Cross-Age Peer Teaching

An Effective and Efficient Model
for Supporting Success in the Classroom

Willard R. Daggett, Ed.D.
Founder and Chairman, International Center for Leadership in Education

Gerald A. Pedinotti, Jr.
Vice President, Tipping Point Analytics

International Center for Leadership in Education
Rigor, Relevance, and Relationships for ALL Students

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Introduction

This paper is based on research that was conducted by the International Center for Leadership in Education and Tipping Point Analytics to validate the effectiveness of Learning Together cross-age peer teaching programs. The findings were presented by Dr. Daggett at the 2011 Model Schools Conference in Nashville in his Keynote presentation, "Daggett System for Effective Instruction," and in his breakout session, "Improving Schools with Fewer Resources—Effectiveness and Efficiency." The Daggett System for Effective Instruction builds upon the ideas, inspirations, practices, and research of others, including meta-analyses of effective instruction. It also recognizes the primacy and immeasurable value of great teachers and great teaching and strives to align education systems and functions with what teachers need to support learners effectively. It does so by looking not only at teachers, but also at leadership at all levels in support of instruction.

The two schools reported on herein, Peachland-Polkton Elementary in Anson County, N.C., and Townsell Elementary in Irving ISD, Texas, are demographically different, but both have a sizable at-risk student population. Student data was collected from these schools to directly measure and report on the merits of cross-age peer teaching and learning. In short, the research found that Learning Together's reading and math interventions raise both students' academic achievement as well as their level of social and emotional engagement in school itself.

The Challenges Facing Schools

Although schools continue to work hard at improving, the reality is that the rest of the world is changing faster, leaving a growing gap. In an effort to close the gap, new state-supported initiatives for raising standards and measuring student achievement will require schools to change what and how they teach. The "fewer, clearer, higher" Common Core State Standards (CCSS) and related "next generation assessments" (NGA) will raise the bar for most states to help ensure that every student is challenged to achieve and succeed. Proficiency levels will be set higher, and assessments will measure not just what students know, but also what they can do with that knowledge. Most schools will need awareness building, planning, time, and support

to prepare for the mandatory 2014-15 implementation dates of the new learning expectations represented by the CCSS and NGA.

These challenges are driving a greater focus on accountability and a growing demand for proof of effectiveness and efficiency in public education. If *No Child Left Behind*'s Adequate Yearly Progress (AYP) provision laid accountability for results on the backs of principals, today's education policy, including measures such as growth models and teacher evaluations, is also shifting the burden of accountability to teachers.

The Impact of Effective Teaching

Recognizing the challenges facing schools today is easy. Identifying the most effective ways to address them is not. Education research is plentiful and comprehensive, so much so that studies are available to prove or disprove almost any decision made by education leadership. However, most of the respected research is consistent on one key school improvement issue: effective instruction really matters. No single variable has more impact than teaching.

Effective teaching is not, however, the end goal; it is the means to an end: student achievement. Nevertheless, all teaching is more effective when well supported. Improving instruction requires a supportive and aligned system. Stated another way, although effective teaching is essential, it is not sufficient to maximize achievement for all students.

In certain demographic groups, such as English language learners, economically disadvantaged students, and/or students with special needs, factors exist that place them at a disadvantage in achieving success solely from classroom instruction. These students often come from an environment where reading or math literacy is not a core value or personal challenges make learning difficult. In school they are especially vulnerable to alienation, lack confidence, lack of caring and companionship, and therefore they do not have positive experiences with peers and adults.

The Case for Cross-Age Peer Teaching

At the elementary level, struggling students disengage at both ends of the spectrum: some become disruptive, others withdraw. Either way, academics suffer. By middle school, these students often become candidates for dropping out, displaying warning indicators in attendance, behavior, and achievement. It is with these at-risk students that the Learning Together (L2) cross-age peer teaching programs, Reading Together and Math Together, work so effectively.

Reading Together extends learning opportunities in reading with structured peer-to-peer tutoring to boost achievement for both tutee and tutor. Reading Together incorporates best

practices that help students progress from simply decoding text to reading with fluency and comprehension. The program is based on a proven set of skills and strategies that build towards the overall goals of raising reading performance and encouraging lifelong readers.

Tutors learn strategies to help tutees become independent readers and thinkers. Tutors demonstrate the highest form of understanding by putting learning into practice.

Reading Together supports a gradual release of responsibility from tutor to tutee. As tutees move through three phases, they accept more responsibility until they engage in true independent reading. The goal of Reading Together, as with all Learning Together programs, is to accelerate student achievement and motivate students to become lifelong learners.

While tutees in the Reading Together program must be decoders, they are weak on comprehension, often cannot make sense of text, and need fluency practice and vocabulary work. Defined another way, they are on the bubble, 15th to 55th percentile, and are academic risks. Tutors are at-risk students as well. Putting an at-risk student into the role of a leader/mentor is unique to Reading Together participants. The quality of the intervention is critical, and L2 provides the social and emotional support to engage them in ways that are both positive and effective. Because of this holistic, one-to-one approach, the affective filter drops and both students feel comfortable taking risks, opening up a high receptivity to learning.

Math Together is based on the same methodology, reducing math anxiety and building confidence and competence. It also has a strong literacy component as students learn to solve problems embedded in text. Depending on the grade level, it targets critical thinking, word problems and fact mastery, or filling the gaps to prepare students for pre-algebra or Algebra I.

What the Research Says

Hattie's Visible Learning

Several significant research studies have reported on peer tutoring/teaching as an intervention strategy. One is John Hattie's *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. Hattie analyzed 200,000 "effect sizes" (the relative impact of one factor compared to other factors) from 52,637 studies involving more than 50 million students and covering an exhaustive number of factors.

Hattie's approach was that effect sizes are the best way to identify what has the greatest influence on student learning. The calculations behind his work are complex but, to simplify, an "effect-size" (*d*) of 1.0 (defined as an increase of one standard deviation) is typically associated with the equivalent of approximately two years of growth in one year. Hattie's analysis shows that most variables in schools have an effect size of around +0.3 or +0.4, what Hattie calls his "hinge point." Any factor below +0.4 is of lower value and factors below 0.0 have negative effects. Peer tutoring was given a relatively high effect size (*d* = 0.55).

In his review of peer teaching, Hattie states that "the overall effects of the use of peers as co-teachers (of themselves and of others) in classes is, overall, quite powerful. If the aim is to teach students self-regulation and control over their own learning then they must move from being students to being teachers of themselves."

Hattie references S.S. Hartley's 1977 study of various instructional modes' effectiveness on mathematics achievement, in which she found that peer tutoring was the most effective of the various conditions she compared (d=0.60). However, cross-age tutors (d=0.79) were more effective than same-age peers (d=0.52).

Another key study from the United Kingdom, *The Sutton Trust Toolkit of Strategies to Improve Learning*, sought to help schools determine which research-proven instructional practices were most effective in supporting students from economically disadvantaged backgrounds and at what levels of relative costs, even though there "is no direct link between spending on schools and outcomes for pupils." The findings closely parallel Hattie's meta-analysis of instructional effectiveness … that benefits are apparent for both tutor and tutee, particularly in cross-age tutoring.

The Sutton Trust research also mirrors what the Daggett research found: that peer teaching has positive impacts in both mathematics and reading. The study also determined that there are few costs directly associated with the peer teaching approach, though it does require some time to organize and set up.

Another publication that greatly influenced the Daggett System for Effective Instruction is *InTASC Model Core Teaching Standards: A Resource for State Dialogue*. Developed by the Council of Chief State School Officers (CCSSO), it outlines the common principles and foundations of teaching practice that cut across all subject areas and grade levels and that are necessary to improve student achievement.

The InTASC publication stresses the importance for teachers to recognize that all students arrive at school with "varying experiences, abilities, talents, and prior learning, as well as language, culture, and family and community values that are assets that can be used to promote their learning" The core teaching standards align nicely with the peer teaching approach in terms of assigning learners a more active role in determining what and how they learn as well as demonstrating their achievements. The core teaching standards encourage learners to interact with peers to accomplish goals.

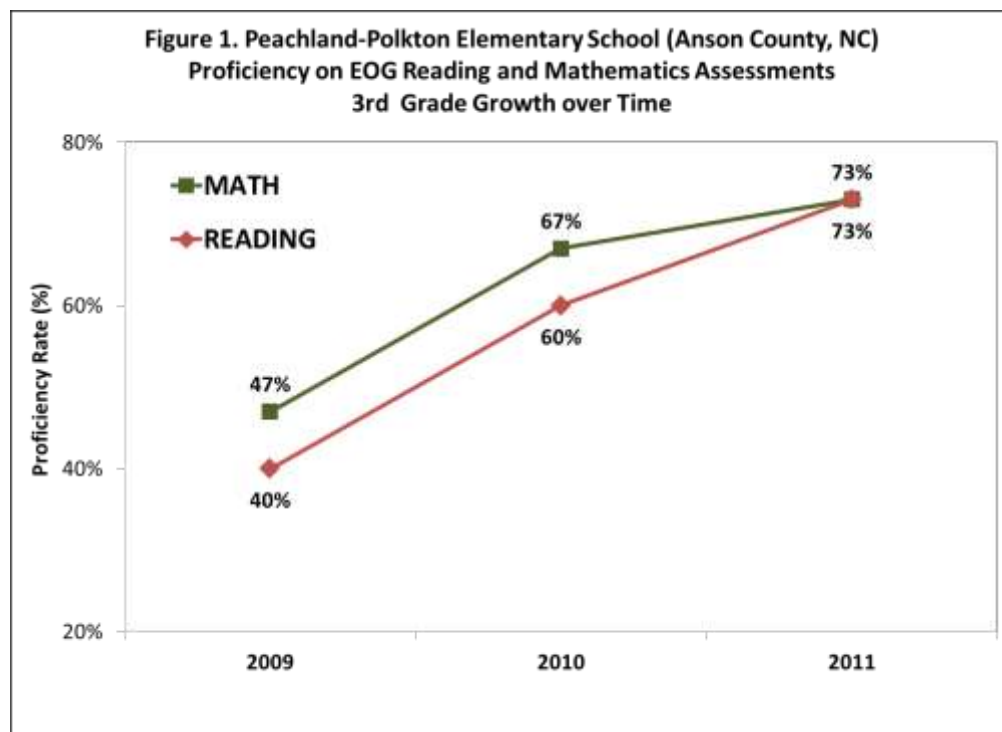### Learning Together Peer Teaching — Examples of Success

Learning Together is a differentiated instructional approach that meets the academic needs of struggling learners while also teaching meta-cognition and learning strategies. Differentiation is imbedded throughout L2 — from the first moment in the program to the last, each tutor or

tutee is provided with meaningful opportunities to work collaboratively, set individual and group goals, work within individualized learning plans, monitor progress towards their goals, and celebrate results. In addition, it is easy to connect L2 to the classroom. L2 coordinator/teachers can communicate progress to the classroom teachers within existing structures; classroom teachers are familiar with the academic and social/emotional growth of each student and use information garnered from L2 to differentiate in the classroom.

Peachland-Polkton Elementary School (Anson County, North Carolina)

Peachland-Polkton Elementary School, in Anson County Schools, is located in south-central North Carolina. It is a rural school with approximately half of all students eligible for free or reduced price lunch. Over the past three years, the school has experienced great success with students that, prior to participating in Learning Together, would have been at risk of underachieving on the state End-of-Grade (EOG) assessments.

Peachland-Polkton implemented both Reading Together and Math Together. As the school acclimated to the L2 philosophy and absorbed it into its classroom culture, the growth in proficiency of participants in both programs was dramatic. From 2009 to 2011, 3rd grade tutees' proficiency rates grew 33% overall in Reading and 26% overall in Mathematics (Figure 1).

Figure 1. Peachland-Polkton Elementary School (Anson County, NC) Proficiency on EOG Reading and Mathematics Assessments 3rd Grade Growth over Time

Fifth grade tutors exhibited similar success. Their proficiency rate grew 7% overall from 2009 to 2011 and was 80% in 2011, which was a three-year high. In mathematics, fifth grade tutors' proficiency rate grew 26% from 2010 to 2011 and was 93% in 2011, which was also a three-year high.

Townsell Elementary School (Irving ISD, Texas)

Irving ISD is in the heart of the Dallas/Fort Worth metro area. Students represent approximately 100 different countries and speak more than 50 different languages. This richly diverse cultural community has created a student body that is largely bilingual, with English as the second language for many. In the 2009-10 school year, 41.5% of students in Irving ISD were classified as Limited English Proficient (LEP).

The 2010-11 school year marked the seventh year that Reading Together was implemented as a Tier 2 intervention in Irving. For the Daggett independent research, the last three years of data for L2 participants and non-participants was analyzed down to the individual student level.
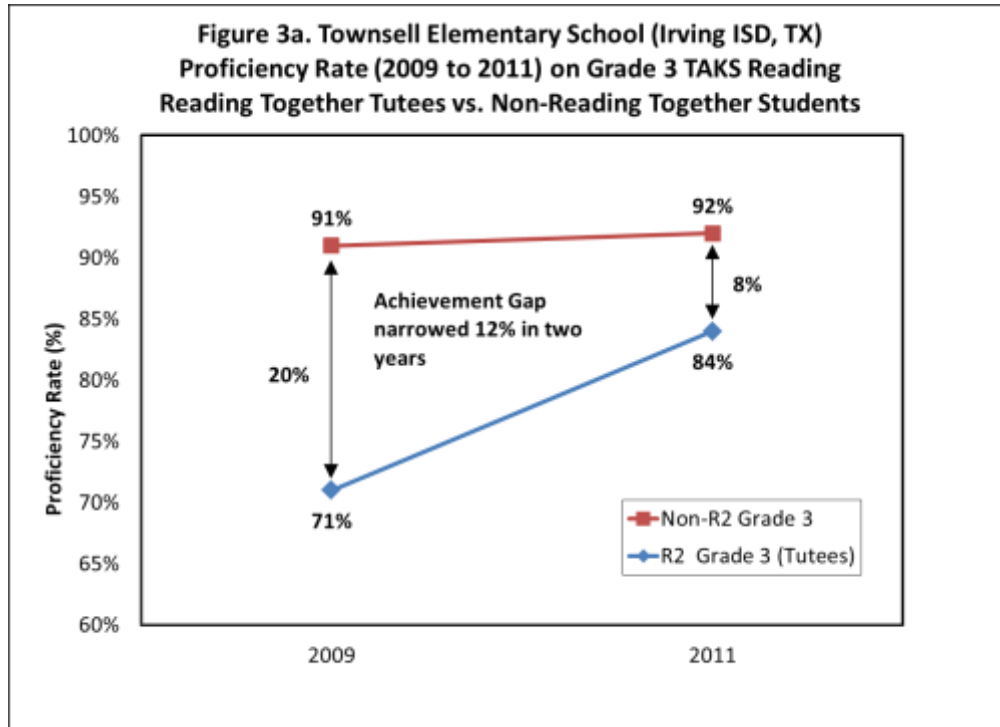
All classrooms and programs using the differentiated learning approach seek to create student engagement and student understanding, and learning cannot happen without these two elements. L2 provides a differentiated learning experience that only the best classrooms could hope to emulate. Engagement and learning not only occur as a result of the curricula and literature, but also because in a safe and nurturing environment, each student's affective filter drops and there is high receptivity to learning.
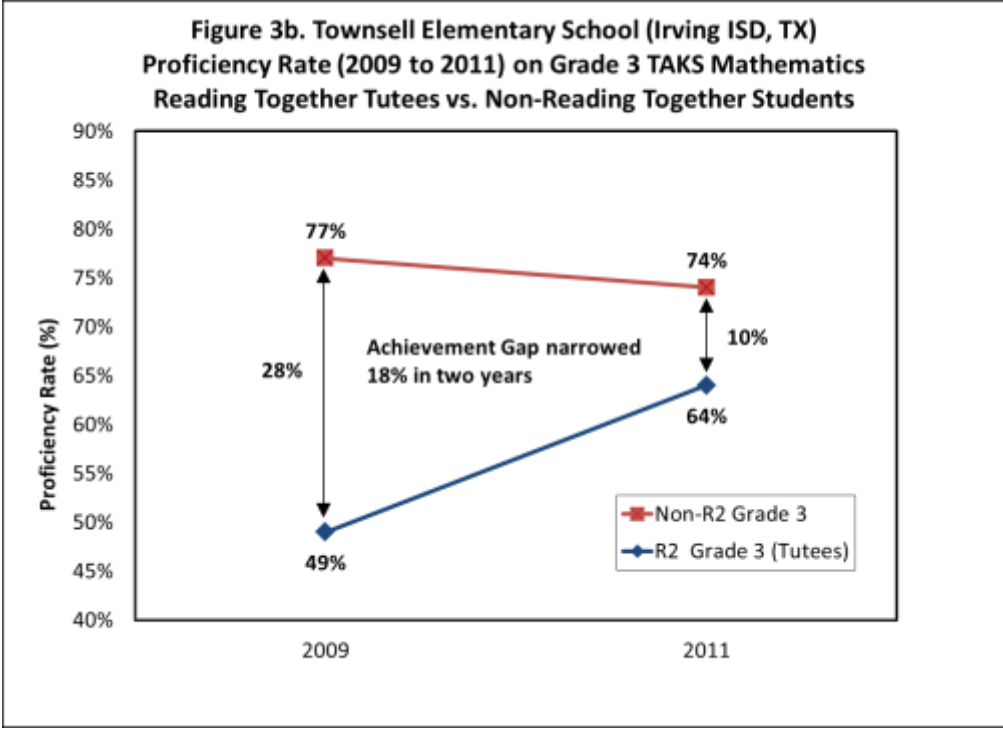
Attendance is a key indicator of engagement and is critical as a prerequisite to effective learning. It is also a mandatory requirement for NCLB reporting. In Townsell Elementary, students who were enrolled in the Reading Together program had higher attendance rate than non-Reading Together students in each of the last three years (Figure 2).
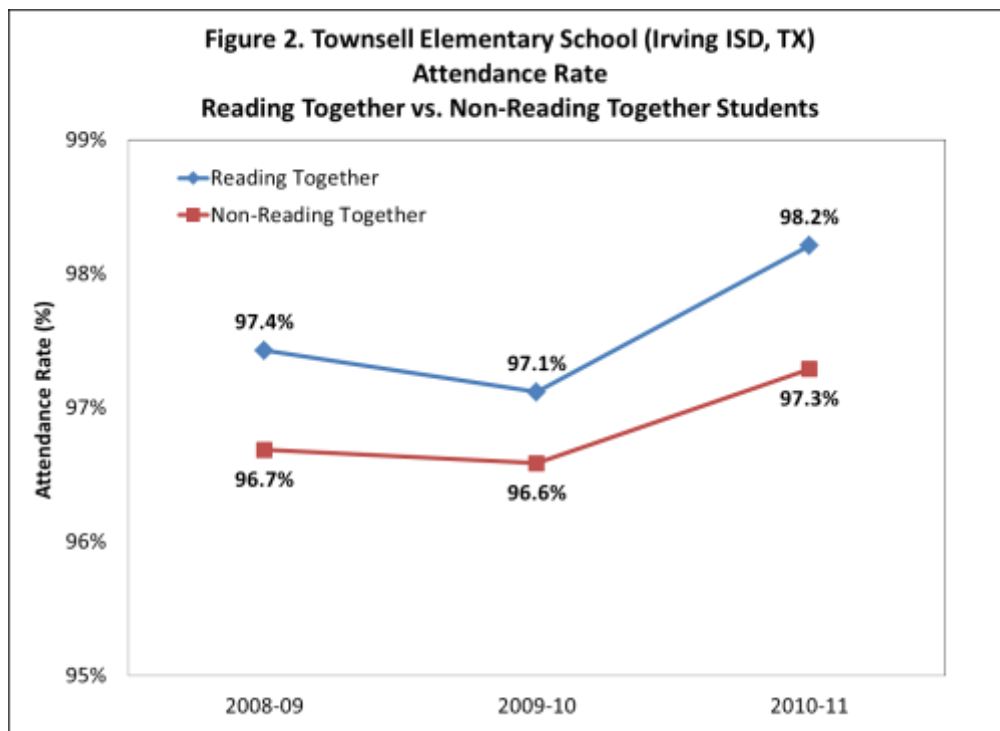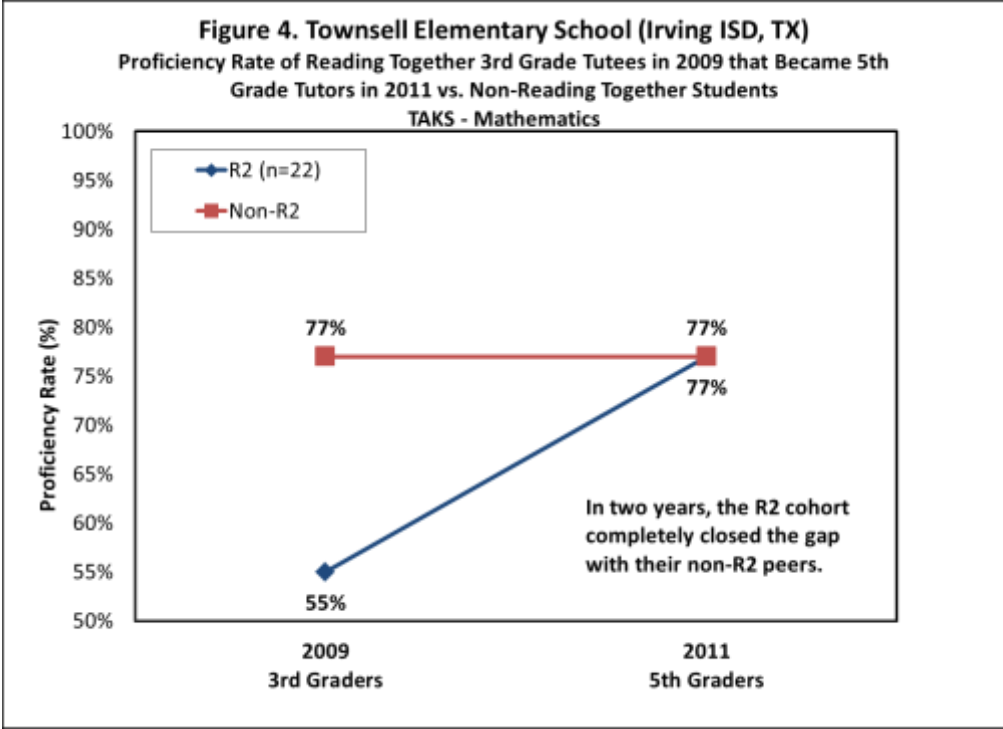
Having LEP and all students perform up to standard on high-stakes assessments of reading proficiency, in this case the Texas Assessment of Knowledge and Skills (TAKS), is critical to the district. Again, those Townsell Elementary students who represented the most at-risk segment of the student body were enrolled in the L2 program. A key indicator of success of Reading Together is to close the achievement gap between the Reading Together students and the non-Reading Together students on the TAKS.

From 2009 to 2011, the proficiency rate (achievement) gap narrowed 12% on the Grade 3 TAKS in Reading and 18% on the Grade 3 TAKS in Mathematics (Figures 3a and 3b).

Figure 3a. Townsell Elementary School (Irving ISD, TX) Proficiency Rate (2009 to 2011) on Grade 3 TAKS Reading Reading Together Tutees vs. Non-Reading Together Students

Figure 3b. Townsell Elementary School (Irving ISD, TX) Proficiency Rate (2009 to 2011) on Grade 3 TAKS Mathematics Reading Together Tutees vs. Non-Reading Together Students

Evidence that the L2 program has raised achievement levels in Irving ISD is apparent in inspection of how a cohort progressed over time. At Townsell Elementary, 22 students enrolled in the Reading Together program in 2009 as third grade tutees became fifth grade tutors in 2011. During that time, the Reading Together cohort completely closed the proficiency rate gap on the TAKS in mathematics with their non-Reading Together peers (Figure 4).

Figure 4. Townsell Elementary School (Irving ISD, TX) Proficiency Rate of Reading Together 3rd Grade Tutees in 2009 that Became 5th Grade Tutors in 2011 vs. Non-Reading Together Students TAKS - Mathematics

Conclusion

To summarize, the experts and the evidence undeniably agree: in school improvement, having competing priorities is not the solution, it's often the problem. The one, isolatable variable to focus attention, effort, and resources on to enhance student learning is effective instruction.

Teachers have the most impact on effective instruction leading to student achievement and learner growth and success. Most studies and models of instructional effectiveness recognize this reality and therefore focus on what happens in the classroom and how teachers perform in that classroom. However, most teachers can't do it alone and all teaching is more effective when supported. Learning Together has the ability, experience, and expertise to assist schools and districts to implement a system for supporting teachers both effectively and efficiently.

As the L2 system becomes part of the culture of classroom, it gains momentum that leads to continued success. Using the L2 approach to differentiated instruction, teachers have seen numerous examples of students once thought to be impossible to reach who become model students after participating in the program. For these students, the social-emotional benefits of being a tutee or tutor and the self-esteem, confidence, and feeling of belonging in a learning community are not by-products but portals to their individual learning process.

References

Hattie, John A. C. (2009), *Visible Learning: A Synthesis of Over 300 Meta-analyses Relating to Achievement*, London and New York: Routledge.

The Sutton Trust Toolkit of Strategies to Improve Learning, Durham University.www.suttontrust.com/public/documents/toolkit-summary-final-r-2-.pdf

InTASC Model Core Teaching Standards: A Resource for State Dialogue
http://www.ccsso.org/Documents/2011/InTASC_Model_Core_Teaching_Standards_2011.pdf

Daggett, W.R. (2011), *The Daggett System for Effective Instruction: Where Research and Best Practices Meet.* White Paper, June 2011.