A Metastudy of Quantum Learning:
10 million plus students preparing for excellence

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Abstract
Students learn in an environment with traditional books and instruction. They also learn from physical participation (i.e., movement, games, etc.), and benefit from understanding the importance of values, attitudes and beliefs, and learning skills. Literature was reviewed on the standards for education and learning as it relates to the future workforce in the U.S. This study considered what students must master to become successful in work and life. Twenty studies measured educational achievement in active learning and engaging classroom experiences. The formal research studies on Quantum Learning (QL) were summarized, evaluated, and classified into six areas of inquiry for comparison and interpretation.

Key Words
Quantum Learning, students, teachers, education, achievement, excellence, evaluation, environment

21st Century Education Standards
Educators have been using the term 21st Century learning since the mid 1900’s. Some think that Common Core standards are the standardized tests that students take annually [the preceding statement would make me wonder if I want to continue reading. Only very uniformed people would think Common Core State Standards are tests. Additionally, the opening sentence mentions 21st Century Learning, and the next sentence skips to Common Core. If there is a link, what is it? The following sentence refers to “it”. Do the authors mean 21st Century Skills or Common Core State Standards? I think the former, but the use of it implies the latter.]. Others have a broader definition, including job-skills standards (Partnership for 21st Century Skills, 2012). We can look at how learning and standards are related.

What are 21st Century Standards? Definitions of those standards include the following characteristics: they are focused on skills, content knowledge and expertise. 21st century standards require students learning core subjects, such as English, Math, and Science, in addition to more than just the core subjects. Learning these standards requires a deeper understanding and experience with the real world, and it requires engaging with tools, data, and experts in both life and on the job (Partnership for 21st Century Skills, 2012). School administrators and teachers today need standards as benchmarks so they can be certain that students meet expectations of job skills after they complete their education. The paragraph begins with a question, but does not answer it. The paragraph says what 21st century standards focus on and what they require, but not what they are.

The studies on Quantum Learning (QL), a non-profit learning organization based upon excellence and changing lives through education, were conducted by teachers and administrators, showing how more children received high quality results with QL. [red flag! Was the study
A Primer on Education

The industrial revolution brought labor from the country to the city as well as the concepts of public schools, libraries and parks (Hargreaves, 2003). There are 56 million school aged students and 50 million attend public schools in 2012. Two million are home schooled, according to US Government statistics. Four million attend private schools. The percentage of children who attend public schools grew from 65% in 1869 to 90% in 2002, partly the result of extending common or elementary schooling into high school. Back in 1900, high school students made up only 5% of the total public school enrollment because school ended after eighth grade for the other 95% of students (Childress & Leschly, 2007). So just a century ago, 19 of 20 students did not pursue formal high school.

In the past four decades, educational achievement has not changed in either Common Core standard reading or math, [Common Core State Standards have been developed only in the last few years. The have not been around for 40 years. Either the author means something else, or is using “Common Core” incorrectly.] although there is some increase in math scores, especially among nine year olds, who improved their math scholarship from 1978 to 2004 (Childress & Leschly, 2007). Overall, fewer than ten percent of students in all age groups placed in advanced categories. Many educators wonder if students are really learning or not. In a recent Harvard Business Review article on entrepreneurial education, it was reported that nearly two thirds of the students failed proficiency tests in reading and math (Childress & Leschly, 2007).

Education correlates with earnings. Students’ years of school predict their earnings potential, and this correlation has become more pronounced since 1980. The mean real salary of US male workers lacking a high school diploma has dropped since 1980, from $30,346 to $23,600 in 2004 dollars. In 1980, without a high school diploma, US males without a college degree could expect to earn two thirds the salary of those with a degree. By 2004, that same high school dropout would earn less than half, or 47% of what a college educated working male graduate would earn (Childress & Leschly, 2007). In 25 years, the earning value of a higher education has dramatically risen.

Family income characteristics correlate with education. Poor students generally trail their non-poor peers by 2 to 3 grade levels in reading and math across all age categories. Urban students lag their suburban peers by one half to a full grade level in reading and math, in all age categories. Dropout rates exceed 70% in some large urban areas (Childress & Leschly, 2007).
The charter schools movement and other forms of social entrepreneurship of education have mobilized and transformed the way education is delivered. Performance management tools and systems have flourished in the private sector, as education is evolving (Childress, 2010).

Who is paying for our public education? The U.S. Constitution leaves the responsibility for public K-12 education with the individual states. Even though the Federal government is not responsible, they spent $100 Billion in 2003. (U.S. Government Printing Office, 2003) In 2013, the spending is expected to be $1 trillion for federal, state, and local governments combined on all education. This represents 15% of the overall US Budget, down from 17% ten years ago (National Public Radio, 2010). Is public education being transformed? NPR says education cost $10,615 per child per year, (Federal, state and local combined) in 2010 (National Public Radio, 2010).

What are the major laws regarding federal education funding? ESEA and NCLB are two federal education laws worth considering. The primary source of Federal K-12 support began in 1965 with the enactment of the Elementary and Secondary Education Act (ESEA). The No Child Left Behind Act of 2001 (NCLB) is a reauthorization of ESEA. These laws are to both raise achievement for all students and to close the achievement gap. These goals are accomplished through accountability, research-based instruction, flexibility, and options for parents. Both of these laws are aimed at helping the states with federal government funding. The goal is to supplement, not replace, state support, as mentioned earlier (US Department of Education, 2012).

**Constructivism and earning design.** From a global perspective, Snehi discusses teaching-learning, improvement in design and approach, and learner centered approaches from India for the 21st century. He believes that the biggest challenge for the 21st century is in improving the overall teaching-learning process.

He considers the continuing challenge of implementing innovative learner-centered transaction strategies as critical to success. He sees the teacher’s role as paramount to how students are taught (Snehi, 2011).

What is currently preventing educational innovations? Pressures from within the complex system itself prevent innovations. This pressure damages the process of innovating because teachers cannot identify the skillsets that are required by students, and this prevents optimal learning (Snehi, 2011). At the highest learning levels, teachers are challenged to present learning in ways that result in a competent and skilled workforce. “These higher orders of cognitive abilities include: analysis, synthesis, evaluation and creativity, aimed at solving sophisticated problems in today’s complex world” (Snehi, 2011, p.7).

**A changing workforce.** From a jobs/career perspective, it pays to study. What, how, where, and when we learn is changing. Education today is about thinking creatively and critical problem solving approaches to decision making which coincide with employment expectations (Schleicher, 2011). Employers value communication, self-management, and problem solving, which are lacking in today’s job candidates. DiMartino and Castaneda looked at the Carnegie unit, a traditional school perspective of “credit hours”, developed in 1906 as a measure of the amount of time a student has studied a subject. This gives academic credit for only being present in the classroom. The authors stated that sitting in a chair did not prepare our high school and college students for 21st Century jobs. They claim that more authentic assessments would improve student preparation. They point to how better assessments have helped teachers change their practices, focusing on analysis, communication, meaningful problem solving, and writing for a variety of purposes improve student output (DiMartino & Castaneda, 2007).

During the last 20 years, the Carnegie unit has come under widespread criticism. In fact, it was disowned by its family when the Carnegie Foundation's then-president, Ernest Boyer,
"officially declare [d] the Carnegie unit obsolete" (Boyer, 1993). But despite its increasingly unwelcome and counterproductive place in U.S. high schools, the Carnegie unit persists because it has successfully taken control of the most intransigent elements of these schools: scheduling, grading, staffing, higher education admissions, and the four-year sequenced curriculum. (DiMartino & Castaneda, 2007, p.37)

Change has come to parts of Rhode Island, Ohio, and the entire state of New Hampshire, which eliminated the Carnegie unit in 2005. Change was due to the incorrect expectation that young workers believed their job was to be physically present, and that was all. Today’s teachers encourage being physically present, but not necessarily achieving learning outcomes. These Rhode Island-based authors believe that we will continue to produce unprepared graduates unless we find ways to eliminate recognition for just being present (DiMartino & Castaneda, 2007).

"The future workforce is here--and it is woefully ill-prepared for the demands of today's (and tomorrow's) workplace" (Casner-Lotto & Barrington, 2006, p.9). Many educators believe that the Carnegie unit has not kept pace with today’s employment expectations. They indicate that it was acceptable in the 1940’s when ten percent of the population had “thinking” jobs (DiMartino & Castaneda, 2007). Today’s workforce will require a much higher percentage of thinking jobs, perhaps close to 90%.

Tomorrow’s world is about creativity and flexibility as well as threats of insecurity (Hargreaves, 2003). More than ever, we need to teach in the new thinking workplace so students can be successful. Hargreaves discusses the difference between the haves and have nots, and says that there is threat to our culture when those in the knowledge economy are taught in different or restricted learning environments.

If we want to prepare all young people to have the chance to be among the most successful, high-skill workers within the knowledge economy, as well as decent, democratic citizens beyond it, this new social geography of divisive improvement that offers professional learning communities to the advantaged and imposes performance-training sects on the rest is one of our most disturbing threats. (Hargreaves, 2003 p.192)

He believes that improving learning can be accomplished in both communities (Hargreaves, 2003).

**Brain based research.** Thirty thousand children, teens, college students, parents, and university administrators in the US have been studied for reactions to technology by Professor Larry Rosen over the past 25 years. He studied levels of video and arcade games and the impact of learning behavior and found that excessive video games and TV have increased hyperactivity in children (Rosen, 2010).

There is a significant difference between hyperactivity and mental alertness when it comes to learning. In 1978, Lozanov, a Bulgarian psychiatrist found that students learn best in an environment that promotes relaxation and mental alertness. His results were achieved with physical relaxation exercises, mental concentration, and suggestive or evocative principals which improve the ability to react to stimuli (Lozanov, 1978). Quantum Learning (QL), which is what this Case Study documents, was partly founded by researching students in a learning environment. Lozanov found that the Alpha State, a state of relaxed concentration, provided students with the opportunity to learn faster and remember longer. Practicing visualization of a relaxing place may help students get to the Alpha State, and eventually the visualization will no longer be needed (DePorter, Reardon, & Singer-Nourie, 1999).
Another study related to QL concluded that the best teaching with optimal learning includes Orchestrated Immersion and Relaxed Alertness (Jensen 2001). Mangensen published an article on “Active Learning” (i.e., creating an engaging and exciting classroom) and how this gives teachers the opportunity to increase neural resources to the moment, and that makes learning more enjoyable (Mangensen, 2006).

Tate found that by actively engaging students in learning, behavior problems are reduced and retention is increased (Tate, 2007). Tate wrote about classroom management with music and movement helping to lock the content of the lesson into the students’ muscle memory (Tate, 2003). LeTellier determined that music is an effective tool for managing mood, energy and attention (LeTellier, 2007). These studies indicate that by adding music and student movement, the classroom can become a better learning environment.

The classroom walls themselves can become teaching tools, too. DePorter and others authored Quantum Teaching: Orchestrating Student Success, which described how the classroom walls could have posters that affirm students with a more effective and purposeful learning environment. (DePorter, Reardon, & Singer-Nourie, 1999).

Fostering high academic achievement for every child through successful school leadership leads to “attracting, preparing, and supporting the next generation of outstanding school leaders in our nation” (Leschly, 2002, P).

Entrepreneurial technology and instructional practices. The SchoolNet (Pursuing Opportunities beyond Federal Mandate) Harvard Business Review Case Study written after No Child Left Behind Act of 2001 (NCLB) outlined how accelerating the adoption of entrepreneurial products helped school districts manage student performance data. As an example, underperforming schools in Philadelphia were challenged to improve learning and chose to adopt new technology. There had been challenges with implementation, training, and usage of programs in the past. The school district tried to assess the impact the technology had on student test results. A district study compared the city of Philadelphia with the state of Pennsylvania in the years 2001-2005. They looked at grades 5, 8 and 11. Overall, the city showed a positive result from using SchoolNet products for the 5th and 8th grades, but not for the 11th graders (Childress & Campbell, 2008). As a result of SchoolNet products, teachers were using the data to adjust their instructional practices. A new level of benchmarking testing data was available through the technology learning platform, so teachers could have an electronic visual record of who really understands the content/concepts and who needed additional help (Childress & Campbell, 2008). Through the use of improved technology, teaching and learning have been transformed. Much of the “Primer on Education” section is given without explicit reference to QL. Since this report is about QL, a more explicit connection is needed to giving meaning to what is said in the above sections.

There appears to be a shift from the “Primer on Education” (above) to what QL is (below.) An APA level 1 or 2 heading should be used to indicate the change in focus.

Preparing your teachers to prepare our workers. Teachers who use and understand the findings [of what?] can determine which students are achieving and which students need help [formative and summative assessment of learning is how we learn what students know and can do]. The following report documents results from programs that train teachers to improve student learning. The Quantum Learning system equips teachers with practical strategies and techniques in four areas: Foundation, Atmosphere, Design/Delivery and Environment. The results are a culture of student engagement, positive behavior, teacher excellence and students
with strong character taking responsibility for their own learning. Students learn the qualities needed to become good employees of the future: communication, self-management, and problem solving. QL’s 8 Keys of Excellence character development program is aligned with, addressing these program objectives:

--establish a positive school culture
--increase academic performance
--improve safety
--decrease problem behavior

It is not clear what the 8 keys of excellence and QL life skills are. They should be very clearly identified. In the studies described below, how were each of the 8 keys measured?

The 8 Keys of Excellence and QL life skills establish a common language between students, teachers, site leadership and parents. The 8 Keys are impactful on the success of the classroom environment because the character traits are specifically applied to student self-responsibility for learning and the value of positive relationships with peers, teachers and administrators. Students who develop good character at a young age are less likely to become behavior challenges later in school. Students with strong character are more successful academically because they demonstrate traits such as commitment to learning, ownership of their behavior and success in life, and flexibility to adapt to life’s changes—key outcomes of students who embrace the 8 Keys of Excellence (Quantum Learning, 2012).

Special learner situations. QL training has been brought to education environments with high risk and learning challenged students. Response to Intervention (RTI) is generally defined as a multi-tiered approach to the early identification and support of students with learning and behavior needs. When teachers are trained in the research-based methodology, more children benefit from this instruction. When students are more engaged, content is made more interesting, relevant and understandable, behavior problems and distractions are significantly reduced. Then students can more readily connect content with their existing objectives and goals, and long-term memory of content is enhanced (Quantum Learning, 2012).

QL equips teachers with experiences that allow them to empower and motivate student learning. The learning environment is the physical (i.e., movement, breaks, state changes, games, physiology, hands-on, and student participation), values and beliefs, and resources (i.e., interactive, learning to learn skills, and methods) (DePorter & Hernacki, 1992). Since 1992, QL has been introduced within thousands of schools and districts and trained over 70,000 teachers who have impacted 10 million students worldwide. QL is also recognized outside of North America in Chile, Dominican Republic, China, Malaysia, Singapore, Thailand, Indonesia and other countries. QL philosophy is to use “brain-based” learning theories which instructors use to assist students to maximize positively their ability to learn, accentuating their individual learning styles, and building confidence from successful learning experiences” (DePorter & Hernacki, 1992, p. 145).

Summary and Topical Summary

Table 1. Summary of studies: 1991-2012

The following chart reflects the author, study title, methods used, conclusions and a brief
summary of the study findings.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Study Title</th>
<th>Method(s) used</th>
<th>Conclusion</th>
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<tbody>
<tr>
<td>Jeanette Vos-Groenendal,</td>
<td>Doctoral Dissertation, Northern Arizona University</td>
<td>Evaluation of accelerated/integrative learning program, mind-brain research with 6,042 students aged 12-22 using existing data, surveys and expert interviews.</td>
<td>Ten days of instruction led to 68% increased motivation, 73% improved grades, 81% developed more confidence and 84% increased self esteem.</td>
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<tr>
<td>PhD.</td>
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<tr>
<td>Peter Anderson</td>
<td>Model of Educational Reform Through Quantum Learning Methodology: A Case Study</td>
<td>School wide rapport-building, teamwork and learning-to learn skills focused. Students focused on effective reading, memory, note taking and test preparation skills.</td>
<td>After Quantum Learning, learning challenged 8th graders received the best GPA average ever, 17 A’s out of 18 students.</td>
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<tr>
<td>1994-6</td>
<td>Northwood Middle School, Woodstock, Il</td>
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<tr>
<td>Jean Kerr</td>
<td>Quantum Learning Accelerated Learning Program (Title 1) Grossmont Union High</td>
<td>Created 10 day program for underachieving incoming 9th graders, used accelerated learning techniques to increase academic achievement by giving students tools for learning</td>
<td>Changed attitudes, shifted behaviors and 63% earned GPA of 2.0 or higher in first semester. Winner, California Golden Bell Award</td>
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<td>District, La Mesa, CA</td>
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<td>Sara Singer-Nourie</td>
<td>Field-Based Masters Program, St. Xavier University and IRI/Skylight, Chicago,</td>
<td>Pre and post evaluation of English, Speech and Algebra on below average 9th graders in Thornton Township H.S., So. Holland, Il 60 teachers and 600 students involved over 22 days.</td>
<td>68% reported better attendance, 66% report better behavior, 60% follow class rules more and 68% report enjoying learning more</td>
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<td>1998</td>
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<tr>
<td>Heather Nolan, Elizabeth</td>
<td>Quantum Learning: A Classroom Example, presented at EERA Spring Conference</td>
<td>8th grade social studies students and teacher using QL in suburban Colorado school measured influence of QL on instructional variables.</td>
<td>Strong ratings and positive perceptions of QL environment for learning. Classroom environment promoted</td>
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<td>Farrall</td>
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<td>Year</td>
<td>Author(s)</td>
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<tr>
<td>2000</td>
<td>Howard Stone</td>
<td>Quantum Learning: A Journey Into Learning Action Research</td>
<td>28 schools collected data over five years in Waterloo and Ottawa-Carleton Roman Catholic School Districts. 37 reports detailing changes in performance, including students with learning disorders.</td>
</tr>
<tr>
<td>2001</td>
<td>Bonnie Drolet</td>
<td>Quantum Learning for Students</td>
<td>Teacher survey at 4 schools, gathered by Asst. Superintendent, gathered perceptions of student improvement one month after QL program</td>
</tr>
<tr>
<td>2002</td>
<td>Barbara Given, PhD</td>
<td>Quantum Learning Classroom Management-Action Research</td>
<td>Surveys on teacher’s perception of student improvement taken various weeks after the QLN program, George Mason University</td>
</tr>
<tr>
<td>2002</td>
<td>Lisa Barlas, Ann Campbell, Heidi Weeks</td>
<td>How Quantum Teaching Strategies Affect Learners</td>
<td>Surveyed parents, teachers and students for attitude and confidence levels. Compared test scores in math and social science for 7th and 8th graders and LD students.</td>
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<tr>
<td>2003</td>
<td>William Benn</td>
<td>New Evaluation Study of Quantum Learning’s Impact on</td>
<td>Compared schools with QL vs. schools without QL and</td>
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<tr>
<td>Year</td>
<td>Author(s)</td>
<td>Title</td>
<td>Summary</td>
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<tr>
<td>2003</td>
<td>Lucretia D. Peebles, Karen DeSchryver</td>
<td>Quantum Learning Evaluation, University of Denver, CO.</td>
<td>Achievement in Multiple Settings proved statistical significance in grades 2-8 and 9-11. Both statistically significant and educationally significant in reading, math, writing and achievement tests. External evaluation from 296 teachers and 9 principals reporting from 11 schools on their level of implementation of QL strategies and satisfaction. 63% of participants rated effectiveness of presentation a 10/10.</td>
</tr>
<tr>
<td>2005</td>
<td>Kelli Myers, Pam Pedigo Ellie Terrell</td>
<td>Report on Quantum Learning Impact in Three Third Grade Classes At Buena Vista Enhanced Option Elementary School, Nashville, TN</td>
<td>Reading grew 7.4 levels, 90% grew more than one academic year. Math scores: 100% of students scored at master level at year end. Top scoring third grade in school district (Metro Nashville, TN). Evaluation of Reading Assessments, Math Inventory and Attendance measured.</td>
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<tr>
<td>2007</td>
<td>Jennabeth Bogard</td>
<td>Quantum Learning within a School District, Cypress-Fairbanks Independent School District, Houston, TX</td>
<td>Initially, underperforming 4th graders learned test taking and math skills on Saturdays, QL programs later extended to middle, high school and district-wide; teachers then became QL trainers. 80% of first group passed the test. Over three years, several thousand students were trained and excelled far beyond students who were not trained, based on Texas Assessment of Knowledge and Skills (TAKS), a standardized test statewide.</td>
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<td>2007</td>
<td>Matt Christopher</td>
<td>Chemistry Teacher used in 2006-7, Poway Unified School District</td>
<td>Student grades went up in A-B range and fewer were in the D-F range. % of students with an a-C grade was 74.84 (pre) and 82.56 (post). Pre-QL to Post-QL reporting on grade distribution and student motivation in high school Chemistry 1-2.</td>
</tr>
<tr>
<td>Year</td>
<td>Authors/Institutions</td>
<td>Title/Description</td>
<td>Details</td>
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<td>2008</td>
<td>Lauren Hinton, Glenn Simpson and Denicia Smith</td>
<td>Increasing Self-efficacy Beliefs in Middle School Students Using Quantum Learning Techniques, Troup County ISD, GA</td>
<td>Two rural middle schools were compared, one with QL and one without. Did QL training improve the self-efficacy and therefore benefit them in greater academic achievement? QL techniques created an environment that measurably improved self-efficacy of shown on surveys and evaluations. Behavior also improved in the classrooms.</td>
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<tr>
<td>2011</td>
<td>Tonja Y. Trice</td>
<td>Making Prodigious Strides in Education Rural Middle School, Sumner County, TN</td>
<td>Determined academic achievement levels for QL trained students vs. control group in 7\textsuperscript{th} and 8\textsuperscript{th} graders in reading and language arts. Independent samples t-test found those with QL training significantly scored higher than the control group in the Tennessee Comprehensive Assessment Program (TCAP).</td>
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<tr>
<td>2011</td>
<td>Randy Zimmerman</td>
<td>CIVA High School Report by Principal, Colorado Springs Charter School</td>
<td>From 2008, QL has been measured, as well as 8 Keys of Excellence since 2010. Test scores in reading and writing increased dramatically. 82% reduction in teacher disciplinary referrals.</td>
</tr>
<tr>
<td>2012</td>
<td>Kelly Myers</td>
<td>Report on Student Leaders, by instructor at Buena Vista, Nashville, TN</td>
<td>8 Keys of Excellence retention remarks on leadership years after the training. Out of 500 freshman, three of four student elected officials came from the same small 4\textsuperscript{th}/5\textsuperscript{th} grade QL classroom, 4 years later, indicating retention of QL concepts of leadership.</td>
</tr>
<tr>
<td>2012</td>
<td>QL Research Study</td>
<td>SuperCamp Study: 2000-2011 findings</td>
<td>Survey post 7-10 day training/camp based on 2,254 responses. 90% positive response, Confidence increased 84%, Motivation up 74%, family relationships up 79%, peer relationships up 87%.</td>
</tr>
</tbody>
</table>
Table 2. *Area of Inquiry and Researchers*

The following Table describes the area of research inquiry and the names of the authors and year of publication of their study.

<table>
<thead>
<tr>
<th>Area of Inquiry</th>
<th>Researchers</th>
<th>Findings Summary</th>
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<tbody>
<tr>
<td>Pre-post evaluation of challenged/below average students</td>
<td>Singer-Nourie, 1998; Anderson, 1996; Kerr 1997; Benn, 1999, 2003; Stone, 2000; Barlow, et al., 2002; Severson, 2005-7; Myer, Pedigo &amp; Terrell, 2005</td>
<td>Challenged students were more successful in their standardized tests than previously. Found in Texas, Illinois, Canada, California, Tennessee and in rural, suburban and inner city environments. Challenges included economically and learning disabled students.</td>
</tr>
<tr>
<td>Influence of QL on testing /scores</td>
<td>Nolan, Farall, 1998; Vos Groenendal, 1983-89; Drolet, 2001 Myers et al., 2004-5; Severson 2005-7; Hinton, et al., 2008 Trice, 2011</td>
<td>Pre and post test scores were compared with significant positive test score changes in elementary, middle and high schools across many districts of the US and Canada.</td>
</tr>
<tr>
<td>Teacher perceptions of student improvement</td>
<td>Given, 2002</td>
<td>QL was educationally significant according to comments. It was measured by higher self-concept, engagement, and retention scores in teacher journals.</td>
</tr>
</tbody>
</table>
Parents, teachers, students: Attitudes and confidence levels

Barlas, et al., 2002; Myers, 2011-12

Leadership and confidence after QL grew for short and long term. Improvement and retention for middle school to high school students, in math and social science.

Teachers and principals on level of implementation of QL strategies and satisfaction

Peebles, DeSchryver, 2003 Myers, 2011-2

Instructors and principals reported high implementation of QL and high satisfaction scores.

QL and Campbell Teaching combined

Jones, 2011-14

Combining QL with a second complimentary approach is producing initial positive results in Victoria University, Australia.

**Detailed Studies on Quantum Learning**

Jeanette Vos-Groenendal, PhD study. This Doctoral dissertation study was conducted with data from 1983-89, based upon collected data, surveys and interviews. It was published in 1991, and looked at results from 6,042 students aged 12-22 from a ten day intensive learning environment that uses teaching strategies based upon accelerated/integrative methodologies and philosophies. The program looked at meeting different abilities of students, from impacting potential drop outs to improving learning from highly motivated students. The learning environment itself is what made this program different, as it used joy, music and relaxation as well as a psychologically safe environment for learning along with and prior to cognitive instruction. The study’s review of literature included much on the topic of mind-brain research.

The conclusion was that students with A grades to F grades range increased their GPA by a half point after 10 days of instruction. 98% of students with GPA of 1.9 and lower improved their GPA. QL had the strong effect of improving their emotional outlook toward themselves, their parents, their peers and education overall. [10 days is a very short time for an intervention to show change in GPA. Is the study credible?]  

Results of QL in Thornton Township High School. This low income, highly ethnic high school was involved in the study of accelerated learning in 1998 [over a one-year period?]. 600 9th graders and 60 of their teachers were trained in QL methods. Students were found to have increased learning (See Chart 5, below), attendance and their attitudes (See Chart 6, below). They increased their skills in both bath and reading, on standardized (Stanford Diagnostic) reading tests as well as their class grades at school. [does the Hawthorne effect have an influence here?]  

After QL, teachers report is a dramatic change. 100% report being better teachers (See Figure 2, below)
Figure 2. Teachers reporting on student interests: Sara Singer-Nourie, 1998

<table>
<thead>
<tr>
<th></th>
<th>before QL</th>
<th>after QL</th>
</tr>
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<tbody>
<tr>
<td>students complete</td>
<td>70</td>
<td>83</td>
</tr>
<tr>
<td>assignments</td>
<td></td>
<td></td>
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<tr>
<td>ability to interest</td>
<td>45</td>
<td>83</td>
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<tr>
<td>students</td>
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<tr>
<td>students are flexible,</td>
<td>60</td>
<td>69</td>
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<tr>
<td>open, positive</td>
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<td>students interested</td>
<td>45</td>
<td>83</td>
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<tr>
<td>in learning</td>
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<td></td>
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<tr>
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<td>83</td>
</tr>
<tr>
<td>class work</td>
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Figure 2: Teachers reporting on self: Sara Singer-Nourie.

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<thead>
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<th>after QL</th>
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<td>from teaching</td>
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<td>69</td>
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</table>

Figure 3. Students reporting on learning: Sara Singer-Nourie
Summary of Buena Vista Elementary School. Three third grade teachers implemented QL methods every day in their classes from 2004 – 2005. This third grade group improved their reading, social studies, science and math scores. 99% of the students were African American, and 100% qualified for free or reduced price lunch at school. Only one other school in Metro Nashville, in an affluent area came close to these scores. The teachers attribute these scores and improvement to their commitment to implement Quantum Learning. See the chart below for more details on the Tennessee Comprehensive Assessment Program (TCAP). TCAP scores for these 3 third grade classes are shown in Chart 7, below. There was significant change in their scores from 2004 to 2005, especially in Social Studies and Science (Myer, Pedigo & Terrell, 2005).

Figure 5. TCAP Scores, Buena Vista Enhanced Option School, Nashville, TN, 2004-5
Quantum Learning Classroom Management-Action Research. Surveys on teachers’ perceptions of student improvement taken various weeks after the Quantum Learning program, George Mason University Independent researcher compilation of teacher journal entries on Classroom Management measured by higher self-concept, engagement, and retention scores (Given, 2002). [some reconstruction is needed in the preceding to make a complete sentence]

Quantum Learning for Students Encinitas School District. Teacher survey at 4 schools, gathered by Asst. Superintendent, Bonnie Drolet, and distributed to small audience found the results to be educationally [do you mean statistically?] significant.

The district gathered perceptions of student improvement one month after QL program and found a positive impact on self concept, engagement, attendance and retention. Students were to rate themselves at the beginning of the program and again at the completion. One example is “Ability to get A’s” went from 33% to 74%. [nice to see the change, but does it have much meaning after only 1 month?] The teachers were also surveyed on their before and after QL learning and life skills. An example of the teachers was, “Attitudes about tests” went from 29% to 43%. Students test taking skills increased 35%. Ability to memorize dates, names, facts, etc. also significantly increased (Drolet, 2001).

New Evaluation Study of Quantum Learning’s Impact on Achievement in Multiple Settings. William Benn, an approved external evaluator for the California Department of Education (CDE) as an External Evaluator for Program Improvement Schools conducted and reported on multiple settings where QL was used. As an expert in program evaluation and program development and teaching, he has conducted process and outcome evaluation for over 100 projects across the United States. Benn’s report compared schools with QL vs. schools without QL and showed statistical significance [of what?] in grades 2-8 and 9-11. There was a positive impact on student achievement in 18 schools in 4 states: California, Illinois, Wyoming and Texas. In California, the Academic Performance Index (API), used by all 8,000 schools was used as a comparison. California also uses Stanford Achievement Tests (SAT-9), and this study compared these scores as well. In Illinois, Benn compared the Illinois Standardized Achievement Test (ISAT) and the Prairie State
Achievement Exam (PSAE) results. In Wyoming, it was the Wyoming Comprehensive Assessment System (WYCAS) and in Texas, the Texas Assessment of Academic Skills (TAAS) and Texas Learning Index (TLI) were used to measure QL results. Studies proved QL to be both statistically significant and educationally significant in reading, math, writing and achievement tests (Benn, 2003).

School District, Cypress-Fairbanks Independent School District, Houston, TX. The district requested a QL program to help underperforming students prepare for a re-take of the Texas Assessment of Knowledge and Skills (TAKS) standardized exams. These students had all failed the math portion of the test on the first exam. They started their training for test taking and math skills on Saturdays, so students returned to school on weekends. 80% of this underperforming first group passed the next test a month later. QL programs soon extended district-wide. The district then became a site license partner with Quantum Learning and 10 teachers went through a train-the-trainer program and became site-based QL trainers as the program grew in numbers and popularity. Over three years, several thousand students from elementary, middle school and high school were trained and excelled far beyond students who were not trained (Bogard, 2006).

This chart summarized the results of 250 students preparing for Texas TAKS Math Test. The most significant gains were for African Americans (up 155%), Special Ed (up 77.5%) and Hispanics (up 69%) in passing grades on this standardized exam.

Figure 6. Math for 5th Graders, Houston, TX

As of 2011, 20 teachers have been trained and certified to teach Quantum Learning in the district, and Quantum Learning for Student programs are still held every summer. Instructional and Academic Coaches have also been trained in the Quantum Learning Train-the-Coach professional development program. Cypress Fairbanks has 87 schools over 110,000 students. It is the third largest school district in Texas (Quantum Learning, 2012).

Increasing Self-efficacy Beliefs in Middle School Students Using Quantum Learning Techniques. In Northern Georgia, two rural middle schools were compared, one with QL and one
The study authors hypothesized that QL training improved the self-efficacy and therefore benefit students with greater academic achievement. In general, middle school students are resistant to academics, lack maturity, and show anxiety and effects of peer pressure. Studies show that with higher self-efficacy, students perform better academically. The authors reported that QL techniques created an environment that measurably improved self-efficacy of shown on surveys and evaluations. Behavior also improved in the classrooms (Hinton, Simpson & Smith, 2008).

Charter High School Excellence Report In June 2011, Principal Randy Zimmerman wrote to QL about CIVA High School, a Colorado Springs Charter School. From 2008, QL has been measured, as well as 8 Keys of Excellence since 2010. CIVA student test scores in reading and writing increased dramatically. “The cultural shift has been incredible: 82% reduction in teacher disciplinary referrals” (Zimmerman, 2011).

Making Prodigious Strides in Education at a Rural Middle School In 2011, PhD candidate Tonja J. Trice conducted her dissertation on a QL study presented to the Trevecca Nazarene University School of Education. This study determined academic achievement levels for QL trained students vs. a control group in 7th and 8th graders in reading and language arts categories.

Independent sample t-tests found those with QL training significantly scored higher than the control group, based upon scores from the Tennessee Comprehensive Assessment Program (TCAP) standardized tests. The 7th grade treatment group, those learning QL methods, reported an increase in confidence levels, completed course work, level of understanding and greater interest in learning. The 8th grade treatment group reported paying more attention in class, ability to memorize more information, complete more course work and understood more information presented. The 7th and 8th grade teachers who were QL instructors reported they took more risks, made learning more meaningful, and held students’ interest. Their students had a greater ability to retain information over the teachers in the control group (Trice, 2011).

8 Keys of Excellence .The Pearre Creek Elementary School in Franklin, Tennessee adopted the “8 Keys of Excellence” in September of 2011. Students were asked questions based on their self-assessment. Kindergarteners through 2nd graders (K-2) were asked 8 questions and 3rd-5th graders (3-5) were asked 21 questions about their behaviors and attitudes. A follow up study was conducted in January for each group of students. There was significant change by both groups, in a positive direction, for most of the factors studied. For example, K-2 scored (from 64 to 83%) 19% higher in winter on “Yes” When I make a mistake I do not blame others.” There was also a marked rise in the K-2 students who answered “Yes” on “I change my behavior when it gets me in trouble,” from 68% to 82%, a 14% increase. “On the whole, by implementing the 8 Keys of Excellence in our school, we saw positive behaviors and self-esteem increase by 9% in students grades K-2 from September to January” (Myers, 2012).

For the grades 3-5, 21 questions relating to school, classroom, parents, etc were asked on a four point scale, strongly agree, mostly agree, slightly agree, don’t agree. 209 responses in the fall and 150 responses in the winter showed that their school became more of a “family” environment over the past few months since The Keys of Excellence were introduced. Strongly or mostly agree rose from 76.5% to 84.6% students felt that they were part of a school family (Myers, 2012).

Personal Analysis
Education needs to have value for a student in order to be relevant. I believe that it pays to study and learn, as evidenced by the many years of formal and informal training completed.

I am a parent of a preteen and three teens, who fit into the age profile of these studies. Since I was in school, the classroom experience has changed, but that does not necessarily equate to improvement. My children attend public schools in a district that does not use Quantum Learning at this time. The district is a solid performer every year on the California test scores, but that is not the only consideration when it comes to being relevant and equipped by their formal education. I tell my children to be prepared for at least five careers in their lifetimes. We are living longer, and have more years than ever in the workforce. I anticipate that many of the skills taught in an active learning environment like QL will help students adapt to a changing world.

As a professor, I see that the greatest need for learning is in communications skills. As a teacher, having the skills to deal with practical skills of improving student motivation so they can want to achieve is basic to improved performance. The reports in this study document what I know about delivering motivation and ability to learn. As a teacher, I want my students to learn how to learn, not just memorize facts. That will help them to become good employees and leaders in the future. Building their character is also critical. Taking responsibility for their own learning is a goal that I seek for my students and this matches the self-management and problem solving skills of QL. I believe that the ‘8 Keys of Excellence’ are character traits worth embracing. I believe that in any region of the world these Keys could apply and that students could grow with the confidence they learn.

Applications for others. How can others apply the concepts and ideas of QL? More than 70,000 teachers have been formally trained, impacting 10 million students worldwide. Does QL want to stop at these metrics? The answer is no. If you are a parent, you can use the 8 Keys at home to help your child. If you’re a student, you can enhance your environment to support your learning. You can maximize your ability to learn by discovering your personal learning style, adapting your learning skills to maximize your potential, and then build confidence as your experiences grow. If you are an educator or administrator, you can apply Quantum Learning in your classroom, your school, and your community. Promoting learning with physically relaxing exercises, mental concentration and making learning fun and engaging happens when students muscle memory is exercised. For handicapped students, this learning environment can be the difference in whether or not a young person is motivated to learn. When learning is enjoyable, engaging and challenging as well, students achieve at higher levels.

I believe that the application for the QL programs works for adults and adult learners. I have been teaching adults at National University and other schools for 20 years. I find that the classes that have the most active learning experiences are the ones where students are given the opportunity to show that they can teach each other, with direction and encouragement from the professor. My goal with every course I teach is to incorporate some activity that students are doing something instead of just writing papers and taking tests. In one class, we make paper airplanes, but the lesson is about learning the difference between what the market needs and what the producers make. Last month, my students were required to select a business or brand and journal about it weekly for the four main social media elements that they observed (Facebook, twitter, websites and blogs). They were also required to respond to at least one other student’s journal each week. At the start, some students were reluctant to try, but after four weeks, they thanked me for
encouraging them to try something new. This was an active exercise delivered via distance learning.

I am currently enrolled as a student in the Massive Online Open Community (MOOC), and when I focus on the active learning elements of the courses, I learn the most and it stays with me the longest. The active elements take me to the part of my memory where it is “sticky” and provokes my opinions and my inspiration. Perhaps that would be an application for QL in the future, or perhaps they are already doing this.

There are many new applications for courses that give students an opportunity to succeed where they were troubled. There are opportunities for students who are succeeding and want to improve. From the very young to seniors, QL has application potential to motivate students to learn.

Summary

The studies above indicate that as QL was introduced to teachers and administrators, more children received high-quality instruction. As students became more engaged, the material to be learned became more relevant and understandable. Behavior problems and distractions were significantly reduced, students more readily connected content with their existing perspective, and long-term memory was enhanced.

Quantum Learning is a program that has clearly been examined, from research in the 1970’s on brains to measuring academic achievement levels across the US and globally. QL gives instructors the tools to empower and motivate learning. Students learn in an environment with traditional books and instruction. But they also learn from physical participation (i.e., movement, breaks, state changes, games, physiology, hands-on, etc.), and benefit from understanding the importance of values, attitudes and beliefs, and learning skills.

In conclusion, QL should be considered by school administrators considering ways to improve student learning performance. Further research studies on Quantum Learning will advance the body of knowledge another level, [in what specific ways? What gaps are there in current findings that need to be investigated?] which is encouraged by the author. This will keep the Quantum Learning conversations relevant and significant. Quantum Learning is having a positive and significant impact on student achievement, and should be considered as an important model and solution for our schools.

AUTHOR INFORMATION

Dr. Mary Beth McCabe is a full-time Professor at the School of Business and Management at National University, where she is lead faculty for Marketing. She has a DBA in Marketing from Alliant International University (San Diego) and MBA in Marketing from DePaul University (Chicago). Her research is concentrated in the fields of Hispanic Marketing, Media and Sustainability and her contact email is mmccabe@nu.edu

References


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