

Putting Academic Software to the Test

A closer look at one company's mobile technology offerings, their results and the statistics that back their efficacy

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About nLighten, LLC education research

Communicating complex and technical education and technology issues and themes in straightforward language, nLighten, LLC delves deeper into how things work. With a third-party empirical approach and true to its name, nLighten seeks to bring understanding and clarity to leaders, policymakers, teachers, educators and technologists in school and university settings in regards to how (and to what degree) technology products, services, devices, apps and platforms are helping to move education forward.

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Executive Summary

In reviewing the effectiveness of Brainchild mobile learning solutions and support, we evaluated user experiences from across the country. In these, we evaluated the accuracy of the statistics and results, size of the groups being studied, and length of each study. Following we provide a brief introduction discussing technology's role in education, what Brainchild software is, the main points or benefits Brainchild promotes, and a look at user experiences. Brainchild promotes that it offers ease of use, that its products are all-inclusive, that study using their products is self-paced, and that students, instructors, and administrators alike can view statistics and create reports. Finally, we conclude with our final thoughts on Brainchild's products and whether or not the results accurately support the claims of the brand.

An additional 36.0 percent of school districts report that their districts are somewhat or very likely to adopt mobile technology in the following 1-2 years.

Education & technology for the 21st century

Education is becoming increasingly dependent on technology, specifically, mobile devices, computers, and smartphones.

According to a 2012 survey by Interactive Educational Systems Design, Inc., in collaboration with STEM Market Impact, LLC, 53.8 percent of school districts utilize mobile technology in 25 percent or more of schools in their districts, which includes 23.4 percent of districts with implementation of 75 percent or more of their schools. An additional 36.0 percent report that their districts are somewhat or very likely to adopt mobile technology in the following 1-2 years.

Companies that offer educational software compatible to the iPad, Kineo, and PC platforms, as does Brainchild, are poised for tremendous growth. The intention behind such software is to allow educators and students to have the ability to monitor the learning and retention of lessons in mathematics, language arts, and science. The theory is that educators and students will be able to track scores pre- and post-test in order to locate any areas where students need to allocate more attention.

Toward that end, Brainchild offers three types of software, each providing a variation of standard subjects. The first is *Achiever!*, a

software geared toward Grades 1 through 8. It includes instruction, study, and testing developed according to the state standards of each school.

The second software is *Core Concepts*, which is intended for Grades 1 through 5. This software also includes instruction, study, and testing software but is built according to Common Core state standards.

Finally, Brainchild offers *Mechanics*, which is software for students with special learning needs in Grades 1 through 8. Included is instruction, study, and testing that students can complete at their own pace until full comprehension of concepts is grasped.

Each of these software include: lessons pertaining to mathematics, science, and language arts; a study mode where students are informed of the correct answer immediately after reading each question; and a test mode where students receive their score at the end of a series of questions.

Such software is advantageous for school districts to implement due to a number of important factors.

First, students are able to be self-paced and spend more time where needed. This ensures that students truly understand concepts and are able to focus attention on areas where their comprehension is lacking.

The software is statistically shown to increase student comprehension in the areas of mathematics, science and language arts.

Second, Brainchild software provides statistics of the progress of individual students, specific classes, and school districts. In doing so, students, teachers, and administrators alike are able to see the immediate progress and improvement of their educational systems after use of the software rather than having imprecise or disparate estimates.

Third, software such as that which Brainchild offers provides students the luxury of knowing which subjects to spend more time on thereby knowing where they can improve. They are able to see exactly the concepts they already understand fully and are able to then focus on the areas that still need attention.

Finally, Brainchild software offers an all-inclusive program of learning, studying, and testing. Separate software systems are unnecessary as every important operational component is already built-in. Further, and importantly, *only Brainchild has structured learning on tablets* — that is to say, *resident on the tablet*, so their system does not depend on connecting to the web, *and* it is designed for tablet format. Of course, it can sync to the web version, but it is accessible simultaneously on the web or solely on the tablet, and dependent upon neither. This is a key factor in the Brainchild approach to learning, which has been shown by



At Their Own Pace. *The importance of self-paced learning in a controlled environment has been underscored through various scientifically based research studies that note its impact on memory performance and students' comprehension of content as well as success with core concepts and curriculum. The Brainchild approach is at its core self paced, individualized and personal with statistical evidence bearing out the efficacy of such an approach.*

scientifically based research to be effective in helping users dramatically accelerate comprehension. It is an approach correlated to and backed by statistical evidence, and sits squarely in the camp of individualized, self-paced learning.

Self-pacing: an essential component for any successful school district

One of the most important components in a solid education is allowing students to learn at their own pace. Ensuring that they can advance in such a manner allows them not

Since the software can be used on a number of mobile devices, school districts are able to use what they may already own.



Real-time Gains. *Students in the fifth grade experienced gains for 26 percent in mathematics and 25 percent in language arts. Students also saw significant improvement with the mastery of fractions: 29 percent increase in fifth grade, 20 percent in fourth grade, and 27 percent in the third grade.*

only to fully grasp concepts they are learning but also provides them with a sense of accomplishment once full comprehension is achieved. Education is like building a foundation block by block: if one block is weak, the foundation is sure to crumble.

Brainchild software is statistically shown to increase student comprehension in the areas of mathematics, science, and the language arts. For example, in a recent study of fourth-grade students, the average correct number of answers on a mathematical test before the use of Brainchild software was 47 percent. However, after less than one year's consistent

use of Brainchild, the same students' scores increased to 66 percent correct answers.

In the study, "*On the Effectiveness of Self-paced Learning*" published in the *Journal of Memory and Language*, researchers Jonathan Tullis and Aaron Benjamin found that self-paced study can increase memory performance when offered in a controlled manner. A controlled environment includes the strategic use of specific, targeted software precisely the type from Brainchild, and as it is accessible resident on the tablet independent of the web, the self-paced learning experience is further extended and thus more fully maximized.

Self-pacing is important for all students, especially in larger-sized classrooms of mixed levels of students. Students who perform well and learn quickly are better able to advance forward without feeling slowed down while students who need more time to fully understand lessons are allowed the time needed.

Since Brainchild's software can be used on a number of mobile devices, school districts are able to use what they may already own. However, Brainchild also offers their brand's specially-developed mobile device, the Study Buddy. This device is designed to withstand being dropped and put under pressure, which

By being able to see exactly how students are performing, school districts are better able to focus on areas that need special attention and can set more realistic goals for better performance.

simulates a typical environment of a backpack full of books.

Self-pacing is particularly important to students with special learning needs. For example, the Covich School District in Mississippi purchased 225 Study Buddies for use with their Special Needs students and Struggling Learners. Within just one year of learning with the Study Buddies, the Covich School District improved from 13 percent of their SPED students scoring proficient compared to their peers, to 20 percent scoring proficiently.

Statistical progress: accurately monitoring how students are measuring up

Another vital component to monitoring the success of any school district, school, or individual student is the use of statistics. Brainchild has made it simple to monitor these results by implementing analysis features into their software, meaning districts don't need to purchase additional – and oftentimes expensive – software, or waste time laboriously entering data into spreadsheets. Statistical reports can be easily generated and shared among numerous users and viewers. These reports are also standards based, allowing instructors and administrators to easily view each specific



Study Buddies. When students at Apollo Elementary School (above) and across the greater Bossier Parish, Louisiana, School District used Achiever! software, results indicated that all grade levels saw 20 percent or greater gains in mathematics and language arts between their pre- and post-test scores. Students in the fifth grade experienced gains of 26 percent in mathematics and 25 percent in language arts. More than 10,000 students in the district used the program for the study of mathematics, science and language arts for a total of 23,952 hours.

standard and any specific areas that need additional attention — and in which classes.

One school district used Brainchild *Achiever!* software to improve state competency scores by more than 30 percent. At Beach Elementary School in the Pascagoula School District in Mississippi, students used *Achiever!* for online assessment and data-

The software covers a wider net by offering not only lessons to students but also statistical analysis tools for instructors and administrators.



Data-driven Instruction. *Educators can use a high-definition multimedia interface on whiteboards or LCD projectors in group settings as they utilize Achiever! software to accelerate student learning. The simplicity of the system has led to greater comprehension, while its uncommon flexibility has led to increased use by students, instructors and administrators to remain a relevant and practical tool.*

driven instruction and special needs students used the Study Buddy. Within one year's time, the school improved its state testing scores by 32 percent.

Another school district utilized the Study Buddy to be able to meet AYP. The La Joya ISD in Texas is responsible for more than 27,000 students, 97 percent of them economically disadvantaged. By implementing the Study Buddy into their Special Education population, the district was able to meet AYP within three years time. In 2009, 77 percent of students met or exceeded standards. But after use of the

Study Buddy, more than 81 percent of students achieved the same in 2011 and the results continue to rise.

By being able to see exactly how students are performing, school districts are better able to focus on areas that need special attention and can set more realistic goals for better performance.

All-inclusive program: no need for additional software systems

Some educational software is limited in its scope of functionality by focusing strictly on lessons and learning. Brainchild software, however, covers a wider net by offering not only lessons to students but also statistical analysis tools for instructors and administrators.

Students are provided the opportunity to learn through multimedia lessons as pertain to state standards, study these lessons through sets of questions, and then test their understanding.

Brainchild software allows for the self-pacing of lessons as developed according to state standards and Core Concepts. This allows instructors and administrators to focus on the bigger task at hand – thriving students – and not worry themselves with the details of

The results indicate that all grade levels saw 20 percent or greater gains in mathematics and language arts between their pre- and post-test scores.

whether or not they are abiding by the standards set by their state.

Weslaco ISD in Texas had a particular problem with their student population in ensuring that recent Hispanic immigrants and summer school attendees were able to meet state standards during the summer school fourth-grade session and subsequently do well in the upcoming school start in the fall. The school district purchased over 500 Kineo tablets with *Achiever!* software. The results show that students scored only an average of 60 percent comprehension prior to the use of the Kineo outfitted with *Achiever!* but scored more than 80 percent after use. That is an improvement of 20 percent in the summer session alone. Without a comprehensive program such as that provided through Brainchild, the school would have had a much more difficult time teaching new immigrant students and tracking the impressive results.

Additionally, Brainchild offers professional development and webinars for instructors and administrators in addition to free support. Schools are able to set goals and measure progress making it easier to reach and surpass state standards. This kind of support begins with needs assessment and ends with progress monitoring. If needed, Brainchild also offers onsite training,



Engaged Learning Benefits. *Among other results, students saw significant improvement with the mastery of fractions: a 29 percent increase in fifth grade, 20 percent increase in fourth grade, and 27 percent increase in the third grade. Fourth grade students also had an impressive 95 percent mastery of coordinated geometry; third-graders mastered place value at 93 percent, and fifth graders tested at 92 percent on symmetry and congruency.*

although the software is highly intuitive and easy to understand.

Case Study 1: Bossier Parish School District

During the fall of 2009, Bossier Parish School District implemented *Achiever!* throughout all of its 15 elementary, 6 middle schools, and 8 high schools and education centers. More than 10,000 students in the district used the program for the study of mathematics,

Language arts improved in the eighth grade from 55 percent pre-test average comprehension to 91 percent average.



Happy Campers. *Cope Middle School students in the fifth grade experienced gains of 26 percent in mathematics and 25 percent in language arts. Students also saw significant improvement with the mastery of fractions: 29 percent increase in fifth grade, 20 percent in fourth grade, and 27 percent in the third grade.*

science, and language arts for a total of 23,952 hours. One elementary school and one middle school were randomly selected for a review of results.

Apollo Elementary

Out of a total of 62,547 sessions completed and more than 4,000 total hours of usage, a total of 625,547 questions were answered. The program was utilized by 24 teachers, 21 of whom used the program for more than 100 hours in their classroom and 6 of whom has more than 200 hours of usage in their

classrooms. The results indicate that all grade levels saw 20 percent or greater gains in mathematics and language arts between their pre- and post-test scores. Students in the 5th grade experienced gains for 26 percent in mathematics and 25 percent in language arts.

Students also saw significant improvement with the mastery of fractions: 29 percent increase in 5th grade, 20 percent in 4th grade, and 27 percent in 3rd grade. Students in the 4th grade also had an impressive 95 percent mastery of coordinate geometry, 3rd graders mastered place value at a 93 percent rate, and 5th graders tested at 92 percent on symmetry and congruency.

Language arts saw an increase in post-test average topping in at 80 percent.

Cope Middle School

A total of 44,055 sessions were completed over 3,476 total hours of usage with 440,550 questions answered. Among the teachers involved in the study, 10 experienced more than 150 hours of usage in their classrooms, and 8 had more than 200 hours.

Mathematic scores in the 7th grade improved 36 percent and 8th grade improved 32 percent. Language arts improved in the 8th grade from 55 percent pre-test average comprehension to 91 percent average.

Only 33 percent passed the pre-test. However, after implementation of the software, this increased to 78 percent with post-test results, for an overall increase of 55 percent.

Expressions in 7th and 8th grade math improved from 31 percent to 76 percent in 8th grade and 39 percent to 82 percent in 7th grade. Post test average for every language arts standard topped 80 percent.

As can be seen, scores improved in a range from 20 percent to 100 percent with post-test results averaging from 76 percent to 95 percent independent of grade or subject.

Case Study 2: Lyles Middle School

In January 2012, Lyles Middle School in Garland, Texas, partnered with Brainchild to supply students with Kineo and online access to *Achiever!* for standards based formative assessment and instruction. For this study, Lyles distributed 18 Kineos that were shared among students.

Since the adoption of *Achiever!* and a round of professional development with the staff at Lyles, students have been successfully using *Achiever!* to master concepts that will be tested on STAAR, Texas testing standards. Students at Lyles used Brainchild software on Kineos for two months.

Within a 10-week period, students at Lyles Middle School used *Achiever!* software for a total of 1,578 hours. During this time, students performed 12,701 activities for a total of 127,010 TEKS-based questions



Power Performance. *Lyles Middle School in Garland, Texas completed 11 total TEKS for mathematics and 7 for language arts. With pre-test scores at a mere 46 percent, after using Brainchild, post-test scores increased to 74 percent passing. In language arts, only 45 percent of students were passing with a grade of 70 percent or higher; post-test, this increased to 71 percent.*

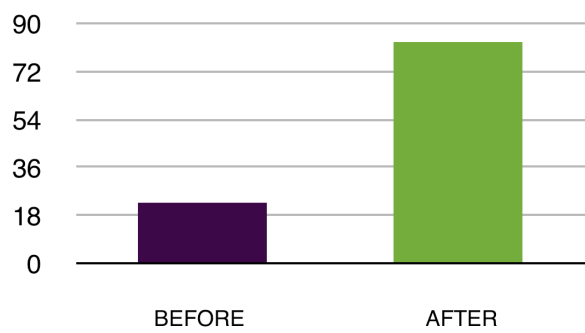
answered in the *Achiever!* software. Of the 30 participating teachers, 23 had more than 20 hours of usage within their classrooms, while 8 teachers had more than 100 hours of usage within their classrooms.

7th grade performance

In the seventh grade, students were able to successfully complete 11 total TEKS for mathematics and 7 for language arts. For mathematics, only 46 percent of the students were passing with a grade of 70 percent or higher on pre-test. Post-test this increased to 74 percent of students passing for an increase of 28 percent.

Studies show that increases in test scores after use of the software range between 20 percent and 86 percent depending on usage and consistency of use.

Average Increase in Student Test Scores with Brainchild



Frequent and Consistent Use. *The most prominent increases in scores were most apparent in schools that utilized Brainchild most often and most consistently. The self-paced, individualized content approach coupled with flexible, mobile technology has made for dramatic gains across the board.*

For language arts, only 45 percent of students were passing with a grade of 70 percent or higher on pre-test. After using Brainchild, this increased to 71 percent of students passing post-test. Only 68 percent of 273 students successfully completed the activities for nets and solids in mathematics pre-test while 94 percent of the same students passed the post-test, making that change an increase of 26 percent.

The greatest increase was seen in grammar and usage in language arts. Of the tested students, only 33 percent passed the pre-test.

However, after the implementation of Brainchild software, this increased to 78 percent with post-test results, for an overall increase of 55 percent.

8th grade performance

Students in eighth-grade mathematics scored 70 percent or greater were only 42 percent pre-test. After the use of Brainchild software, this increased to 79 percent for the 6 TEKS completed for a total increase of 37 percent.

In language arts, 63 percent of students passed with a grade of 70 percent or higher on the pre-test. This increased 18 percent to total 81 percent of students passing on post-test.

Among the students taking central tendency, 93 percent students passed with an average overall score of 81 percent post-test. Of those studying words in context, 97 percent passed with an average overall score of 86 percent post-test.

The greatest increase was seen for Pythagorean theorem for mathematics. Only 14 percent of students passed their pre-test. However, this increased to 78 percent with post-test results, with an increase of 64 percent.

Based on these numbers, we conclude that the software is moderately to highly effective at increasing student comprehension of state standard subjects both for regular students and those with special needs.

Conclusion

According to our analysis of the Brainchild line of software whether in use on Kineo, Study Buddy or other devices, studies show that increases in test scores after use of Brainchild software range between 20 percent and 86 percent depending on usage and consistency of use. The most prominent increases in scores were most apparent in schools that utilized Brainchild most often and most consistently.

Brainchild's Study Buddy also proved highly effective with special education and struggling students with increases in the 20 percent range. Based on these numbers, we conclude that Brainchild software is moderately to highly effective at increasing student comprehension of state standard subjects both for regular students and those with special needs. We also conclude that Brainchild is easy to implement and use due to its simple design and structure. It is also easy to download onto iPads, Kineos, and other standard mobile devices. Its stand-alone features are at once simple and effective, and are indeed backed by overwhelming statistical evidence.

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