The Role of Positive Emotions in Learning**
Students retain what they learn when the learning is associated with a strong, positive emotion (Dulay and Burt, 1977, Krashen, 1982). Age-appropriate humor and positive feedback are incorporated throughout CompassLearning Odyssey activities to engage the student. Studies have shown that when classroom activities are pleasurable, the brain releases dopamine, a neurotransmitter that stimulates the memory centers and promotes acetylcholine, which increases focused attention (Willis 2007).

**Eric Jensen’s Work On the Difference Between the Child and Adult Brain**
Students’ minds work differently from adult minds. In Eric Jensen’s study in 2000, researchers took a digital electronic scan of an adult’s brain doing a specific mental process and compared it to children’s brains doing the same process. Results showed that the children use significantly different neural pathways to take in, process, and store the same information as adults — especially in the visual cortex in the back of the brain. CompassLearning Odyssey uses a variety of interactive visual techniques in online activities to bring concepts to life. In the lower grades, characters often play a role in conveying information, whereas the high school courses feature 2–3 minute instructor-led video segments.
Bertelsman Foundation Study About the Impact of Media and Technology
A Bertelsman Foundation study examined the impact that media elements and technology can have on learning and retention levels. In the study, students were split into two groups to learn about the Civil War. Group A used traditional methods and Group B used media tools and computer instruction. Both scored the same on a teacher-built traditional test administered immediately after instruction. One year later, the students in Group A could recall very few facts they had learned, while the students in Group B displayed recollection of elaborate concepts and ideas that they had extended into other areas of history. Group A defined history as the record of the facts of the past while Group B defined history as a process of interpreting the past from different perspectives.

The Response to Intervention Model
Response to Intervention is designed to provide early, effective assistance to struggling learners. Response to Intervention seeks to prevent academic failure through early intervention, frequent progress measurement, and increasingly intensive research-based instructional interventions for children who continue to have difficulty. CompassLearning promotes a Response to Intervention approach by providing various levels of student support and additional time on task. Online and offline activities provide intervention opportunities at the following levels of student proficiency:

- **Benchmark**: Students who, while generally making good progress, may be experiencing temporary or minor instructional difficulties

- **Strategic**: Students who function one to two standard deviations below the mean and need systematic, explicit instructional support in a smaller group setting

- **Intensive**: Students who are seriously at risk of failure and who have demonstrated chronically low performance on multiple measures of instructional proficiency

Madeline Hunter’s Method of Direct Instruction
Hunter emphasizes in her method of direct instruction that each activity begins by setting the stage for the lesson with clear objectives, then providing an understanding of the standards or what is expected from the student during the lesson. Next, Hunter stresses the importance of the “anticipatory set” or grabbing the student’s attention before moving into teaching through input of information, modeling, and checking for understanding. Many techniques from Hunter’s method of direction instruction are incorporated into CompassLearning Odyssey. In Odyssey, there are multiple opportunities for guided practice and monitoring. The lesson ends with closure and opportunities for independent practice.
Robert Gagne’s Nine Events of Instruction
According to Robert Gagne, there are nine events that activate processes needed for effective learning. Gagne’s Nine Events of Instruction are:

1. **Gain attention.** Grab the student’s attention with devices like story telling.
2. **Inform learner of objective.** This allows students to better understand what they are about to do.
3. **Stimulate recall of prior knowledge.** Learners are more successful if they are able to build on previous knowledge.
4. **Present the material.** A variety of learning strategies can be used at this stage.
5. **Provide guidance for learning.** Teach the students how to learn.
6. **Elicit performance.** Allow the student to use his or her new skills.
7. **Provide feedback.** Tests, quizzes or verbal feedback can provide valuable information.
8. **Assess performance.** Testing will determine if the student has learned the lesson.
9. **Enhance retention and transfer.** Review the lesson by providing additional practice; put the learner in a transfer situation.

These events should create the necessary conditions for learning and serve as the basis for designing instruction and selecting appropriate media to educate students (Gagne, Briggs & Wager, 1992). Odyssey incorporates these events into the various components of a lesson.

Howard Gardner’s Theory of Multiple Intelligences
According to Gardner, there are seven distinct intelligences that can be linked to their own neurological substrate:

1. **Linguistic intelligence**—sensitivity to the spoken and written word and the ability to master languages
2. **Logical-mathematical intelligence**—the capacity to analyze problems logically and scientifically
3. **Musical intelligence**—skill in the performance, composition, and appreciation of music
4. **Bodily-kinesthetic intelligence**—as exemplified by dancers, surgeons, and artists
5. **Spatial intelligence**—characteristic of pilots, graphic artists, and architects
6. **Interpersonal intelligence**—a talent for understanding and relating to other people
7. **Intrapersonal intelligence**—the capacity for understanding oneself

Mindy L. Kornhaber (2001) summarizes the response of the education world to Garner’s theory: “[Gardner’s theory] validates educators' everyday experience: students think and learn in many different ways. It also provides educators with a conceptual
framework for organizing and reflecting on curriculum assessment and pedagogical practices."

CompassLearning solutions are designed to meet the range of learners in the classroom and help differentiate instruction to meet each student’s individual needs. When developing instructional content, CompassLearning analyzes the most common critical mistakes students make when learning a particular concept. Our curriculum experts structure courses and activities to recognize these mistakes and provide personalized feedback to the student based on the error he or she made. As a result, when a student answers a question incorrectly, the program identifies the type of mistake the student is making and branches him or her to feedback specific to that mistake. This is far more valuable to the student than a generic response, turning an error in logic or understanding into an additional opportunity to teach the concept.

Other Research and Theory

Other research-based instructional and learning theory applied in the development of Odyssey includes:

- Lev Vygotsky’s theory that learning occurs through assisted performance;
- Jerome Bruner’s education learning theories, including spiraled learning and scaffolding;
- Ausubel’s theory about how students learn information;
- B.F. Skinner’s behavior research;
- J. Guilford’s research on convergent and divergent thinkers;
- Jean Piaget’s theory of child development and research on abstract and concrete perceivers;
- Benjamin Bloom’s taxonomy of higher-order thinking skills; and
- Robert Marzano’s work on classroom management and instruction.

Summary of CompassLearning Odyssey Design that Is Affected by These Theories

The research and findings in these theories is applied in the CompassLearning Odyssey curriculum as follows:

- **Direct instruction**—Direct instruction is a model for teaching that emphasizes well-developed and carefully planned lessons designed around small learning increments and clearly defined and prescribed teaching tasks. It is based on the theory that clear instruction that eliminates misinterpretations can greatly improve and accelerate learning.
- **Skill and mechanics mastery** are provided as a way to improve the student’s comprehension of material. Opportunities for exploration, discovery, and problem solving, as well as guided work, are included to ensure retention.

- **Differentiated instruction**—Assessment-driven instruction focuses on meeting the needs of students at different levels of competence, as identified by diagnostic and progress-monitoring test results. This includes appealing to students who are at different readiness levels, responding to students' interests, and offering students choices in preferred ways of learning or expressing themselves.

There are four ways in which differentiated instruction can be a powerful teaching method: 1) it provides just-in-time learning for students who show a special interest in a subject; 2) it allows students to move forward in the curriculum once they have achieved mastery; 3) it provides branching-down opportunities for students who need intervention; 4) it enables the educator to track the path a student takes as he or she moves toward mastery. CompassLearning differentiates instruction through Odyssey Explorer assessments and Learning Paths.

- **Scaffolding**—CompassLearning uses scaffolding to prepare students to complete learning tasks on their own. The inclusion of technology-based content provides some unique new opportunities to scaffold. CompassLearning creates online and offline performance support documents to help students master specific information processing and communication skills. CompassLearning instructional models include:
  - modeling performance in lessons;
  - providing prompts, links, guides, and structures for learning complex concepts; and
  - removing those structures when the student is ready to learn without them.

- **Tiering** modifies instruction and level of difficulty based on results of the Explorer assessment or custom assessment.

- **Instructional branching**—Instructional feedback is embedded to assist student learning before, during, and after activities in all CompassLearning products. Assessment tools prescribe an individual Learning Path based on student mastery before the student begins the activities. At selected points in Odyssey, when a student has demonstrated that he or she is not mastering the concept, he or she is branched to a remediation activity that addresses the same objectives as the original activity, but takes a different approach. Offline activities provide follow-up remediation and practice based on teacher observation and data from reports. To encourage critical-thinking skills, exploratory activities are included in key activities as well.

  In addition to the embedded branching, teachers can add their own “decision points” to instructional sequences to assure that students who are not mastering materials are branched to additional intervention.

- **A spiraled curriculum** ensures that important skills and concepts are reintroduced
throughout different levels with increasing difficulty to ensure mastery and retention.

- Technology and active learning lessons address the wide variety of learning modalities—visual, auditory, tactile, and kinesthetic—that are characteristics of today’s learners.

- Online and offline activities provide materials in various media to address students’ diverse learning styles.
Specific research to support core curriculum areas

**Reading/Language Arts**
CompassLearning literacy products are structured around current and confirmed reading research. CompassLearning provides a complete comprehensive package to schools that will serve as a key component and supplementary addition to any reading curriculum.

The National Reading Panel Report (NRPR) titled *Teaching Children to Read* (2000) is a key document in the development of content for all CompassLearning reading products. The NRPR identifies five essential components of reading that must be developed in children if they are to acquire the critical skills necessary to become proficient readers by the end of third grade, as well as being skills critical in the development of higher-level literacy skills in future years. The five core components that are essential in reading development are: Phonemic Awareness, Phonics, Fluency, Vocabulary, and Comprehension. Odyssey High School language arts follows *Academic Literacy Instruction for Adolescents: A Guidance Document from the Center on Instruction*. This document outlines the following factors which contribute directly to differences in performance on reading comprehension tests in middle and high school:

1. fluency of text reading;
2. vocabulary, or the breadth and depth of knowledge about the meaning of words;
3. background, or prior knowledge related to the content of the text being read;
4. higher-level reasoning and thinking skills;
5. active and flexible use of reading strategies to enhance comprehension; and
6. motivation and engagement for understanding and learning from text.

Odyssey High School Language Arts courses address reading fluency, vocabulary and reading comprehension strategy instruction, with careful attention to establishing context and providing scaffolded support throughout the lessons. Odyssey High School also includes regular comprehension checks to ensure that students stay on track, and writing activities to engage students’ imaginations and interests.

**Mathematics**
Odyssey Math connects research concepts to an integrated curriculum to help all students make sense of mathematics. Through research-based processes and instruction, content objectives are linked so they are learned with understanding and practiced to develop automaticity and fluency.

Within the “big ideas” that provide the framework for the curriculum, Odyssey Mathematics identifies central themes, or topics, as the basic structure of mathematics. These topics build from basic skills to more advanced, complex skills. The Odyssey Mathematics spiraled curriculum presents skills and ideas first in a form and language
that the student can grasp easily, and then revisits them in greater depth at subsequent
grade levels. If curriculum is organized in a spiraled manner, the student continually
builds upon what he or she has already learned (Kearsley, 2004). Organizing the
Odyssey Mathematics curriculum in this way provides a natural structure for a learner to
make connections between mathematical ideas and to build new knowledge through
these connections.

An effective standards-based curriculum organizes and integrates mathematical ideas
so students understand how ideas connect to, and build on, other ideas. These
connections provide natural opportunities for a spiral presentation of the material, as
well as for scaffolding of learning activities (Vygotsky, 1978).

High-quality instruction cannot occur without a solid foundation in content. The “big
ideas” of mathematical content have been categorized into five areas by NCTM (2000)
and NAEP (Perie, Grigg, and Dion, 2005):
- Numbers and operations
- Algebra
- Geometry
- Measurement
- Data analysis and probability

CompassLearning also closely follows the research and analysis conducted by the
National Mathematics Advisory Panel. The conclusions found in their most recent study,
Foundations for Success (2008), have been successfully incorporated into Odyssey
Mathematics. The scope and sequence for Odyssey Mathematics includes content that
aligns to these content standards. It reflects coherent connections within the curriculum
and between the standards in a developmentally appropriate sequence.

Science
CompassLearning Odyssey Science is based on the documents produced by the
American Association for the Advancement of Science that have directed the curriculum
revision efforts by educators and scientist in the United States for the last two decades.
The publications Science for All Americans, Benchmarks for Science Literacy, and the
Atlas of Science Literacy were all used to design CompassLearning’s science courses.
It is the adherence to these standards that will bring about the needed change in
science education.

The most effective curriculum is research-based and woven within a fabric of mutually
supporting ideas and skills to lead the student to becoming a well-informed adult. The
curriculum spirals, with the introduction of age-appropriate concept development that
adheres to the cognitive research of Jean Piaget, Robert Karplus, Herb Their, Paul
Brandewein, Robert Yeager, and many others.
CompassLearning Odyssey science was developed using learning goals based on recognized strand maps and state-specific standards. Determining how states assessed these standards allowed us to set specific goals for student learning and to bring coherence to those standards. Our curriculum experts paid special attention to the scaffolding that would be necessary to build the correct concept in each major division of our courses, realizing that prior knowledge for some students may need to be altered before the correct concept can be established.

Demonstrations in the videos and in the activities in the form of flash animation illustrates to the student how scientific concepts and principles work. Regular comprehension checks guide the student through the learning goals specified in the benchmarks.

Research to Support CompassLearning Assessment
CompassLearning Odyssey assessment questions are stored in an item bank. CompassLearning ensures that the Odyssey Assessment Item Bank has face and content validity by following a rigorous and carefully articulated item writing process. This includes the staffing of experienced item writers who are thoroughly grounded in the content and have the capability to understand and break down state academic standards. This understanding includes the cognitive demands and the content of the standard. Content validity is ensured since each item reflects, as a measurement, the specific intended domain of the content (Carmines & Zeller, 1991). Face validity of the items, the appearance of how the item appears and how well it is designed, is obtained through the incorporation of the best item writing practices as outlined by Haladyna and Downing.

Items are written for the purposes of diagnostic and formative assessment. Diagnostic assessments provide data to teachers at the beginning of the school year in regard to the current year’s standards. When items are used for formative assessment, a powerful and instantaneous tool is provided to the teachers. Immediately, students’ learning can be readjusted via the learning paths to the content that is needed. According to Wiliam, the biggest instructional payoff occurs when teachers use “short-cycle” assessments, in which test results are available quickly enough to enable teachers to adjust how they're teaching and students to alter how they're trying to learn. The pairing of standards-based formative assessment items and the Odyssey Learning Paths provides teachers with the ability to quickly adjust what they are teaching.

Field Testing of Odyssey Explorer Assessment
Explorer assessment items and prescribed learning activities meet the rigorous No Child Left Behind criteria for scientifically based research and undergo continuous evaluation and validation. An extensive internal recursive review process as well as external studies by experts in curriculum and testing, classroom teachers, and students ensures the validity of Explorer’s assessment capabilities.
Methods for External Evaluation
CompassLearning Explorer contains pre-created lessons that are correlated to all 50 state assessment or curriculum standards and the National Assessment of Educational Progress (NAEP) subject frameworks in reading/language arts and math for grades 4 and 8. A team of educators develops CompassLearning Explorer test items. Each item is then reviewed and evaluated for accuracy, grade-level appropriateness, and correlation to the specified objective. An internal review ensures validity while an external evaluation includes a qualitative review for validity and a quantitative review for reliability.

Validity -- To ensure a quality external evaluation, CompassLearning recruited a five-member team of educational experts from California, Indiana, New Jersey, Virginia, and Florida. Members of this national educator review panel were selected based on their understanding of the subjects to be tested and taught (reading/language arts or math) and their experience in student ability assessment. Members of the review panel had an average of 12 years in the classroom.

The validation process required that all members of the team provide an impartial review of the individual test items and the learning paths for the following criteria:

- Bias/sensitivity
- Grade appropriateness
- Reflection of the specified objective
- Clarity

Items and learning paths were graded on a scale of 1 to 3 for each criterion (1 = Excellent; 2 = Possible Revision Needed; 3 = Rewrite/Replace.) Questions or concerns about any of the criteria required discussion and agreement by the entire group regarding product revisions. More than 97 % of the Explorer items received a rating of 1.

Reliability -- CompassLearning administered Explorer tests to groups of students in randomly selected CompassLearning customer sites and utilized the statistical output to determine reliability of individual test items. CompassLearning’s evaluation team used Iteman software to identify test items for additional review. Iteman analyzes response data and provides conventional item analysis statistics for each individual item to help determine the extent to which items contribute to test reliability. Iteman also provides statistical indicators on the performance of the test as a whole.

Depth of Knowledge by Norman Webb
Depth of Knowledge by Norman Webb is used for each of the Odyssey items. Items are assigned a 1, 2, or 3 in order that all assessment items are aligned to the cognitive demand of the standard. The Depth of Knowledge does include a Level 4, Extended Thinking/Reasoning, but that cognitive level requires complex reasoning, planning, and thinking (generally over extended periods of time). These types of assessment items
would have multiple steps with extended time provided to the student for completion. This type of cognition does not lend itself to a multiple choice computer-based assessment item.

**Level 1:** Recall - Focus is on specific facts, definitions, Details, one right answer

**Level 2:** Skill/Concept - Focus is on applying skills and concepts (in a familiar/typical situation), relationships (compare, cause-effect), main ideas, estimating, interpreting in order to respond, one right answer

**Level 3:** Strategic Thinking/Reasoning - Focus is on reasoning and planning in order to respond (e.g., write an essay, apply in new/novel situation), complex and abstract thinking is required. Often need to provide support for reasoning or conclusions drawn.
Industry Connections
CompassLearning also closely monitors the actions of industry associations and groups. The company is proud to partner with the following associations at events around the country:

- ASCD
- AASA
- SEDTA
- SIIA
- NSBA
- FETC
- ISTE
- CUE
- IRA
- TASA
- TCEA
- And more…

The Impact of Customer Feedback

“Our customers are a valuable resource for our company. They put our products to the test each day and have some great insights about enhancements that will improve the user experience.”

Steven Frers, Vice president of Services and Support, CompassLearning

CompassLearning has served more than 11 million students in 20,000 schools nationwide. The company often looks to its customer base for ongoing feedback on how to improve its products. Customers have a variety of ways to voice their opinions through phone interactions, one-on-one visits, and the newly implemented online customer portal. The portal serves as an online hub where customers can get answers to their questions, review their account information, and provide feedback on CompassLearning products.

The Value of Primary Product Research

“All of the theory and data in the world doesn’t work if the end user isn’t satisfied with our product. We must continually test our products by talking to students, teachers, and administrators for their feedback and by conducting efficacy studies on the performance of our products in school and district settings.”

Mark Hammer, Vice President of Marketing at CompassLearning
CompassLearning continually tests its products both in focus group settings for new product development and with school effectiveness research to determine the impact that solutions are making on student performance.

**CompassLearning Focus Groups**
CompassLearning conducts regular focus groups with administrators, teachers, and students to gather data about the content, usability, and relevance of its products or prototypes of future products. Feedback from these groups directly influences product direction, design, and tone. For example, a recent group of students who were exploring a new CompassLearning product prototype felt that the humor and graphics in the program were too immature and did not relate to them. These focus groups led to a redesign of the activities to incorporate more age-appropriate humor and design.

**CompassLearning School Effectiveness Reports**
Throughout a more than 30-year history, CompassLearning has worked with schools to gather data to evaluate the effectiveness of its student achievement solutions. These evaluations have taken several forms: from qualitative research to stringent, quantitative research studies conducted by external evaluators. CompassLearning has a proven track record of positively influencing student outcomes through the use of technology-based online assessment and instruction. Summaries follow; more information is available upon request.

**A study of the implementation of CompassLearning Odyssey in the Washoe Community School District (Reno, NV) during the 2005–2006 school year showed that, at each school in the pilot program, student math scores increased.**

A comparison of the Third- and Fifth-Grade Criterion-Reference Test (CRT) scores between three pilot elementary schools and five other comparative schools was conducted. Comparative schools used in the study had to have similar demographics to the pilot schools and also be in close proximity to the pilot sites. The three CompassLearning pilot schools showed a greater percentage of proficient students when compared with the five other comparative schools on both the Third- and Fifth-Grade Math CRT tests.

- **Students rated proficient on Third-Grade Math CRT:** The average increase was 15% at the pilot schools, compared to a decrease of 3% across the district.
- **Students rated proficient on Fifth-Grade Math CRT:** The average increase was 21% at the pilot schools, compared to an increase of 6% across the district.
- **Students rated proficient on Third- and Fifth-Grade Math CRT:** Pilot schools’ average increase was 23% greater than the comparative district schools.

**An independent study conducted by Kadel Research Consulting evaluated the effectiveness of CompassLearning Odyssey at Maple Leaf Intermediate in Garfield Heights, OH.**
The program was funded by an Enhancing Education through Technology (EETT) Grant and showed:

- From 2004–2006, EETT students increased their math Ohio Academic Test scores by 5%; however, non-EETT students increased their math Ohio Academic Test scores by only 1%.
- From 2004–2006, EETT students increased their reading Ohio Academic Test scores by 2.2%; however, non-EETT students decreased their reading Ohio Academic Test scores by 0.1%.
- EETT students outperformed non-EETT students by 18.1 points on the Ohio Academic Test in fifth-grade math.
- EETT students outperformed non-EETT students by 9.5 points on the Ohio Academic Test in fifth-grade math.

From 2002–2006, CompassLearning Odyssey was implemented in several different programs at Lillie Burney Elementary School in Hattiesburg, Mississippi: in grades K–6 generally, in the English language learners program, with high-performing students, and in an after-school program.

After a year and a half of using CompassLearning Odyssey Reading, Mathematics, and ELL, students showed gains on the Mississippi Comprehensive Test. Students in grades 2–6 at Lillie Burney Elementary School moved from the Basic to the Proficient level in all grades and subjects.

- Students in grades 2–6 gained between 20 and 40 scale score points in mathematics on the Mississippi Comprehensive Test (MCT) from 2003 to 2005.
- Students in grades 2–6 gained between 10 and 40 scale score points in reading on the MCT from 2003 to 2005.
- Students in grades 2–6 gained between 20 and 60 scale score points in language arts on the MCT from 2003 to 2005.

In 2006, W. Christopher Brandt and Chloe Hutchinson of Learning Point Associates collected data in the Romulus Community School District (Michigan) to explore the district’s progress in implementing the CompassLearning CSR model, to evaluate changes in student achievement scores, and to develop recommendations.

The researchers concluded:

- The high levels of reported CSR implementation progress, combined with large effect size gains in achievement, suggest that implementation has led to substantially higher MEAP performance levels in English/language arts and mathematics in Romulus CSR Schools.
• Barth and Romulus Elementary Schools demonstrated substantial performance gains from 2003 to 2004 in both English/language arts and mathematics. In addition, these performance gains for Barth and Romulus showed up in every AYP subgroup for which these schools are held accountable, as determined by federal NCLB performance guidelines. In addition, both schools outperformed state-wide MEAP averages in English/language arts and mathematics overall and across virtually every AYP subgroup.

• Wick Elementary saw huge increases in students meeting proficiency for both English/language arts and mathematics from the baseline to year 2 of CSR implementation. While only 27% of students were meeting proficiency standards in English/language arts before CSR, 87% achieved proficiency in 2004–2005. In mathematics, 61.9% of Wick students were proficient in 2002–2003. By 2004–2005, that number grew to 93.5%.

**After one year of implementing the Academic Support Program with CompassLearning Odyssey in the Daniel Boone Area School District (Pennsylvania), student performance was measured by the Pennsylvania System of State Assessments (PSSA).**

Scores from grades 7 to 8 showed a clear and substantial improvement in student achievement. PSSA reading scores at the Advanced and Proficient levels increased from 63.6% to 80.7%. This is balanced by an encouraging 17.1% decrease in students scoring at the Basic and Below Basic levels.

After two years of implementation, ninth-grade student scores were analyzed to measure additional student academic growth. The Advanced and Proficient levels increased once again. PSSA reading scores increased from 63.6% to 73.1% at the Advanced and Proficient levels, with an encouraging 9.5% decrease in students scoring at the Basic and Below Basic levels.

**Boone County School District (Kentucky) piloted CompassLearning Odyssey in one classroom at New Haven Elementary School beginning in January 2005.** At the end of the 5-month pilot period:

• Fourth-grade students in the pilot class showed scale score gains of 153 points in reading, compared to gains ranging from 40 points to 71 points in the other classes. The students in the pilot class also showed scale-score gains of 196 points in math, compared to gains ranging from 50 points to 76 points in the other classes.

• Fourth-grade students in the pilot class showed scale-score gains of 153 points in reading, compared to gains ranging from 45 points to 139 points in other schools in the district with similar demographics. The students in the pilot class also showed
scale-score gains of 196 points in math, compared to gains ranging from 55 points to 91 points in the other schools in the district with similar demographics.

- Fourth-grade students in the pilot class showed gains of 153 points in reading and 196 points in math, compared to scale-score gains of 110 points in reading and 100 points in math for all fourth-grade students in the district.
Organization of CompassLearning Team to Best Incorporate Research-based Information

The company’s curriculum and instruction team is structured with senior architects at the head of each curriculum group. These architects hold doctorates in their fields and many have state department experience. All of the subject matter experts working in these groups are former educators with experience dealing with intervention students.

These curriculum and instruction teams are grouped together in the office space with creative writers and designers, many who have entertainment backgrounds. These teams work closely together to take the rigorous academic content and bring it to life in the form of age-appropriate and engaging activities.

Our assessment team is made up of item writers who have had classroom experience ranging from grades K-12 to special education. Item writers are assigned to the content area in which they have the most extensive educational experience, training and certification. Additionally, all of the item writers have had experience developing specifications for and writing assessment items. This experience is for both high-stakes and formative assessment.

A team of highly-skilled product engineers and programmers takes the work of the design and assessment teams and uses that direction to build the product.
References


