

ALL KINDS OF MINDS®

**COMPREHENSIVE RESEARCH BASE
OF THE SCHOOLS ATTUNED® PROGRAM**



All Kinds of Minds®

A NON-PROFIT INSTITUTE FOR THE UNDERSTANDING OF DIFFERENCES IN LEARNING

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Introduction

All Kinds of Minds

All Kinds of Minds was founded in 1995 as a non-profit institute dedicated to the understanding of differences in learning. The mission of All Kinds of Minds is to help students who struggle with learning measurably improve their success in school and life by providing programs that integrate educational, scientific, and clinical expertise. To advance this mission, All Kinds of Minds developed a variety of programs to help parents, educators, clinicians, and students understand and manage learning issues. The fundamental principle driving All Kinds of Minds is a belief that ongoing success is available to all students who are given the knowledge, tools, and strategies that fit how they learn. All Kinds of Minds' programs are based on the neurodevelopmental approach to learning developed and refined by Dr. Melvin Levine, M.D.

The Schools Attuned Professional Development Program

From 1987 through the late 1990's, Dr. Levine and his colleagues worked with over 5,000 educators from across the country to develop a program for schools based on Dr. Levine's theoretical framework for understanding the neurodevelopmental functions and variations of learning.

In 1995, the Schools Attuned program was among the array of services offered by All Kinds of Minds to help educators better understand and manage students who are struggling due to differences in learning. Decades of research documented that children who struggle with learning differences unnecessarily fail in school and life at great personal and societal cost. It is the hypothesis of All Kinds of Minds that this problem continues because educators are not prepared to understand and address differences in learning using a neurodevelopmental knowledge base in their classrooms and schools. As the flagship program of All Kinds of Minds, the Schools Attuned program equips educators with new knowledge, skills, and strategies so that sound, defensible professional judgments can be made about the best instructional practices to use with struggling learners.

In 2000, All Kinds of Minds re-launched the Schools Attuned program as a yearlong, professional development and service delivery program to help educators acquire the knowledge and skills, and offer a system of innovative tools, to meet the diverse learning needs of K-12 students. The Schools Attuned program prepares educators to apply neurodevelopmental knowledge about learning in order to:

- (1) Identify a student's strengths, affinities, and specific neurodevelopmental breakdowns as exhibited in struggles with academic and social behavior;
- (2) Develop a learning profile of strengths and weaknesses on that basis;
- (3) Work with parents, the student, and other professional colleagues to manage the learning profile;
- (4) Modify instructional and social tasks to address breakdowns and boost affinities and strengths; and
- (5) Assess whether the modified program is resulting in academic and social improvement and success.

The intent of the program is to guide participants to use the Schools Attuned content and processes with individual students, as well as whole-class lesson/instructional design and classroom management.

The intended outcomes of the Schools Attuned program for participants are:

- (1) Teachers develop and demonstrate expertise regarding differences in learning;
- (2) Teachers better understand students' strengths and affinities, and value how those strengths and interests can serve as pathways to school success;
- (3) Teachers have and apply clear, specific, actionable strategies to manage differences in learning; and
- (4) School faculty has and applies the knowledge, skills, and dispositions to enact changes in policy, practices, and culture that address learning variation in the school.

The Research Base behind the Schools Attuned Program

With the standardization of the content and delivery of the Schools Attuned program in 2000, and the increased number of educators prepared since that time, All Kinds of Minds put in place deliberate, continuous documentation and evaluation to support the research base of the Schools Attuned program. This documentation and evaluation provides evidence in three areas: program content, program design, and program impact, each of which is discussed in the sections that follow.

I. Program Content

The content of the Schools Attuned curriculum is grounded in a synthesized body of knowledge from various scientific and educational disciplines.

The comprehensive framework for understanding and managing differences in learning used in All Kinds of Minds' programs is based on basic and applied research regarding the neurodevelopmental functions and variations in learning. The Schools Attuned observational tools and instructional management strategies are based on a similar body of research literature.

The development of this body of work is encapsulated through such texts as:

- Hooper, S. R., Levine, M. D., Swartz, C., et al. (1994). Measurement of written language expression. In G. R. Lyon (Ed.), *Frames of reference for the assessment of learning disabilities* (pp. 375-417). Baltimore, MD: Paul H. Brookes Publishing Company.
- Levine, M. D. (1983). Developmental Dysfunction in the School-Age Child. In R. Behrman, & V. Vaughan, (Eds.), *Nelson's Textbook of Pediatrics*, 12th edition. Philadelphia: W. B. Saunders Company.
- Levine, M. D. (1990). Neurodevelopmental dysfunction during childhood: The high impacts and policy implications of insidious handicaps. In D. E. Rogers, and E. Ginzberg, (Eds.), *Improving the Life Chances of Children at Risk*. Boulder, CO: Westview Press.
- Levine, M. D. (2002). *Educational Care* (2nd Ed.). Cambridge, MA: Educators Publishing Service.
- Levine, M. D., Brooks, R., & Shonkoff, J. (1980). *A Pediatric Approach to Learning Disorders*. New York: John Wiley & Sons, Inc.
- Levine, M. D., Carey W., & Crocker A. (Eds.). (1998). *Developmental-Behavioral Pediatrics* (3rd Ed.). Philadelphia: W. B. Saunders.
- Levine, M. D., & Oberklaid, F. (1982). Early description and prediction of developmental dysfunction. In M. Lewis, and L. Taft, (Eds.), *Developmental disabilities: Theory, Assessment, and Intervention*. New York: SP Medical and Scientific Books.
- Levine, M. D., & Reed, M. (1998). *Developmental Variation and Learning Disorders* (2nd Ed.), Cambridge, MA: Educators Publishing Service.

Pohlman, C. (2007). *Revealing Minds: Assessing to Understand and Support Struggling Learners*. San Francisco: Jossey-Bass.

All Kinds of Minds actively gathers information to ensure that its programs incorporate the latest advances in educational, psychological, medical, and clinical research. The literature is examined to connect publications in multidisciplinary journals to the understanding of neurodevelopmental variation. Some of this work explores the validity of the eight constructs (i.e., attention, memory, language, temporal-sequential ordering, spatial ordering, neuromotor function, higher order cognition, social cognition) in the neurodevelopmental framework used by All Kinds of Minds.

For example, empirical support for the construct of attention can be found in literature sources such as:

Anderson, V. (1998). Assessing executive functions in children: Biological, psychological, and developmental considerations. *Neuropsychological Rehabilitation*, 8, 319-349.

Banaschewski, T., Brandeis, D., Heinrich, H., et al. (2003). Association of ADHD and conduct disorder: Brain electrical evidence for the existence of a distinct subtype. *Journal of Child Psychology and Psychiatry*, 44, 356-376.

Brandeis, D., Banaschewski, T., Baving, L., et al. (2002). Multicenter P300 brain mapping of impaired attention to cues in hyperkinetic children. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 990-998.

Calhoun, S. L., & Dickerson Mayes, S. (2005). Processing speed in children with clinical disorders. *Psychology in the Schools*, 42, 333-343.

Denckla, M. B. (1996). Biological correlates of learning and attention: What is relevant to learning disability and Attention-Deficit Hyperactivity Disorder? *Developmental and Behavioral Pediatrics*, 17, 114-119.

Another example is the existence and functioning of temporal-sequential ordering, which has empirical support from several literature sources, including:

Boden, C., & Brodeur, D. A. (1999). Visual processing of verbal and nonverbal stimuli in adolescents with reading disabilities. *Journal of Learning Disabilities*, 32, 58-71.

Farmer, M. E., & Klein, R. M. (1995). The evidence for a temporal processing deficit linked to dyslexia: A review. *Psychonomic Bulletin and Review*, 2, 460-493.

Johnson, D. J. (1993). Relationships between oral and written language. *School Psychology Review*, 22, 595-609.

Stanford, M. S., & Barratt, E. S. (1996). Verbal skills, finger tapping, and cognitive tempo define a second-order factor of temporal information processing. *Brain and Cognition*, 31, 35-45.

As one element of the Schools Attuned program, suggested accommodations and interventions are provided to help teachers and students implement educational plans that support a student's unique learning profile. These suggested strategies are based on an increasingly rich body of empirical research, and when possible, are linked to specific research citations such as the following:

Arra, C. T., & Aaron, P. G. (2001). Effects of psycholinguistic instruction on spelling performance. *Psychology in the Schools*, 38, 357-363.

Jitendra, A. K., Griffin, C. C., Haria, P., et al. (2007). A comparison of single and multiple strategy instruction on third-grade students mathematical problem solving. *Journal of Educational Psychology*, 99, 115-127.

- McDougall, D., & Brady, M. P. (1998). Initiating and fading self-management interventions to increase math fluency in general education classes. *Exceptional Children*, 64, 151-166.
- Palincsar, A. S., & Brown, A. L. (1988). Teaching and practicing thinking skills to promote comprehension in the context of group problem solving. *Remedial and Special Education*, 9, 53-59.
- Rasinski, T. V. (1988). Fluency is for everyone: Principles for incorporating fluency instruction in the classroom. *Ohio: Reading and Communication Skills*.
- Reid, R., & Harris, K. R. (1993). Self-monitoring of attention versus self-monitoring of performance: effects on attention and academic performance. *Exceptional Children*, 60, 29-40.
- Weaver, S. M. (2000). The efficacy of extended time on tests for postsecondary students with learning disabilities. *Learning Disabilities: A Multidisciplinary Journal*, 10, 47-56.
- Efforts have begun to establish the validity and reliability of observational tools and methods related to the neurodevelopmental framework. These preliminary empirical investigations, which will inform future studies of Schools Attuned observational tools, include the following:
- Neufeld, C. R. (2002). *Neurodevelopmental Functioning and Assessment: Exploration of the Need and Procedures for Developing a More Efficient Tool to Measure the Neurodevelopmental Abilities of Adolescents*. Unpublished Doctoral Dissertation.
- Nimkoff, T. A. (2005). *Educator implementation of a professional development program: examining level of use in relation to program participation, professional background, and organizational engagement*. Unpublished Doctoral Dissertation.
- Sandler, A. D., Hooper, S. R., Levine, M. D., et al. (1993). The Pediatric Examination of Educational Readiness at Middle Childhood (PEERAMID): Factor structure and criterion-related validity in a clinic-referred sample of children and adolescents. *Children's Hospital Quarterly*, 5, 19-26.
- Sandler, A. D., Hooper, S. R., Scarborough, A. A., et al. (1995). Adolescents talking about thinking: Preliminary findings of a self-report instrument for the assessment of cognition and learning. *Diagnostique*, 19, 361-376.
- Swartz, C. W., Hooper, S. R., Montgomery, J. W., et al. (1999). Using generalization theory to estimate the reliability of writing scores derived from holistic and analytic scoring methods. *Educational and Psychological Measurement*, 59:492.

All Kinds of Minds is committed to the empirical investigation of the methods and measures used in the Schools Attuned program, and encourages and invites external professional scrutiny. During development of the Views, the observational instruments used within the Schools Attuned Attuning a Student process, external experts were consulted on issues of content, including item refinement and internal structure. However, the accumulation of scientific knowledge regarding these tools has just begun. Validity related studies are needed, including evidence based on response processes, consequences of testing, and external variables. Likewise, additional studies of instrument reliability are required, including measures of internal consistency, temporal stability, and inter-rater agreement (AERA, APA, & NCME, 1999).

II. Program Design

The Schools Attuned program design is based on consistent findings from solid research in professional development for educators.

The Schools Attuned program design is based on applied findings from research conducted over the past two decades on the components of professional development for educators that contribute to student achievement and school change, standards of the National Staff Development Council (2001), and ongoing program evaluation using best practices as outlined by Guskey (2002).

The Schools Attuned program is designed to reflect the most current research and standards on professional development that changes teaching practice and has a positive impact on student outcomes. Beginning in 2000, the Schools Attuned program was redesigned to incorporate the findings from over two decades of research on teacher professional development. Subsequently, the Schools Attuned staff at All Kinds of Minds and other experts have annually reviewed the program against the current National Staff Development Council's standards (NSDC, 2001) and new research on professional development programs that advance student learning (e.g., Borasi & Fonzi, 2002; Bransford, Brown, & Cocking, 2000; Laine & Otto, 2000; Little, 1993; National Academy of Sciences (Shavelson & Towne, 2002); Yoon et al., 2007).

Characteristics of high quality professional development include:

- > Emphasis on developing teachers' pedagogical content knowledge and insight into how students learn (Darling-Hammond & Ball, 1996; Loucks-Horsley & Matsumoto, 1999; NSDC, 2001; Shulman, 1986; Stein, Smith, & Silver, 1999; U. S. Department of Education, 1999a);
- > Use of assessment to guide instructional practice (Fullan, 2000; Guskey, 1995; NSDC, 2001);
- > Application of knowledge about adult learning, including principles of active learning and prior knowledge (Darling-Hammond & Ball, 1996; NSDC, 2001; U. S. Department of Education, 1999);
- > Opportunities for focused analysis and reflection (Darling-Hammond & Ball, 1996; Smylie & Conyers, 1991; Stein, Smith, & Silver, 1999);
- > Duration of instructional contact associated with the professional development (Loucks-Horsley & Matsumoto, 1999; U. S. Department of Education, 1999, 2002);
- > Development of a teacher learning community (Bransford, Brown, & Cocking, 2000; NSDC, 2001; Smylie & Conyers, 1991; Stein, Smith, & Silver, 1999);
- > Amount of guided practice and follow-up offered to teachers (Corcoran, 1995; Guskey, 1995; Joyce & Showers, 1988; NSDC, 2001); and
- > Consideration for the organizational context within which a professional development program is implemented (Corcoran, 1995; Fullan, 1995, 2000; NSDC, 2001; Stein, Smith, & Silver, 1999).

The Schools Attuned program is designed to incorporate these characteristics of high quality professional development. The delivery of the Schools Attuned program consists of phases, each phase designed to integrate additional characteristics of high quality professional development design. Currently, the program involves a minimum of 45 hours of facilitated course instruction over the course of a school year, access to online resources, observational tools, parent workshop modules, as well as participation in a networked learning community.

The All Kinds of Minds model of teacher change—phases of implementation—is based on a framework for supporting improvements in skill and growth in abilities in order to lead to positive results, such as better teaching and improved student outcomes. The model is derived in part from the work of Hall & Hord (2001) and the National Implementation Research Network (Fixsen, Naoom, Blase, et al., 2005).

While All Kinds of Minds continue to examine seminal research in professional development and apply findings to the program design, the Institute also conducts ongoing program evaluation throughout different phases of the Schools Attuned program. Evaluation is used to (a) inform and improve the design and delivery of the program; (b) assess the quality of its facilitators and curriculum; (c) determine changes in teacher decisions, attitudes, and instructional practices; (d) identify effects of those changes on student outcomes; and (e) discover trends that may then be further investigated through independent research.

The Schools Attuned program evaluation design is based on the premise that the first step in improving students' lives in school through the professional development of educators is to ensure that educators participate in a program that they value, find useful, and from which they gain knowledge and skills (Guskey, 2002). Guskey's research on how best to evaluate the impact of professional development on student achievement has resulted in a framework of five critical levels of program evaluation.

The first level of evaluation involves assessing participants' reactions to the professional development experience. The second level of the framework focuses on measuring participants' acquisition of new knowledge and skills. The third level relates to changes in the organization, procedures, and climate of schools due to use of an innovation. The fourth level of professional development evaluation assesses participants' use of new knowledge and skills. Finally, the fifth level of evaluation involves assessing the effects of the innovation on student outcomes. Each of these five levels is important to providing data on the quality and impact of a professional development program.

During the Schools Attuned program, All Kinds of Minds uses daily written reflections, survey questionnaires, focus groups, and portfolio documentation to gather evidence of participant reaction to the course and its facilitators; to assess the knowledge and skills that participants gained as a result of the program; and to gather educator reports on the impact of the Schools Attuned program at the individual student, whole classroom, and school wide levels. The results of these analyses inform the content, format, and organization of the Schools Attuned program.

In addition to the use of ongoing internal program evaluation, All Kinds of Minds recognizes the importance of advancing evidence-based scholarship by external evaluators on the impact of its programs.

III. Program Impact

The Institute's research agenda to assess the impact of the Schools Attuned program is founded on scientifically rigorous principles, including the gathering of evidence from independent researchers.

Since 2000, All Kinds of Minds has proactively stimulated research in the field by encouraging and supporting the work of independent researchers studying its programs. The following section provides an overview of independent studies conducted from 2000 to 2007. Full reports for each study are available upon request via email from research@allkindsofminds.org.

Independent Research: Study Designs and Methodology

Early Studies: 2000 – 2003

From 2000 to 2003, several independent research studies submitted to the Institute suggested promising findings of the Schools Attuned program's positive impact on student academic performance, teacher understanding of students with learning differences, and teacher ability to help struggling students be more successful.

Schools Attuned: Effects on educators and students. Chapel Hill, NC: O'Sullivan and Associates; Evaluation, Assessment, & Policy Connections. Principal Investigator: R. O'Sullivan (2001)

Researchers at the University of North Carolina-Chapel Hill utilized survey research to examine: (1) the percentage of educators who continued using the Schools Attuned program after participation, (2) what educators were doing differently as a result of the program, and (3) the effects of the program on both educators and their students. Three questionnaires were designed and disseminated to North Carolina participants who participated in the program prior to 2000-01, North Carolina participants who participated in the program in 2000-01, and participants from California, Hawaii, Michigan, New Jersey, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, and Texas who had participated in the program in 2000. Surveys were collected from 382 elementary and middle school educators by web, paper/pencil, and phone interview.

Oklahoma Schools Attuned 2002 program evaluation. Norman, OK: Education Evaluation Associates. Principal Investigators: E. Bontempi and S. S. Nash (2002)

The Oklahoma Department of Education and Education Evaluation Associates in Norman, Oklahoma, associated with the University of Oklahoma, conducted an evaluation of the Schools Attuned program at six Oklahoma schools (public and private) that had been using the program since 1999. This mixed methods design examined the effects of the program on educators' knowledge and skills, as well as on students' attitudes and academic achievement. Researchers collected end-of-year surveys from 61 teachers and 522 students from 6 elementary and middle schools and conducted in-depth reviews of student records and case studies with 40 students who had gone through the Attuning a Student process.

Evaluation report: Project STYLE. Sulphur Springs, TX: Texas A&M University-Commerce. Principal Investigator: G. S. Gates (2002)

In 2001, Project STYLE (Students and Teachers Yearning to Learn Effectively) was initiated in an Independent School District in Texas. This program was designed to provide teachers with the necessary resources to instruct students with a variety of learning needs through professional development, student assessment techniques, teaching strategies, additional personnel, and on-going support. A major component of Project STYLE is the Schools Attuned program.

This evaluation study combined pre/post test assessment of standardized test scores, document review, and semi-structured interviews at one elementary school. Two measures of student academic achievement were used: (a) Texas Primary Reading Inventory (TPRI) and (b) Texas Assessment of Academic Skills (TAAS). Researchers analyzed TPRI reading and math scores for 1st and 2nd grade students and TAAS reading and math scores for 3rd and 4th grade students. Semi-structured interviews were conducted with 9 elementary school faculty to gather information about professional development, teacher outreach, and contact activities with parents of students. Student records were reviewed to obtain information about student discipline and special education referrals.

North Carolina Schools Attuned: 2001 outcome information. Chapel Hill, NC: O'Sullivan and Associates; Evaluation, Assessment, & Policy Connections. Principal Investigator: R. O'Sullivan. (2002)

This post intervention study was conducted by researchers at the University of North Carolina-Chapel Hill to examine achievement results for 216 students in grades K-8 to whom Schools Attuned strategies had been consistently applied, including 83 students who had been "attuned" using the Schools Attuned tools and methodology. Schools Attuned participants identified three students with whom they had worked continuously throughout the school year and achievement data were collected for each student, including North Carolina End-of-Grade test scores and course grades. End-of-grade data were collected for students over three years to determine growth rates during the years where the Schools Attuned program was being implemented. Course grades were also collected. Finally, teacher ratings were used to measure the impact of the program for students experiencing academic, social, and/or behavioral difficulties. Ratings were compared from the beginning and end of the school year.

Schools Attuned Jewish Day School evaluation report. New York, NY: Sophron, Inc; Teachers College, Columbia University. Principal Investigator: G. Pack (2002)

The Nash Family Foundation commissioned a study through an independent evaluation team led by Dr. Gladys Pack of Sophron, Inc. and the Teachers College at Columbia University. Investigators sought to assess the impact of the first phase of the Schools Attuned program on teacher knowledge, efficacy, and instructional decisions for a group of 25 educators. Participants included 14 classroom teachers, 3 administrators, and 8 related service professionals representing 11 different Jewish Day schools in the tri-state area of New York, New Jersey, and Connecticut.

Data collection included review of participant reflections on the Schools Attuned course, pre-participation and post-participation surveys about participants' beliefs and instructional practices, pre- and post-open ended questions regarding initial reasons for taking the course and the impact on their beliefs and approaches, and site visits with interviews to determine carry over from the course to the classroom.

Schools Attuned program evaluation 2003: The report card study. New York, NY: Teachers College, Columbia University. Principal Investigator: S. W. Ort (2003)

The Nash Family Foundation funded a study conducted by an independent evaluator to assess the impact of participation in the Schools Attuned program on Jewish Day Schools in the tri-state area of New York, New Jersey, and Connecticut. Document review was conducted on written progress reports produced by 27 teachers from 10 schools to address the question of whether the Schools Attuned course "shows up" in how teachers write about their students in yearly, bi-annual, or trimester report cards. One hundred and fifty-eight student report cards written prior to the course were compared to those written in the year following the course. Analysis was conducted using a rubric to assess teachers' reports of students in terms of tone, focus on strengths, and collaborative stance.

Institute Funded Request for Proposals: 2003 – 2007

Based on the 2000 to 2003 studies' findings—and emerging national education issues—All Kinds of Minds launched a major research initiative to advance evidence-based scholarship about the work of the Institute in March 2003. The Institute acquired a grant from the Tremaine Foundation to support the development and release of a Request for Proposals (RFP). The purpose of this RFP was to identify and support rigorous, high quality research on the impact of the Schools Attuned program on students, teachers, and schools.

The RFP process involved a two-stage independent peer review procedure. The Institute recruited a panel of eight highly qualified and well-respected educational researchers to carry out independent review of the proposed research studies. Each panel member had extensive experience and expertise in educational research design and methodology.

Based on this RFP and review process, the following three research studies of the Schools Attuned program were funded by the Institute in 2003.

A research study to measure the impact of Schools Attuned on special education. Durham, NC: WESTAT. Principal Investigator: T. A. Fiore (2006)

The Westat study was carried out in four consecutive phases. In Phase 1, researchers used qualitative inquiry to identify the most important factors related to special education to be effected by the Schools Attuned program. This phase of the study involved 76 respondents from 7 schools in the Northeast, Mid-Atlantic, Southwest and Southeast regions. Participants included general and special education teachers, school administrators, and parents.

In Phase 2, researchers explored and defined in greater detail the variables that emerged from Phase 1 and piloted qualitative and quantitative data collection instruments and methods. Fourteen public elementary schools in the Northeast, Midwest, and Southwest regions participated in this phase of the study. Seven of these schools had been implementing the Schools Attuned program for at least 2 years. The remaining seven schools were comparison schools, matched in terms of size and demographic characteristics.

Phase 3 used data collection instruments developed during Phase 2 of the study to explore paths of implementation of the Schools Attuned program across 11 public elementary schools in the Northeast, Midwest, and Southwest regions of the country. School, teacher, and parent surveys were collected as pre-post measures, before and after the Schools Attuned program experience. Follow-up interviews and classroom observations were also conducted at 5 of the schools.

The final phase of the study used a quasi-experimental pretest-posttest comparison group design.. Westat questionnaires and standardized rating scales were collected to examine the impact of the Schools Attuned program on 62 teachers' attitudes and behaviors and on 213 students' learning and behavior from 5 schools in the Northeast and Central regions. Interviews and site observations were also conducted to examine effects not necessarily captured by quantitative measures and explore the causal connections between the Schools Attuned program and the quantitative outcomes.

Evaluating the effects of Schools Attuned on teaching practices and student achievement. Amherst, MA: The Center for Educational Assessment, University of Massachusetts Amherst. Principal Investigators: S. G. Sireci and L. A. Keller (2007)

This postintervention study involved two major components. The first component was a large-scale survey of teachers and other educators in North Carolina (n=235) and Oklahoma (n=181) who had participated in the Schools Attuned program. Four hundred and twenty-one educators reported on the strengths and limitations of the Schools Attuned program, their use of Schools Attuned teaching strategies and practices, and the effects of the program on student outcomes.

The second component of the study involved comparison group analyses using statewide standardized student achievement data. In one set of analyses, researchers examined the performance of North Carolina students on the state's End-of-Grade Math and Reading tests. These analyses used student-level data for grades 3 through 8 for the years 2003, 2004, and 2005.

A second set of analyses examined the performance of Oklahoma students on that state's statewide Math and Reading tests. These analyses used data for students in grades 3 through 8 for the years 2005 and 2006. However, to maintain anonymity, the data supplied to the research team

by the Oklahoma State Department of Education only included data at the classroom level; individual student data were not available for these analyses.

Schools Attuned and mentor applications of Schools Attuned. San Francisco, CA: WestEd. Principal Investigators: N. Tushnet and T. McCormick (2007)

This independent study examined the effects of the Schools Attuned program on students, teachers, and schools. In addition, the elements and potential benefits of mentoring programs were explored.

WestEd divided this mixed-methods study into three components. The first component was broad in scope and examined the Schools Attuned program in multiple school settings. Participating in the broad study were 17 administrators, 159 SA teachers, 166 comparison teachers from 21 schools from both northern and southern California. Public, private, and charter schools were represented encompassing grades K-12. The second component focused on an in-depth examination of a subset of 7 schools from the broad study. The final component was an exploratory examination of the characteristics and potential benefits of mentoring programs.

Data across the study were derived from classroom observations; interviews with teachers, school administrators, parents, and mentors; focus groups; and teacher surveys. Data were collected on the effect of the Schools Attuned program on students, both at the individual student and the whole class levels, and on teachers' knowledge, instructional practices, and attitudes.

Additional Independent Research Studies: 2004 – 2007

Several additional independent research studies have been submitted to the Institute since 2004. Some of these studies were commissioned by All Kinds of Minds and funded through grants; other studies were conducted independent of any All Kinds of Minds funding. These studies offer additional insight about the use and impact of the Schools Attuned program.

Comprehensive school reform grant evaluation (Cycle 1) Scio Central School. Olean, NY: Cattaraugus-Allegany Board of Cooperative Educational Services. Principal Investigator: A. Wolfe (2004)

Scio Central School, located in rural Allegany County in western New York, implemented three national research models using Comprehensive School Reform Grant funds. The Schools Attuned program was the framework within which two initiatives worked concurrently in technology and mathematics curricula. This study examined the impact of the reform upon student achievement as well as the implications for the efficacy of the Schools Attuned program as an agent for educational reform within the Scio Central School.

Qualitative and quantitative methods were utilized, including in-depth questionnaires, classroom observation, and document review. Data were gathered in relation to school administration and a cross-institutional committee focused on implementing the Schools Attuned program. Documents from the activities of the committee were analyzed and questionnaires were completed by the principal and district superintendent. In addition, 6 teachers who had participated in the Schools Attuned program completed questionnaires and were observed by an independent researcher using a behavioral rubric based on components of the Schools Attuned program. Finally, 20 students whose teachers had implemented aspects of the Schools Attuned program completed questionnaires. Researchers also intended to collect Terra Nova Test standardized achievement data, but due to the lack of comparative data available at the time of the study, those analyses were not conducted.

Schools Attuned: A report of classroom implementation based on teacher self-reporting. Denton, TX: University of North Texas. Principal investigator: B. A. Ashmore (2005)

In this study conducted by Dr. Barbara A. Ashmore of the University of North Texas and submitted to The Learning Center of North Texas and the Texas Business & Education Coalition, the researcher examined the degree to which 10 K-3 teachers from a single rural Texas school district implemented Schools Attuned strategies and concepts in their classrooms. The researcher conducted one on one in-person interviews using a structured protocol based on a behavioral rubric representing components of the Schools Attuned program. In addition, teacher demographic data were gathered from school administrators and/or study participants.

Schools Attuned training: Teachers' survey. Santa Barbara, CA: University of California, Santa Barbara. Principal Investigator: S. Crandell (2005)

In 2005, the Orfalea Foundation commissioned an independent evaluator to conduct a pilot study to investigate the impact of the Schools Attuned program on teachers, classroom practice, and student success within 4 schools (2 public, 2 private) in the Santa Barbara, California area. Researchers surveyed 24 teachers who had participated in the Schools Attuned program between 2001 and 2004. Data were gathered regarding the extent to which teachers reported change in their knowledge and understanding of students, in their classroom practices, and in outcomes for their students attributable to the School Attuned program.

Schools Attuned opinion survey summary report. Lafayette, IN: Indiana Design Consortium, Inc. Principal Investigator: L. Hendrickson (2005)

Funded by a grant from the Lilly Endowment and private contributions, the Russell & Mary Williams Learning Project at Park Tudor School, Indianapolis, Indiana, partnered with subject-matter experts to host the Schools Attuned program. Park Tudor School commissioned the Indiana Design Consortium, Inc. to perform an evaluation of the value of the Schools Attuned program across 4 area schools. Data were collected via in-depth telephone interviews with 16 educators who had participated in the Schools Attuned program (9 teachers, 4 administrators, and 3 tutors).

Program evaluation report for Project STYLE (Students and Teachers Yearning to Learn Effectively). Sulphur Springs, TX: Sam Houston State University, Huntsville; Texas A&M University-Commerce. Principal investigators: J. P. Combs and S. H. Jackson (2006)

In 2001, Project STYLE (Students and Teachers Yearning to Learn Effectively), was initiated in an Independent School District in Texas. This program was designed to provide teachers with the necessary resources to instruct students with a variety of learning needs through professional development, student assessment techniques, teaching strategies, additional personnel, and on-going support. A major component of Project STYLE is the Schools Attuned program. At the request of district representatives, an independent evaluation of the district program was conducted during year 5 of its implementation. In this evaluation, Project STYLE and the Schools Attuned program were considered interchangeable terms for describing the program in the district.

The purpose of this study was to examine the impact of the program on student academic outcomes, on teachers' knowledge and instructional practices, and on referrals to special education. Multiple quantitative and qualitative methods of data collection were employed in the study. Questionnaires were completed by 83 teachers who had completed the Schools Attuned program and interviews were conducted with 17 district personnel. In addition, a variety of school documents were reviewed and achievement data were gathered for a total of 135 students.

A better way of doing business: Embracing student strengths to improve teaching and learning. An initial evaluation of the Schools Attuned program in the New York City public school system. Raleigh, NC: Harman & Associates, LLC. Principal Investigator: A. E. Harman (2006)

In 2003, New York City Mayor Michael Bloomberg and Schools Chancellor Joel Klein announced a comprehensive set of reform initiatives designed to improve instructional programs for special needs students in the New York City public school system. Central to this agenda was the system-wide adoption of two nationally recognized instructional approaches, one of which was the Schools Attuned program.

This mixed methods study, conducted by Harman & Associates, LLC, consisted of a preliminary evaluation of the use and impact of the Schools Attuned program in New York City schools. Data were collected via survey research and individual interview. In-depth telephone interviews were conducted with 23 administrators from 10 different public NYC schools identified as having adopted the Schools Attuned program as a component of their instructional improvement efforts during the 2003-04 through 2005-06 academic years. Post intervention survey data were also gathered from 51 teachers at these schools who had participated in the Schools Attuned program.

Investigational study of Schools Attuned-trained teachers and their students in Ft. Worth Independent School District. Dallas, TX: University of Texas at Dallas. Principal investigators: B. A. Ashmore and W. L. Holcombe (2007)

Investigators from the University of Texas at Dallas conducted a post intervention quantitative investigation into the relationship between teacher and principal participation in the Schools Attuned program and the academic performance of students in the Ft. Worth Independent School District. Measures used to assess student academic performance included Texas state accountability assessments, year-to-year transitions, on-time grade promotion, and retention mobility within district. Investigators also examined whether there was a relationship between teacher participation in the Schools Attuned program and teacher retention and mobility within district. Data were collected on grades 3-6 teachers and their students from 32 schools in the district. Descriptive and inferential statistics guided the data analysis at both the student and teacher levels.

Exploring teacher change in response to a professional development program. Chapel Hill, NC: University of North Carolina, Chapel Hill. Principal Investigator: A. L. Dyson (2007)

In this study the researcher drew on techniques of qualitative inquiry to gain an in-depth understanding of how individual teachers changed their behaviors and thinking during their first year of involvement with the Schools Attuned program. Participants in the study included educators from one elementary school in North Carolina, including 10 educators (i.e., classroom teachers, specialists, and the school principals) who had participated in the Schools Attuned program and 7 classroom teachers from the same school who had not participated in the program. In addition, the degree to which Schools Attuned strategies were integrated into the school's Assistance Team (or pre-referral team) process was examined. A variety of data collection techniques were utilized over the course of the study in order to examine teacher change and the impact of the program on school processes and procedures. Interviews, observations, problem-solving vignettes, concept mapping, questionnaires, historical data, and program evaluations provided data for exploring the ways in which participating in the Schools Attuned program led to teacher and school change.

A portraiture study of the Student Success New York City Program at P.S. 246. Durham, NC: Center for Documentary Studies, Duke University. Principal Investigator: A. Lightfoot (2007)

In 2005, All Kinds of Minds began working with P.S. 246, a public elementary school in the Bronx to provide clinical assessments for students through the Student Success Program and professional development for educators through the Schools Attuned program. The project, the All Kinds of Minds New York City Project, was designed to increase success in school and life among economically disadvantaged elementary school students whose teachers had identified as having learning difficulties.

This portraiture study conducted by Dr. Alexandra Lightfoot sought to evaluate the projects' quality and impact on parents, students, teachers, and the school community via interview methodology, site observations, and portraiture case study methodology. Using student photography, 20 student participants had the opportunity to represent themselves, their thoughts, their voices, and their visions offering a unique and effective way to tap into the students' perspectives on their experiences during the school year with the Student Success Program and Schools Attuned program.

The IEP study: Evaluation of the Schools Attuned professional development program. New York, NY: Teachers College, Columbia University. Principal Investigator: S. W. Ort (2007)

This study was designed to assess the impact of participation in the Schools Attuned course on Individualized Education Program team members (e.g., special and general education teachers, school psychologists). The researcher examined yearly revised Individualized Education Plans (IEPs) to determine if there was a measurable difference in the nature and quality of educators' writing of IEPs and the extent to which IEP writers incorporated ideas associated with the Schools Attuned program.

Investigators collected IEPs written by 10 Region 5 NYC high school educators prior to the course and then again in the school year following the course. Pre and post IEPs were written by the same educators, but about different students. One hundred and fourteen IEPs were scored using a rubric which identified four key dimensions related to Schools Attuned constructs and practices as potentially expressed in IEPs: tone, focus on strengths within description of student, collaborative stance, and connecting teaching strategies to learning profile.

Evaluation of the All Kinds of Minds New York City Project. Wake Forest, NC: Watts-English & Associates, LLC. Principal Investigator: T. L. Watts-English (2007)

This study was designed to evaluate the effectiveness of the All Kinds of Minds New York City Project, a project which combined the provision of clinical assessments for students through the Student Success Program with the professional development of educators through the Schools Attuned program. This project was designed to increase success in school and life among economically disadvantaged elementary school students whose teachers had identified as having learning difficulties. The project was initiated at P.S. 246, a public elementary school in the Bronx in 2005-07, and expanded to P.S. 145, a public elementary school in Brooklyn in 2006-07.

A variety of quantitative and qualitative methods were employed in this study, including post intervention survey research, pre/post analysis of standardized rating scales, pre/post assessment of standardized student achievement data, document review, and interview methodology. Data were gathered for 110 students, 48 parents, and 36 educators in order to assess the impact of the project on students, parents, and teachers. Specifically, researchers examined the effect of the project on students' self-esteem, self-understanding, attitude toward school, engagement in learning, and academic performance; on parents' understanding of their child's learning and the parents' ability to help their child succeed in school; and on teachers' knowledge and skills in recognizing and addressing students' specific learning needs.

Results across Independent Research Studies: 2000 – 2007

For any education program or initiative such as the Schools Attuned program, it is important to look at the cumulative research evidence available to understand the benefits and impacts of the program, as well as opportunities for improvement and growth. In addition to the large-scale independent research studies developed through the RFP process, the Institute has continued to stimulate research in the field by encouraging and supporting the work of many independent

researchers studying the Schools Attuned program. Since 2000, twenty independent research studies have been submitted to All Kinds of Minds. These studies have incorporated a mix of quantitative and qualitative methodologies to determine the impact of the program across a variety of states and regions. In addition, many individual schools and districts have collected their own internal data on the impact of the program on fundamental issues for their locales.

Examining the results of the independent research on the Schools Attuned program completed between 2000 and 2007, several themes emerge. These themes are organized below according to: Impact on Teachers, Impact on Students, Impact on Educational Systems, and Supporting Intended Outcomes.

Impact on Teachers

Theme 1: Teachers develop and demonstrate expertise regarding differences in learning

Virtually every study of the Schools Attuned program has documented educators' increased understanding of students as learners, improved abilities for recognizing differences in learning, and greater confidence for working with diverse learners as a result of the program.

- An analysis of teachers' responses to survey questions about the effects of the Schools Attuned course on teachers' instructional skills showed that most teachers believe the course enhanced their understanding of student learning and learning differences (n=331, 81.9%) (O'Sullivan, 2001).
- Results from an evaluation with six Oklahoma schools (Bontempi & Nash, 2002) indicated that participating in the Schools Attuned program increased teachers' belief that they could make a difference. Specifically, 90% had new insight into why favorite teaching approaches are effective, and 87% had greater confidence in their ability to be effective as a teacher in the upcoming year, due to the Schools Attuned program. In addition, 91% of teachers believed the Schools Attuned program helps teachers better understand how to be more effective in teaching or managing programs or schools that include at-risk students.
- During survey research with 24 teachers in the Santa Barbara, California area, 92% of teachers reported that the Schools Attuned program had changed their understanding of students with learning challenges, 100% believed they learned new things about how students learn, and 88% reported increased confidence in working with students with learning challenges (Crandell, 2005).
- Based on in-depth interviewing, evaluators in an Indiana study concluded that teachers had "a greater overall appreciation for their students" (p. 7), "a holistic awareness of the different learning styles of students" (p. 8), and had been "affirmed as teachers" (p. 8) due to their participation in the Schools Attuned program (Hendrickson, 2005).
- An analysis of telephone interviews with 23 New York City public school system administrators found that they believed teachers who had participated in the Schools Attuned program demonstrated an increase in their belief that students with learning challenges can succeed; a greater skill in noticing how students learn; a better understanding of how students learn; an increased use of new and different teaching strategies; and a greater ability to describe how students learn to other teachers, administrators, support personnel, and parents (Harman, 2006). Survey analysis also showed that among the 51 responding teachers:
 - > 80% experienced an increase in their overall understanding of how students learn;
 - > 84% noticed students' strengths and weaknesses in terms of specific, observable behaviors; and

- > 82% experienced an increase in their ability to address the learning needs of students.
- In a 2006 follow-up evaluation of teachers' participation in Project STYLE (Students and Teachers Yearning to Learn Effectively), researchers concluded that participation in the Schools Attuned program had impacted teachers' knowledge and efficacy levels. A majority of teachers reported that they understood learning better (92%), were a better judge of specific students' learning needs (89%), and had developed the skills necessary to improve the academic performance of students (84%) (Combs & Jackson, 2006).
- Researchers conducting a four-phase study found that teachers who participated in the Schools Attuned program had increased confidence for working with diverse students and struggling learners. Teachers (n=79) from schools using the Schools Attuned program in Phase 2 rated their abilities equal to or above ratings by comparison teachers (n=128) on five out of eleven instructional behaviors, including planning effective lessons, using appropriate instructional techniques, adapting instruction for children with Individualized Education Programs (IEPs), accommodating the instructional needs of culturally and linguistically diverse students, and collaborating with special education teachers. Due to the small number of teachers in the samples, no tests of statistical significance were done. During Phase 4, many teachers reported increased awareness of and ability to deal with diverse students and struggling learners due to participating in the Schools Attuned program. Quantitative results from the Ohio State Teacher Efficacy Scale showed that teachers participating in the Schools Attuned program scored above comparison teachers on self-efficacy for instructional strategies (+.18) and classroom management (+.10). Teachers participating in the Schools Attuned program also gained an average of .17 in overall self-efficacy from fall to spring as compared to no gain among comparison teachers (average change of .00). While results were promising, differences were not statistically significant (Fiore, 2006).
- Teachers reported that participating in the Schools Attuned program aided their identification of individual students' strengths and weaknesses and provided them with interventions and accommodations that could be used in the classroom to address the students' specific needs. Participating in the Schools Attuned program also influenced the ways teachers observed students, the process by which they identified student problems, and the manner in which they addressed students' learning needs. When examining pre-post case study analyses, the researcher observed that teachers defined problems using more neurodevelopmental terminology rather than academic areas and were less prone to identify students' difficulties as behavior problems at the end of the school year. Also at the end of the year, two participants indicated they needed more information than was provided in the vignettes to identify student problems because the Schools Attuned program had taught them to look more deeply when identifying students' strengths and weaknesses, rather than "jumping to conclusions" (Dyson, 2007).
- Based on classroom observations and teacher report, researchers concluded that participating in the Schools Attuned program increased teachers' confidence and willingness to work with students before prematurely referring them for special education services. In addition, data from a survey using a 5-point scale (1 = great decrease to 5 = great increase), showed increases in teachers' understanding of learning challenges (M = 4.44, SD = .56), overall understanding of how students learn (M = 4.32, SD = .61), confidence in working with student learning challenges (M = 4.18, SD = .65), and seeking resources to work with students with learning challenges (M = 3.98, SD = .69) (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties included a subset

of educators that had participated in the Schools Attuned program. Surveys from these teachers (n=12) indicated that use of the Schools Attuned program had increased their ability to identify and address the special learning needs of their students (100%), their belief that students with learning challenges could succeed (83%), and the likelihood that they would work with students with learning challenges before referring them for other school services (83%) (Watts-English, 2007).

Theme 2: Teachers better understand students' strengths and interests, and how those strengths and interests can serve as pathways to school success

Several studies have shown that, as a result of participating in the Schools Attuned program, teachers gain empathy toward struggling learners and are more likely to leverage students' strengths and affinities in order to improve student outcomes.

- Results from an evaluation with six Oklahoma schools (Bontempi & Nash, 2002) indicated that participating in the Schools Attuned program positively impacted teacher beliefs and behavior related to working with struggling students to support school success. Specifically, 91% of teachers believed the Schools Attuned program helps the teacher better understand how to be more effective in teaching or managing programs or schools that include at-risk students, 88% planned to take extra time to identify students who may benefit from the Schools Attuned approaches, and 91.5% believed the Schools Attuned program can help develop strategies for students so they can use their strengths to succeed in all aspects of academic life.
- During open-ended responses in an evaluation with Santa Barbara, California teachers, many respondents elaborated on how their instructional strategies had changed as a result of the Schools Attuned program, including focusing more on finding strengths in order to help facilitate challenges, using a variety of modalities to match students' strengths, and talking with students about their strengths as a way of having them share in the responsibility of their own learning (Crandell, 2005).
- Interviews with teachers from three schools in Indianapolis, Indiana revealed how teachers had developed a greater overall appreciation for their students' different abilities and different ways they learn (Hendrickson, 2005).
- In the 2006 evaluation of the Schools Attuned program in the New York City public school system (Harman, 2006), the researcher found 69% of teachers reported regularly using Schools Attuned concepts and strategies to provide specific opportunities for students to strengthen their strengths and 71% of teachers regularly implemented strategies that leveraged their students' affinities.
- During in-depth interviewing, Schools Attuned participants discussed students' strengths more often than non-participants when describing students' learning difficulties and how they would address their struggles in the classroom. On a class-wide level, participants reported teaching and encouraging the use of Schools Attuned strategies and focusing on students' strengths and affinities to increase student learning. Several participants made references to how they have always considered and incorporated students' strengths, but that participating in the Schools Attuned program took their understanding of the role that strengths could play in learning to a new level (Dyson, 2007).
- An evaluation of the effects of the Schools Attuned program on teaching practices (Sireci & Keller, 2007) found that when teachers were asked to respond to the question, "What do you feel are the most positive aspects of Schools Attuned?" the most frequently endorsed categories regarding the strength of the Schools Attuned program were related to understanding students' learning differences. Specifically, 32.6 % of participants spoke of their

increased abilities to identify student strengths due to the program. Researchers concluded that, "Clearly, it is a strong feeling among the respondents that the Schools Attuned model helps identify student strengths and weaknesses, provides strategies to deal with the weaknesses, and helps students and teachers alike learn more about learning differences" (p. 35).

- Researchers found that participating in the Schools Attuned program had positive effects on teacher understanding and perceptions of student learning challenges. Teachers increased their empathy and sympathy for students who were struggling and 93.3% of teachers reported they learned new information about how students learn as a result of participating in the program (Tushnet & McCormick, 2007).
- One hundred percent of educators surveyed in an evaluation in two NYC schools (n=36) reported that they better understood their students' assets and weaknesses and that student-teacher interactions had improved (Watts-English, 2007).

Theme 3: Teachers apply clear, specific, actionable strategies to manage differences in learning

Many studies have documented the ways in which teachers implement the Schools Attuned program with individual students, small groups, and within whole classrooms in order to help students overcome barriers to learning.

- Post-course to pre-course surveys were assessed to investigate the impact of the first phase of the Schools Attuned program on teacher knowledge, efficacy, and instructional decisions for a group of 25 educators (Pack, 2002). Teachers reported increases on all items regarding their ability to create educational plans and select strategies to improve academic achievement of their students. For example, respondents who felt "well prepared" to:
 - > Identify and address the special learning needs of their students increased from 16% to 48%;
 - > Modify lessons to meet students' needs increased from 17% to 39%;
 - > Select strategies that improve academic achievement increased from 24% to 48%; and
 - > Work with students so they understand their learning strengths and weaknesses increased from 8% to 30%.

- In an evaluation with 24 Santa Barbara, California area teachers, respondents indicated that after participating in the Schools Attuned program:
 - > 75% had implemented Schools Attuned strategies, interventions, or accommodations with individual students;
 - > 50% had implemented Schools Attuned strategies, interventions, or accommodations with small groups of students; and
 - > 45% had implemented Schools Attuned strategies, interventions, or accommodations with the whole class.

However, 38% reported that they did not have the time to regularly implement Schools Attuned strategies in their classrooms (Crandell, 2005).

- Based on in-depth interviewing, evaluators in a small study in Indiana concluded that teachers who had participated in the Schools Attuned program had "thrown away old labels they used to use to put on students" (p.8) and had "adopted certain changes as a result of the program" (p.10) (Hendrickson, 2005).

- Survey responses in a NYC evaluation indicated that 80% of teachers experienced a “Moderate Increase” or “Great Increase” in their ability to create educational plans and select strategies to improve the academic achievement of their students. Eighty-two percent of teachers reported regularly using the Schools Attuned program to identify accommodations and interventions to help their students, 63% of teachers reported regularly monitoring the impact of the strategies they used and making adjustments accordingly. While 76% of teachers reported conducting demystifications with their students to help them understand their own strengths and weaknesses, only 48% reported also including parents in these demystification conversations (Harman, 2006).
- When describing their strategy use with students, Schools Attuned participants indicated that the program provided them with new ideas for strategies, influenced the ways they selected strategies for students, and encouraged them to teach students to use strategies independently. Although all classroom teachers who participated in the study indicated that they used accommodations and interventions from the Schools Attuned program, several participants discussed specifically how the program provided them with new ideas for strategies and increased the diversity of strategies they used in their classrooms. A content analysis of concept maps was conducted to understand how teachers who did and did not participate in the Schools Attuned program described the ways they approached meeting the needs of diverse learners in their classrooms. Overall, Schools Attuned participants included many more student characteristics in their concept maps, such as students’ interests and affinities to incorporate these into their teaching and ways they considered students’ personalities and social skills when deciding how to create a learning atmosphere where diverse students could succeed. In contrast, most non-participants did not mention ways students’ academic levels or other personal characteristics impacted how they, as teachers, structured learning activities in their classrooms (Dyson, 2007).
- When surveyed, teachers reported high frequency of implementation of Schools Attuned strategies and practices and felt confident with respect to the way they implemented these strategies and practices. Educators reported using Schools Attuned strategies to protect students from humiliation (mode rating = Always), modify instruction based on learning profiles (mode rating = Frequently), and encourage students to use strategies to manage their own learning profiles (mode rating = Frequently) (Sireci & Keller, 2007).
- Based on intensive classroom observations, researchers concluded that the Schools Attuned program positively affected teachers’ instructional practices. Researchers observed statistically significant differences between teachers participating in the Schools Attuned program (n=33) and matched non-participating teachers (n=26); participating teachers more often initiated assistance or help to students ($t = 4.22, p < .01$), provided clear expectations to students ($t = 4.13, p < .01$), encouraged active participation from all ($t = 2.93, p < .01$), and better managed disruptions in the classroom that could have resulted in discipline referrals ($t = 3.45, p < .01$). The addition of mentoring services was also beneficial to both the schools and teachers, providing additional support for implementing the Schools Attuned program in their classrooms, including attuning individual students and adopting classroom strategies to help all students learn. School administrators reported observable differences in instructional practices after a teacher returned from the Schools Attuned course, and between teachers who did and did not participate; participants were more strategic about their teaching and more purposeful in their lesson planning and instruction than prior to attending the course (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties included a subset

of educators that had participated in the Schools Attuned program. Surveys from these teachers (n=12) indicated that use of the Schools Attuned program had increased their ability to create educational plans and select strategies to improve their students' academic achievement (92%), and their ability to work with families to better understand students and support their learning (92%) (Watts-English, 2007).

Impact on Students

Theme 1: Students experience increased self-esteem and self-confidence

Studies have consistently found that a major benefit of the Schools Attuned program is the resulting improvements in students' self-esteem and confidence in their own abilities.

- Researchers surveyed a random sample of students in grades 2 through 4 in schools where teachers were participating in the Schools Attuned program (Bontempi & Nash, 2002) and found "an atmosphere conducive to learning, self-confidence, and [students'] belief in their own abilities to succeed both academically and socially." Eighty-five percent or more of students believed the following about themselves:
 - > They can become better readers;
 - > They can become better at solving math problems;
 - > They can make friends;
 - > They can organize themselves when they need to work; and
 - > They can become better students.
- In an evaluation of teachers' participation in Project STYLE (Students and Teachers Yearning to Learn Effectively), researchers surveyed 83 teachers and interviewed 17 teachers. The most frequently reported gains for students related to increased self-esteem and confidence (Combs & Jackson, 2006).
- In an evaluation of the Schools Attuned program in the New York City public school system (Harman, 2006), the researcher found 63% of teachers reported increases in student self-esteem related to school.
- An evaluation of the effects of the Schools Attuned program on teacher and student outcomes (Sireci & Keller, 2007) found that 91% of teachers reported positive effects on students' self-concept due to use of the Schools Attuned program.
- Based on interviews and survey responses about their perception of changes in students, teachers reported improved self-esteem for individual students whom they attuned. Using a 5-point scale (1 = great decrease to 5 = great increase), teacher survey results (n=172) also showed an increase in students' self-concept due to participating in the Schools Attuned program (M = 3.84, SD = .76) (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties found that 91% of teachers (n=36) reported increased self-esteem for their students. Pre-post test comparisons on a standardized student self-rating scale (n=39) indicated that improvements for Self-Esteem were not statistically significant (p=.18), but improvements were statistically significant for Self-Reliance (p=.01) (Watts-English, 2007).

Theme 2: Students better understand their own strengths, weaknesses, and affinities

Many studies have reported improvements in students' abilities to identify and understand their own strengths and weaknesses, and have linked this greater self-awareness among students with an increased ability to cope with their own learning difficulties.

- Researchers surveyed 20 students in grades 5 through 8 in Scio Central District whose teachers were implementing the Schools Attuned program (Wolfe, 2004). Results indicated that students were gaining a better understanding of themselves as learners:
 - > 55% of students were "very confident" in their understanding of their own strengths;
 - > 75% of students understood "a lot" about their weaknesses as a student; and
 - > 65% knew "a lot more" about specific things they could do to help themselves with regard to areas in which they had difficulty.
- When surveyed, 21% of teachers reported a "Great Increase" and 42% reported a "Slight Increase" in struggling students' abilities in "coping with their learning differences," which they attributed to their use of the Schools Attuned program (Crandell, 2005)
- In an evaluation of teachers' participation in Project STYLE (Students and Teachers Yearning to Learn Effectively), 64% of responding teachers reported that students were more aware of learning difficulties (both their own and others') than before they participated in the project (Combs & Jackson, 2006).
- During interviews with 24 teachers, 66% reported that many struggling students were using new strategies to cope with their own learning challenges (Harman, 2006).
- In a four-phase evaluation, teachers (n=79) from schools using the Schools Attuned program consistently rated their students with Individual Education Plans as more self-aware and more capable of self-advocating than did teachers (n=128) from schools not using the program. During interviews within this same study, teachers participating in the Schools Attuned program reported improvements in students' ability to understand their learning strengths and weaknesses, and predicted this would be a long-term positive outcome for students (Fiore, 2006).
- During interviews and focus groups, teachers reported that attuned students were more knowledgeable about strengths and weaknesses, and had a better understanding of their personal learning profiles and needs. Using a 5-point scale (1 = great decrease to 5 = great increase), teacher survey results (n=172) also showed increases in students' abilities to cope with their learning difficulties (M = 4.01, SD = .68) (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties found that 88% of teachers (n=36) reported their students to have increased understanding of their own assets and weaknesses (Watts-English, 2007).

Theme 3: Students engage during learning and are motivated for school

Several studies have shown students to be more engaged in their own learning and more motivated for school in connection with their teacher's use of the Schools Attuned concepts and strategies.

- A random sample of fifth and sixth grade students who were in schools where teachers had participated in the Schools Attuned program and had been implementing the program for at least two years, found that 60% or more of students surveyed believed they were able to keep their attention focused, learn important concepts from texts or readings, study effectively for tests, manage time in order to have ample study time for class, and keep from being distracted by others. Researchers concluded that the environment encouraged positive attitudes where students believed they could self-regulate and that academic success was achievable (Bontempi & Nash, 2002).
- Researchers surveyed 20 students in grades 5 through 8 in Scio Central District whose teachers were implementing the Schools Attuned program (Wolfe, 2004). Seventy percent of students reported that they enjoyed school “a lot more” than the previous year, 60% reported that being in the classroom was “a lot more” fun compared to the previous year.
- Academic gains for students with IEPs were examined using the teacher-reported Academic Competence Evaluation Scales (Fiore, 2006). Results between fall and spring revealed that students (n=142) of teachers participating in the Schools Attuned program showed statistically significant growth in participation during class (+.26, $p = .000$). In contrast, comparison students (n=71) of teachers not participating in the Schools Attuned program gained just +10 ($p=.234$) from fall to spring. The difference between the groups (+.17), however, was not statistically significant ($p=.105$).
- Teachers from 10 focus schools in New York City reported improvements in students’ motivation to learn (58%), on-task behavior (74%), engagement in the learning process (58%), coping with their own learning difficulties (66%), academic self-esteem (63%), and disruptive or other negative classroom behavior (37%). Interviewed administrators stated that while it was too soon to see an increase in on-task behaviors or an increase in grades and test scores, many said they had seen a greater engagement in learning by students; an increase in their self-esteem related to school; and a use of new strategies to cope with their own learning challenges (Harman, 2006).
- An evaluation of the effects of the Schools Attuned program on teacher and student outcomes (Sireci & Keller, 2007) found that a majority of teachers reported their use of the Schools Attuned program to have positive effects on student-teacher relationships (91%), student motivation (88%), student attitudes toward school (87%), and student engagement (88%).
- During interviews and focus groups, teachers reported that due to the Schools Attuned program, students were more respectful when other students were struggling. When surveyed about changes at the classroom level, teachers (n=172) also reported slight increases in students’ active engagement during class time ($M = 3.80$, $SD = .66$) and in students’ attention during lessons ($M = 3.71$, $SD = .72$) (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties found that teachers (n=36) reported improved motivation for school (94%), improved attitudes toward school (90%), and increased engagement in learning (97%) for their students. Pre-post test comparisons on a standardized student self-rating scale (n=39) indicated improvements in Attitude to School and Locus of Control, though neither were statistically significant ($p=.19$ and $p=.13$, respectively) (Watts-English, 2007).

Theme 4: Students demonstrate select academic improvements

Some studies have documented improved academic skills, higher grades, and higher test scores for students in connection with their teacher's use of the Schools Attuned program. Other studies have not found significant academic gains related to the Schools Attuned program.

- In an evaluation of six Oklahoma schools using the Schools Attuned program (Bontempi & Nash, 2002), teachers reported that the program achieved positive results in student outcomes, including improvement in students' academic performance and positive self-concept. However, the researchers noted that many of the cases with the most improvement used additional strategies, including medication, counseling, and tutoring as part of their intervention plans. Students who had the most success appeared to have strong parental involvement, nurturing home environments, and follow through behavioral management at home.
- Positive outcomes were reported for student academic achievement, including strong improvements in reading accuracy (the percentage of students reading at an independent level in 2000-01 to 2001-02 grew by 33% for 1st graders and 36% for 2nd graders) and reading fluency (2nd graders began the 2001-02 year with an average reading fluency rate of 53 WPM (SD=23) and ended the year at a rate of 88 WPM (SD=32)). Additionally, 1st through 4th grade students' reading and math scores on the TPRI and TAAS increased steadily from 1998-99 to 2001-02 when broken down into the seven class intervals of the Texas Learning Index, a common score scale used by the Texas Education Agency for evaluation and reporting purposes (Gates, 2002).
- In 2002, researchers examined achievement results for 216 students to whom Schools Attuned strategies had been consistently applied (O'Sullivan, 2002). This study showed that from 1998-99 through 2000-01 the average reading growth of the 216 students studied increased from 2.18 to 5.50 scale score points. Growth was greatest from 1999-00 to 2000-01 when the Schools Attuned program was implemented. The researchers believe that it is plausible to conclude that the implementation of the Schools Attuned program in 2000-01 may have contributed to the increase. The study also found course grade improvements were most evident for reading (59% of the students showed improvement), followed by Language Arts (57% of the students showed improvement), and mathematics (47% of the students showed improvement).
- A pilot study in the Santa Barbara, California, area found that data did not suggest clear evidence of change to student success. Only 50% of teachers surveyed (n=24) reported changes to student performance due to the Schools Attuned program (Crandell, 2005).
- An evaluation investigating student outcomes using survey research and in-depth interviews (Combs & Jackson, 2006) found that:
 - > Student achievement data trends for grades 3 through 8 showed increases over four years, despite increases in student enrollment. Mean scores on Reading Texas Assessment of Knowledge and Skills (TAKS) increased from 91 to 98 for grade 3, 90 to 97 for grade 5, 80 to 95 for grade 6, 63 to 74 for grade 7, and 84 to 92 for grade 8. The mean Reading score for grade 4 decreased by 1 point, from 91 to 90 and remained steady at 85 for grade 7. Mean scores on Math TAKS increased from 78 to 92 for grade 3, 90 to 92 for grade 4, 84 to 97 for grade 5, 67 to 85 for grade 6, 63 to 74 for grade 7, and 62 to 72 for grade 8. Although a cause-effect relationship cannot be ascertained, researchers concluded that interventions such as the Schools Attuned program may have supported the observed student achievement gains.

- > 84% of teachers believed that Schools Attuned strategies helped them improve academic performance for students.
- Academic gains for students with IEPs were examined using the teacher-reported Academic Competence Evaluation Scales in a four-phase study (Fiore, 2006). Academic gains reported for students of Schools Attuned teachers were equal to or larger than those reported for comparison students across six of the seven scales: Reading/Language Arts, Critical Thinking, Interpersonal Skills, Engagement, Motivation and Study Skills, though differences between the groups were not statistically significant. Gains reported from fall to spring were statistically significant for both students of Schools Attuned teachers as well as comparison students in three of the seven scales: Reading/Language Arts (+.26, $p=.000$), Mathematics (+.12, $p=.003$), Critical Thinking (+.18, $p=.000$). In addition, statistically significant gains were reported on the Engagement scale (+.26, $p=.000$) for students of Schools Attuned teachers only.
- When asked during a telephone interview about specific changes in some of the typical academic performance metrics, such as an increase in on-task behaviors or an increase in grades and test scores, there was strong agreement among those teachers interviewed that it was still too soon to see those types of outcomes reflected in the available data or to assign any changes that might be observed exclusively to the use of the Schools Attuned program (Harman, 2006).
- On average, 3–6 grade students in a Texas study whose teachers used the Schools Attuned program showed statistically significant higher gains than comparison students on Reading and Math standard test scores. Students who had at least one teacher who participated in the Schools Attuned program had higher 2005 mathematics Texas Assessment of Knowledge and Skills (TAKS) scale scores, higher 2005 and 2006 reading TAKS scale scores, and were more likely to earn on-time grade promotions than students who did not have at least one teacher who participated in the program. Researchers found that mathematics achievement declined in 2006 for students with participating teachers and noted limitations to the robustness of reported achievement results (Ashmore & Holcombe, 2007).
- In a study at PS 246 in the Bronx that included comprehensive learning assessments for students and the Schools Attuned program for teachers, 20 student participants had the opportunity to represent themselves, their thoughts, voices, and visions through student photography. Based on extensive interviews and observations, the researcher found that many students had begun to experience academic success as their confidence had grown through participation in the program, concluding: “The [project] offers them a tangible sense of hope, a lifeline in essence, an opportunity for the kids to gain the tools they will need for continued success and growth, and a hook for the children to stay connected to school” (p.49) (Lightfoot, 2007).
- In an evaluation of the effects of the Schools Attuned program on teaching practices and student achievement (Sireci & Keller, 2007), 79% of teachers surveyed reported small positive effects on student course grades and standardized test scores due to the Schools Attuned program. Examining student achievement data, researchers found:
 - > Analyses of North Carolina End-of-Grade Reading and Math tests in grades 3 through 8 resulted in select instances of students of Schools Attuned teachers significantly outscoring comparison students in grade 7 Math (2003, $p=.013$), grade 3 Reading (2004, $p=.000$), grade 5 Math (2004, $p=.003$), and grade 6 Math (2004, $p=.050$). In addition, grade 6 through 8 students taught by School Attuned teachers had a tendency to score in the “Superior” level of these tests, in comparison to students taught by other teachers. In

general, however, students of Schools Attuned teachers performed similarly to comparison students across the 2003-05 analysis years.

- > Analyses of Oklahoma standardized Reading and Math scores in grades 3 through 8 showed that students in grades 3 through 5 associated with Schools Attuned teachers performed similarly to comparison students in the 2005-06 analysis years, while students in grades 6 through 8 associated with Schools Attuned teachers tended to score slightly lower than comparison students. However, researchers could not confirm if students had actually been instructed by the educators with whom they were “matched.” Noting a reduction in the achievement gap between these two groups between 2005 and 2006, researchers postulated that the data may reflect an encouraging trend. Due to the difficulties with matching the samples, clear conclusions could not be drawn from the data.

Researchers noted the limitations of using statewide achievement test data to analyze the effects of the Schools Attuned program on student achievement. Statewide achievement tests are designed to provide only an overall estimate of students’ proficiency in general subject areas, and are not likely to be sensitive enough to detect minor, but meaningful improvements in student achievement. Researchers also concluded that one of the strengths of the Schools Attuned program is that it is not limited to academic outcomes, as many programs are, but that it considers the whole child and provides a supportive environment where students, teachers, and parents work together to understand students and their needs to best meet the academic goals.

- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties found that teachers (n=36) reported improved grades (91%), as well as improvements in spelling (94%), writing (92%), math reasoning (93%), math operations (90%), reading comprehension (90%), and reading decoding (94%) for their students. Standardized test scores of students in project year 1 showed improvements in both English scores (an average increase of 13 points) and Math scores (an average increase of 19 points) from the 2004-05 to the 2005-06 school years, though improvements were not statistically significant. Standardized test scores of students in project year 2 showed improvements that were statistically significant in both English scores (an average increase of 14.4 points, $p=.01$) and Math scores (an average increase of 17.8 points, $p=.00$) from the 2005-06 to the 2006-07 school years (Watts-English, 2007).

Theme 5: Students display more positive behaviors in school

While not necessarily an outcome targeted by the Schools Attuned program, a variety of studies have shown improved student behavior to be an unintended positive outcome related to teachers’ use of the program.

- Survey respondents (n=382) reported improved student behavior (44%), reduced classroom disruptions (46%), and reduced office referrals (26%) due to their use of Schools Attuned strategies (O’Sullivan, 2001).
- In an evaluation of the use of the Schools Attuned program in Jewish Day Schools (Pack, 2002), researchers compared post-training to pre-training educator survey results and found that the percentage of students:
 - > Being reprimanded “often” for not paying attention decreased from 35% to 10%;
 - > Being in trouble for not completing work decreased from 14% to 4%; and
 - > Being rated as “nearly always” not following directions decreased from 9% to 0%.

- Researchers found reduced discipline referrals among the students in the program. During fall 2000, 9.4% of students were sent to the office (43 of 371 students), 12.6% in spring 2001 (73 of 371 students), 8.0% in fall 2001 (46 of 374 students), and 8.5% in spring 2002 (45 of 374 students). These data show that both the numbers and rate of students being sent to the office were lower in program year 2001-02 than in the preceding academic year (Gates, 2002).
- Based on surveys with teachers in 10 focus schools in New York City, 74% of teachers reported improvement in students' on-task behavior that they believe have resulted from participating in the Schools Attuned program. However, when administrators were interviewed for this same study and asked about specific changes they might have seen in some of the typical academic performance metrics, such as an increase in on-task behaviors, many indicated that it was too soon to see those types of outcomes reflected in the available data or to assign any changes that might be observed exclusively to the use of the Schools Attuned program (Harman, 2006).
- Several action research studies conducted in schools have provided information on behavioral improvements for students. In one elementary school in New Jersey, for example, the number of disciplinary referrals decreased by almost 50% and the number of suspensions by almost 90% since the Schools Attuned program had been integrated into the school (All Kinds of Minds, 2007).
- An evaluation of the effects of the Schools Attuned program on teacher and student outcomes (Sireci & Keller, 2007) found that a majority of teachers reported their use of the Schools Attuned program to have positive effects on student behavior (86%) and student social interactions (86%).
- When surveyed about changes at the classroom level due to the Schools Attuned program, teachers (n=172) reported slight decreases in disruptive behaviors (M = 2.70, SD = .79) and in students' attention during lessons (M = 2.61, SD = .78) using a 5-point scale (1 = great decrease to 5 = great increase) (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties found that teachers (n=36) reported improved social interactions (85%) and improved behavior (84%) among their students. Pre-post test comparisons on a standardized teacher rating scale (n=7) also indicated statistically significant improvements in Social Skills (p=.05) and in Behavioral Symptoms (p=.02) (Watts-English, 2007).

Impact on Educational Systems

Theme 1: Schools gain new perspectives on learning variation

Several studies have found that as teachers and administrators make the Schools Attuned program integral to their daily practice, the school community finds itself thinking and talking about students in more positive and productive ways.

- When surveyed, teachers reported improved classroom climate (187 of 382 or 49.0%) and improved student-teacher interactions (180 of 382 or 47.1%) as a result of participating in the Schools Attuned program (O'Sullivan, 2001).
- Professional development of the school faculty in one study was strengthened through the ability of faculty to address student learning needs. Faculty provided numerous examples in interviews with the researchers that offered evidence they embraced the Schools Attuned philosophy that "All children can learn." (Gates, 2002).

- An evaluation of the impact of participation in the Schools Attuned program on Jewish Day Schools in New York, New Jersey, and Connecticut used teachers' written progress reports to address the question of whether the Schools Attuned course "shows up" in how teachers write about their students in yearly, bi-annual, or trimester report cards (Ort, 2003). The researchers found that teachers increased their use of Schools Attuned interventions in their post-training report cards compared with pre-training report cards even though the Schools Attuned program does not specifically address how to incorporate the Schools Attuned concepts and strategies in report cards. Specifically, they found that the average score of reports in cards in the "pre" group was 1.99; the average score of the "post" course report cards was 2.16 ($t = .006, p < .01$). In addition, the number of performance level 3 and 4 reports cards increased in the "post" group, with 56% of the individual teachers demonstrating improvement in their average score.
- Teachers in a Texas study reported they felt the vocabulary learned in the Schools Attuned course allowed them to better articulate ideas and concepts regarding specific student learning behaviors with each other, colleagues, and school administrators (Ashmore, 2005).
- Responses to teacher questionnaires (Combs & Jackson, 2006) indicated that:
 - > 98% of teachers reported that the Schools Attuned program has made them more willing to teach students with learning disabilities and learning needs;
 - > 86% of teachers reported that because of participating in the Schools Attuned program they believe that every student should have the opportunity to participate in a regular classroom; and
 - > 96% of teachers reported that the Schools Attuned program increased their belief that students should be offered the flexibility to learn using their own learning styles and on their own timeframes.
- When communicating with students and parents, teachers in one school reported they typically did not use the Schools Attuned terminology with parents and students, although the basis and substance of the conversations appeared to be consistent with the Schools Attuned model. The researcher also found that teachers used more neurodevelopmental terminology when discussing students' learning difficulties than prior to participating in the program and as compared to their peers who did not participate (Dyson, 2007).
- In a study at PS 246 in the Bronx that included comprehensive learning assessments for students and the Schools Attuned program for teachers, the researcher concluded that the project had "helped foster a tone of empathy, care, and understanding at the school." Based on in-depth interviewing and observations, the researcher noted comments from the assistant principal that the project had "helped bring together and strengthen a once fragmented community, so that the school as a whole feels more 'unified.' PS 246 has a different 'feel' to it than it did before the advent of the [project]. The school is 'moving forward' in a positive way. There is 'continuity and thinking and planning' across the school which was not there before" (p.45) (Lightfoot, 2007).
- Survey participants' comments in one in-depth study indicated that the Schools Attuned program provided staff with a common language and a way to describe children that all staff members understood (Tushnet & McCormick, 2007). Survey participants' comments indicated that the Schools Attuned program provided staff with a common language and a way to describe children that all staff members understood. Seventy-five percent of teachers reported using the Schools Attuned program to collaborate with colleagues on student learning. In addition, teachers who participated in the Schools Attuned program ($n=172$) had statistically

significantly higher ratings than comparison teachers (n=199) for positive school culture ($t = 2.68, p < .01$), including the integration of Schools Attuned principles into school policies. The researchers further noted that the schools using the program and participating in this study were among the top ranked California public schools according to state level data reporting.

Theme 2: Schools refine their special education practices

Research has documented how use of the Schools Attuned program by many schools has resulted in enhanced communication between regular and special educators, assistance for teachers in the referral process, and improved use of special education resources. Other independent findings related to the effect of the Schools Attuned program on special education services and systems, however, have varied.

- Teachers reported that participating in the Schools Attuned program had a positive impact on their ability to identify students' areas in need of improvement (273 of 382 or 71.5%) and 26% felt that participating had improved the accuracy of their special education referrals (O'Sullivan, 2001).
- Researchers in a Texas study (Gates, 2002) found a reduction in special education referrals for students who did not subsequently qualify for special education services. Ninety-eight percent of teachers reported that the Schools Attuned program had made them more willing to teach students with learning disabilities and learning needs. Results in this same study showed a 78% decrease in pull-out services (i.e., when students leave their classrooms to get assistance from a special education teacher) and a special education placement accuracy increase from 63% to 97%, meaning that special education assessments were being directed more accurately to the students who needed special services the most.
- Respondents at Jewish Day Schools in NYC reported little change in their perception that students with special needs needed to be in a special education classes (Pack, 2002). Forty-three percent of respondents continued to "Disagree" with the statement, "Students with special needs need to be in special education classes," while those who said that they either "Agree" or "Strongly Agree" with the statement decreased just 2%; those saying they were "Unsure" increased 2%.
- In a follow-up evaluation of teachers in a Texas school district (Combs & Jackson, 2006), 63% of teachers surveyed believed the Schools Attuned program helped them with referral decisions for students in need of special education services, though only 48% believed that fewer children had received the special education "label" since the Schools Attuned program had begun at the school. School records showed that the number of students served in special education decreased only slightly over five years—from 14% in 2001 to 13.3% in 2006.
- During a four-phase evaluation related to the impact of the Schools Attuned program on special education services, researchers found mixed results (Fiore, 2006).
 - > Two promising trends existed in Phase 3 schools using the Schools Attuned program: increase in the percentage of time students with Individualized Education Programs (IEPs) spend in the regular classroom setting, as well as increased participation and proficiency among students with IEPs in reading and math achievement tests.
 - > Many Phase 4 participants reported that the Schools Attuned program provided a common language between regular classroom teachers and special education teachers, as well as between teachers and parents, and led to a greater mutual understanding that helped regular classroom teachers be more supportive of special education teachers.

- > Throughout various phases of the study, school administrators reported that the Schools Attuned program was resulting in or could result in decreases in the number of special education referrals, increases in the accuracy of the referral process, and reductions in the need for some special education services, all of which could lead to cost savings. In part due to small sample sizes, none of these differences were confirmed through statistical analysis, however, and researchers could not independently verify that the Schools Attuned program had affected the nature or extent of special education services in the study schools.
- > Many teachers surveyed during this study indicated that the Schools Attuned program was effective for struggling learners, but was not appropriate for students who already had IEPs, either because their problems were too severe or because their needs were appropriately met through special education.
- Several action research studies conducted in schools have provided information on positive outcomes related use of the Schools Attuned program in pre-referral or student assistance team processes. One elementary school in California reported decreases in special education referrals each year by approximately 50% between 2000 and 2003. In the first year of Schools Attuned implementation at a different California school, special education referrals and placements decreased by almost 50%. One school in New Jersey reported annual decreases in the number of referrals to the Pupil Assistance Team from 12 to 8 to 4, respectively. A school in Fort Worth, Texas found that from 1999-2003, the number of students placed in special education decreased by 66% and the number of students receiving pull-out services decreased by 78%. Finally, one school district in Ohio has reported that from the 2001-02 to 2006-07 school years, overall special education referrals have decreased by 52% and accuracy rates have increased from approximately 39% to 72% (All Kinds of Minds, 2007).
- In a study exploring teacher change in response to the use of the Schools Attuned program, Schools Attuned strategies were integrated into the school's Assistance Team (or pre-referral team) process in order to reduce the number of students referred for psycho-educational testing. Records indicated that in the 2004-05 school year only 27% of students referred for a psychological evaluation were found eligible to receive services based on the categories of disability set forth by the state. The placement accuracy rate increased to 69% for the 2005-06 school year after integrating Schools Attuned strategies into the pre-referral process. One member of the assistance team explained, "We have made a drastic difference in our placement rate because it is through the attuning process that we really identify those kids who need to be tested and those who don't" (p. 19). When interviewed about the integration of the Schools Attuned concepts and strategies into the pre-referral team process, the school principal noted that the overall special education referral rate had decreased by nearly 50%, adding, "What does that do in the long-run? It saves us a lot of money. Testing is money" (p.15) (Dyson, 2007).
- A positive impact was found on the quality of Individualized Education Programs (IEPs) written by educators who participated in the Schools Attuned program. While the program does not specifically address this skill, when scored on a rubric using a scale of 1-4, researchers found that the average score of the IEPs in the "pre" course group was 1.29 and the average score of the "post" group was 1.94, resulting in a statistically significant difference ($p < .01$; $n=56$). The number of performance level 2 and 3 IEPs increased in the "post" group and 80% ($n=10$) of participants demonstrated improvement in their "post" scores, 50% increased their scores at statistically significant levels (Ort, 2007).

Theme 3: Schools experience more positive home-school collaboration

Several studies have documented how stronger alliances are built between school and home around student learning when educators use Schools Attuned concepts and strategies intentionally with parents, such as providing parents with the tools to identify their child's strengths and weaknesses and strategies to use at home.

- Based on interviews with educators participating in Project STYLE, the evaluator concluded that the Schools Attuned program appeared to be integrated into teacher-parent communication and to increase both the level and quality of home-school interaction (Gates, 2002).
- An evaluation with 24 teachers in the Santa Barbara, California area found that 66% reported an increased ability to communicate with parents as a result of participating in the Schools Attuned program. Additionally, 46% of teachers surveyed reported that the program changed the way they work with parents (Crandell, 2005).
- Based on in-depth interviewing, evaluators in a small study in Indiana (Hendrickson, 2005) concluded that participation in the Schools Attuned program had given teachers "a new framework for communication with all the principal constituents" (p.7) and "a new common vocabulary to use with parents, students, other teachers, and administrators" (p.8).
- In a four-phase evaluation, parents (n=35) of children with IEPs attending schools that were using the Schools Attuned program indicated greater satisfaction with both regular and special education teachers and reported that their children enjoyed school more compared to parents (n=74) of children with IEPs attending schools not using the program (Fiore, 2006).
- Survey responses in a NYC evaluation indicated that 65% of teachers experienced a "Moderate Increase" or "Great Increase" in their ability to work with families to help them better understand their child and support their learning and 61% percent reported increases in their ability to communicate with parents around student learning, though only 33% of teachers reported regularly providing parents with resources related to the Schools Attuned program (Harman, 2006).
- When asked to rate the degree to which participating in the Schools Attuned program affected specified outcomes, 87% of teachers reported improved parent-teacher relationships through the use of the Schools Attuned program (Sireci & Keller, 2007).
- When examining the teacher-parent-student relationship, researchers found that the Schools Attuned program provided staff with a common language and a way to describe children that all staff members understood and improved teachers' communication and collaboration around student learning. This study also showed that teachers who participated in the Schools Attuned program (n=172) had statistically significantly higher ratings for parent and community involvement than comparison teachers who had not participated in the Schools Attuned program (n=199) ($t = 1.97, p < .05$), including collaboration with parents around strategies to use at home (Tushnet & McCormick, 2007).
- An evaluation in two NYC schools among economically disadvantaged elementary school students whose teachers had identified them as having learning difficulties found that teachers (n=36) reported improved teacher-parent interactions (86%) and increased collaboration with parents (88%). Parents (n=48) reported having useful ideas to help their children with their learning issues (94%), an increased understanding of the child's struggles in school (87%), and increased optimism about their child's future (86%) (Watts-English, 2007).

Supporting Intended Outcomes

Numerous studies on the Schools Attuned program have revealed the crucial role that implementation has in facilitating the occurrence of intended outcomes for students. For students to gain the most benefit, teachers must be effectively supported in their implementation. Teachers appear to be best supported when they are able to create a community of learners and have the active support of administrators.

Theme 1: Implementation is enhanced by communities of learning

A recurrent finding has been that Schools Attuned implementation is enhanced when groups of teachers in a school participate in the program. Several studies suggest that teams or whole schools participate in order to establish a community of Schools Attuned educators within the school.

- Based on an end-of-year survey conducted with Oklahoma teachers who had participated in the Schools Attuned program since 1999 (Bontempi & Nash, 2002), researchers found that teachers overwhelmingly supported the Schools Attuned program and approach, but reported that a key to effective implementation is ongoing training with good access to materials and support.
- While studying the classroom level implementation of the Schools Attuned program in a rural Texas school district (Ashmore, 2005), the researcher concluded that campus facilitators or mentors and teachers supporting one another are important factors to effective implementation of the Schools Attuned program. The researchers found that implementation is expected because such a large number of teachers in the district studied have participated in the Schools Attuned program.
- As the result of a pilot study in California, it was recommended that greater focus be placed on having teams of teachers within schools participate in the Schools Attuned program, i.e., more teachers in fewer schools rather than fewer teachers in more schools, to improve implementation within schools. The researcher also recommended that schools seek out “master teachers” during the Schools Attuned course and groom them to assist staff with implementing the program in the classroom and school (Crandell, 2005).
- In an evaluation of the value of the Schools Attuned program at the Learning Center at Park Tudor (Hendrickson, 2005) researchers concluded that the overall success of the Schools Attuned program in a specific school seems to be dependent on that school making a commitment to send teams of teachers to the course, rather than sending just individual teachers. Based on this conclusion, the researchers recommended that the Park Tudor School commit to a policy that involves teams participating in the program.
- A recent study found that the Schools Attuned program provided staff with a common language and a way to describe children that all staff members understood, and improved teachers’ communication and collaboration around student learning (Tushnet & McCormick, 2007). Successful school-level implementation was facilitated when schools developed a strategic implementation plan, had a supportive administration and advocate/support person, and had a core group of teachers participate in the program. Analysis of survey data from teachers comparing mentored (n=77) to non-mentored (n=67) teachers found that both groups reported similar understanding of how students learn, communication with other faculty, understanding of student learning challenges, and confidence in working with students with learning challenges. However, the addition of classroom support following the course through a “mentor” was found to be a positive factor in assisting teachers in implementing and sustaining the program in practice. Teachers who received mentoring

services were much more likely to be implementing the Schools Attuned program in their classrooms ($t = 3.87, p < .001$). Mentored teachers were more likely to have:

- > Used Schools Attuned strategies with their whole class ($\chi^2_{1,144} = 5.58, p < .05$);
- > Attuned at least one student ($\chi^2_{1,144} = 7.52, p < .01$); and
- > Completed the practicum portion of the Schools Attuned program ($\chi^2_{2,138} = 6.58, p < .05$).

Theme 2: Implementation is enhanced by administrative support

Across many studies, administrative support has been shown to be a key element in the successful implementation and maintenance of the Schools Attuned program within a school, district, or region.

- An examination of the Schools Attuned program as an element of school reform within a New York school district revealed the importance of administrative investment in and commitment to the program for its success. Based on systematic document review coupled with survey and interview, the researcher concluded that both teachers' approval of and administrators' backing of the program were crucial for sustaining it in the school (Wolfe, 2004).
- While investigating the classroom level implementation of the Schools Attuned program (Ashmore, 2005), the researcher found that district-level and campus-wide commitment to the Schools Attuned program, as well as teacher belief in the value of the program, accounted for the high-level of implementation observed. Each campus had both a facilitator/mentor for supporting teachers' implementation and an administrator who participated in the Schools Attuned program and created and promoted support mechanisms for teacher implementation.
- During an evaluation with 24 teachers in California, administrator support was found to be very important, leading the researcher to recommend that administrators and head teachers be strategically included in professional development in the Schools Attuned program (Crandell, 2005).
- Based on in-depth interviewing with 23 administrators in NYC schools, the researcher concluded that "leadership is critical to promoting the use of Schools Attuned" in these schools (p. 25) and that a "broad base of support" within the schools was necessary in order for the program to be sustained (p. 26) (Harman, 2005).
- A general appreciation of and enthusiasm for the Schools Attuned program was not found to be sufficient to ensure consistent and full implementation within a school in a four-phase study (Fiore, 2006). Support and buy-in must exist on multiple levels (teachers, principals, district administrators) combined with a strong commitment and the dedication of adequate resources. Findings suggested that principal support seems especially important for the successful implementation of the Schools Attuned program. In all schools in Phase 4 of the study, the principal became a strong supporter of the program. When interviewed and asked if they thought the Schools Attuned program would still be in the school in five years, many teachers said they thought that the program would remain as long as the current principal remained.

How Research Informs All Kinds of Minds Programs

A key outcome of a rigorous research agenda is to respond to what is learned in order to provide the best programs possible. Over the last several years, results of studies on the Schools Attuned program have pointed to ways in which the program may be modified to increase usability and effectiveness. All Kinds of Minds has been engaged in continuous program improvement informed by the cumulative results of ongoing research activities.

Findings from several independent studies, for example, have reinforced internal evaluation data identifying the barriers of the paper-driven process for *Attuning a Student*—a Schools Attuned process in which a teacher looks deeply at an individual student’s learning profile. A digital version of this tool was released in the fall of 2007. In conjunction with this work, a digital management tool that will allow educators to match research based intervention strategies with individual student profiles is also in development, slated for release in 2008.

An additional related development in the Schools Attuned program has been the 2007 refinement of the *Management by Profile* protocol, expanding the options for Schools Attuned implementation beyond application with an individual student. The *Management by Profile* protocol provides a framework for educators to apply the neurodevelopmental approach at multiple levels, including with individual students, small groups, whole classrooms, and within entire schools. Using *Management by Profile* as a foundational thought process, educators can apply the Schools Attuned approach to their daily work at the individual student and small group levels through *Student Learning Partnership* and *Attuning a Student*, at the classroom level through *Lesson and Subject Analysis*, and across the school through the *Understanding All Kinds of Minds Parent Program*. The protocol is based on series of broad stages: Observation, Neurodevelopmental Analysis, Management, and Measurement of Impact. Built directly into the *Management by Profile* protocol is a comprehensive procedure of systematic data gathering, analysis, and measurement of outcomes. This expanded framework for implementation options affirms All Kinds of Minds’ goal of changing the lives of students who struggle with learning by focusing on the needs of all students who are falling through the cracks of the current educational system.

Results of both independent and internal research studies have also provided a foundation for the growing recognition at All Kinds of Minds of the crucial role of implementation support. A conceptual model for implementation has been created in alignment with key research on sustaining changes in educational practice in order to have maximum impact on student learning. This model of implementation has guided the development of an array of tools and services launched in 2007 called *School Attuned in Practice*. This comprehensive set of activities and resources provides teachers and schools with the tools they need to enhance student success, while having ongoing access to the support of the Schools Attuned community via the online *Community for Learning*. Beginning in 2008, Schools Attuned educators will have access to an innovative online networking tool, in which they will communicate with one another regarding the Schools Attuned program, have access to resources and experts, and participate in e-learning activities unique to All Kinds of Minds. This online tool will serve as the first step into the virtual community that will engage and support adult learners as they use the Schools Attuned approach as a means to support student learning.

Research findings have also shed light on school environment factors that can support the consistent implementation of the Schools Attuned program within a school community, including the level of teacher and administrator support for, and commitment to, the Schools Attuned program. Schools in which implementation is the highest tend to have strong administrator buy-in and support and significant numbers of educators who have participated in the Schools Attuned program. Such settings provide an accessible community of teachers and other school staff who share a common framework for understanding learning variation and a common vocabulary for

talking about student learning. All Kinds of Minds is incorporating these findings into future programmatic improvements, examining ways in which administrators and school leaders may be brought into the Schools Attuned program in order to enhance program sustainability in the school.

Finally, all program development improvements have been guided by an enhanced understanding of the theory of change behind the Schools Attuned program, articulated through the *Schools Attuned Impact Model*. This model provides explicit links between program activities and intended outcomes of the program at the teacher, school, and student levels, all of which lead to the ultimate purpose of the Schools Attuned program—to support systematic changes in the educational environments of children so that every child can experience success in school and in life.

Future Direction for the Institute's Research Agenda

It is only by looking at an evolving body of evidence that the effectiveness of an educational program can truly be understood. The compilation of research activities over the last several years provides compelling evidence of the positive effects that the Schools Attuned program can have on students, teachers, and schools. Yet, for each question answered through research, other questions arise. Evidence of the impact of the Schools Attuned program on educator instructional skills and abilities has been thoroughly documented. A great deal of data has also been gathered regarding the impact of educators' use of the program on their students and their schools, though more hypotheses must be tested and more outcomes observed in these areas. As the Institute moves forward, it remains committed to supporting a rigorous research agenda that includes the independent assessment of its work. All Kinds of Minds will continue to engage with independent researchers who will put the hypotheses that underlie the Institute's theory of change to the test in order to produce valid and reliable conclusions about the impact of the Schools Attuned program, including the specific student outcomes and school level changes that are intended to occur through All Kinds of Minds' programs.

In addition, All Kinds of Minds will continue to conduct internal evaluation and development activities. For example, development has begun on a standard set of tools that can be used by independent researchers studying the Schools Attuned program. The *Schools Attuned Implementation Survey* is a teacher report instrument, designed to systematically measure the level and form of a respondent's implementation. This survey will be useful for the purposes of interpreting student outcome data during evaluations of the Schools Attuned program, as well as targeting implementation support for Schools Attuned participants. Other tools in development, slated for release in 2008, include a self-assessment guide for teachers, an observational tool for independent researchers, and a progress-monitoring guide for schools who are integrating the Schools Attuned program into their school transformation plans. Each of these internal evaluation and development activities will inform the ongoing improvement of the Schools Attuned program, as well as support All Kinds of Minds' broader independent research efforts.

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