All Kinds of Minds®

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

Research Base of the Schools Attuned® Program

EXECUTIVE SUMMARY

All Kinds of Minds

All Kinds of Minds was founded in 1995 as a non-profit institute 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 Schools Attuned Professional Development Program

From 1987 through the late 1990's, Dr. Mel Levine and 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 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.

Decades of research have 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.

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The Research Base behind the Schools Attuned Program

All Kinds of Minds (AKOM) has put in place deliberate, continuous documentation and evaluation to support the research base of the Schools Attuned program to provide evidence in three areas: program content, program design, and program impact.

> 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 AKOM's' programs is based on basic and applied research regarding the neurodevelopmental functions and variations in learning (e.g., Hooper et al., 1994; Levine, 1983; Levine, 1990; Levine, 2002; Levine, Brooks & Shonkoff, 1980; Levine, Carey, & Crocker, 1998; Levine & Oberklaid, 1992; Levine & Reed, 1998; Pohlman, 2007).

AKOM 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 functions, higher order cognition, social cognition) in the neurodevelopmental framework used by All Kinds of Minds.

Other aspects of this work provide support for suggested accommodations and interventions that 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 studies (e.g., Arra & Aaron, 2001; Jitendra et al., 2007; McDougall & Brady, 1998; Palincsar & Brown, 1988; Rasinski, 1988; Reid & Harris, 1993; Weaver, 2000).

AKOM is also committed to the empirical investigation of the methods and measures used in the Schools Attuned program, and encourages and invites external professional scrutiny. While external experts were consulted during the development of Schools Attuned observational instruments on issues of content, including item refinement and internal structure, the accumulation of scientific knowledge regarding these tools has just begun. Efforts have begun to establish the validity and reliability of observational tools and methods related to the neurodevelopmental framework. A number of preliminary empirical investigations have been conducted, which will inform future studies of Schools Attuned observational tools (e.g., Neufeld, 2002; Nimkoff, 2005; Sandler et al., 1993; Sandler, Hooper, Scarborough, Watson, & Levine, 1995; Swartz et al., 1999). Validity related studies are needed of the Schools Attuned tools, 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).

> PROGRAM DESIGN

The Schools Attuned program design is based on findings from research 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 (Guskey, 2002).

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 AKOM 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)). Based on this research, the Schools Attuned program currently consists of delivery phases, each designed to integrate additional characteristics of high quality professional development design. The program involves a minimum of 45 hours of facilitated course instruction, access to online resources, observational tools, parent workshop modules, as well as participation in a networked learning community.

The AKOM 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, Friedman, & Wallace, 2005).

In addition to examining seminal research in professional development and applying findings to the program design, AKOM 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). Following Guskey's framework of program evaluation, AKOM uses daily written reflections, survey questionnaires, focus groups, and portfolio documentation to gather evidence of Schools Attuned 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, AKOM recognizes the importance of advancing evidence-based scholarship by external evaluators on the impact of its programs.

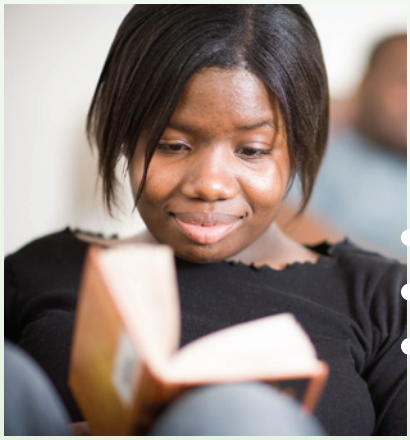
> PROGRAM IMPACT

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, AKOM has proactively stimulated research in the field by encouraging and supporting the work of independent researchers studying its programs. Independent research studies submitted to All Kinds of Minds have incorporated a mix of quantitative and qualitative methodologies to determine the impact of the program across a variety of states and regions.

From 2000 to 2003, several independent research studies submitted to the Institute suggested promising findings of the Schools Attuned program's impact on teacher understanding of students with learning differences, teacher ability to help struggling students be more successful, and student performance. Based on these studies' findings—and emerging national education issues—AKOM 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). Based on a two-stage independent peer review process, three research studies of the Schools Attuned program were funded by the Institute in 2003 (Fiore, 2006; Sireci & Keller, 2007; Tushnet & McCormick, 2007). Several additional independent research studies have also been submitted to the Institute since 2004 that offer further insight about the use and impact of the Schools Attuned program.

Examining the results of the independent research on the Schools Attuned program, several themes emerge about the impact of the Schools Attuned program on teachers, students, and educational systems, and about supporting intended outcomes.



IMPACT ON TEACHERS

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 (O'Sullivan, 2001; Crandell, 2005; Hendrickson, 2005; Harman, 2006; Combs & Jackson, 2006; Fiore, 2006; Dyson, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- Teachers in a study by Combs and Jackson (2006) 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%).
- In a study by Fiore (2006), teachers reported increased confidence for working with diverse students and struggling learners due to participating in the Schools Attuned program. Participating teachers 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.
- A research team led by Tushnet and McCormick (2007) found that the Schools Attuned program increased teachers' confidence and willingness to work with students before prematurely referring them for special education services. In addition, teachers increased their 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).

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 (Bontempi & Nash, 2002; Crandell, 2005; Hendrickson, 2005; Combs & Jackson, 2006; Harman, 2006; Fiore, 2006; Dyson, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- Teachers in a study by Bontempi and Nash (2002) reported after participating in the Schools Attuned program, they believed the program could help them develop strategies for each of their students so the students could use their strengths to succeed in all aspects of academic life (92%).

- Crandell (2005) found that teachers changed their instructional strategies 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.
- Dyson (2007) observed Schools Attuned educators to discuss students' strengths more often than non-participants when describing students' learning difficulties and how they would address their struggles in the classroom. These educators also reported teaching and encouraging students' of Schools Attuned strategies in the classroom and focusing on students' affinities to increase learning.

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 (Pack, 2002; Crandell, 2005; Hendrickson, 2005; Harman, 2006; Dyson, 2007; Sireci & Keller, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- Harman (2006) found 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, 82% regularly used the Schools Attuned program to identify accommodations and interventions to help their students, and 63% regularly monitored the impact of the strategies they used and made adjustments accordingly. While 76% of teachers reported conducting demystifications with their students to help them understand their own strengths and weaknesses, only 48% included parents in these demystification conversations.
- In a study by Sireci and Keller (2007), 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. These strategies were "frequently" to "always" used to protect students from humiliation, modify instruction based on learning profiles, and encourage students to use strategies to manage their own learning profiles.
- The research team led by Tushnet and McCormick (2007) concluded that the Schools Attuned program positively affected teachers' instructional practices. Differences between teachers participating in the Schools Attuned program and matched non-participating teachers were statistically significant; 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 ($t = 3.45$, $p < .01$). Mentoring services were also beneficial to both the schools and teachers, providing additional support for implementing the Schools Attuned program. School administrators reported participants to be more strategic about their teaching and more purposeful in their lesson planning and instruction than prior to attending the course and as compared to non-participating teachers.

IMPACT ON STUDENTS

1 Students experience increased self-esteem and self-confidence

Numerous studies have found that a major benefit of the Schools Attuned program is the resulting improvement in students' self-esteem and confidence in their own abilities (Bontempi & Nash, 2002; Combs & Jackson, 2006; Harman, 2006; Sireci & Keller, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- When surveying 2nd through 4th grade students whose teachers participated in the Schools Attuned program, Bontempi and Nash (2002) 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 they could make friends, organize themselves when they need to work, and could become better readers, better at solving math problems, and better students.
- Sireci and Keller (2007) found that 91% of teachers reported positive effects on students' self-concept due to use of the Schools Attuned program.
- Teachers in a study by Watts-English (2007) reported increased self-esteem for their students (91%). Pre-post test comparisons on a standardized student self-rating scale indicated that improvements for Self-Esteem were not statistically significant ($p=.18$), but improvements were statistically significant for Self-Reliance ($p=.01$).

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 (Wolfe, 2004; Crandell, 2005; Combs & Jackson, 2006; Harman, 2006; Fiore, 2006; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- A study by Wolfe (2004) reported that students in grades 5 through 8 whose teachers were implementing the Schools Attuned program were "very confident" in their understanding of their own strengths (55%), understood "a lot" about their weaknesses as a student (75%), and knew "a lot more" about specific things they could do to help themselves with regard to areas in which they had difficulty (65%).
- Sixty-six percent of teachers in a study by Harman (2006) reported that many struggling students were using new strategies to cope with their own learning challenges.
- Fiore (2006) found that teachers 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 from schools not using the program. 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.

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 (Bontempi & Nash, 2002; Wolfe, 2004; Fiore, 2006; Harman, 2006; Sireci & Keller, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- A Bontempi and Nash (2002) study reported that schools where teachers had been implementing the Schools Attuned program for at least two years created an environment that encouraged positive attitudes where students believed they could self-regulate and that academic success was achievable; 60% or more of 5th and 6th grade students 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.
- In a study by Wolfe (2004), 5th through 8th grade students reported they enjoyed school "a lot more" than the previous year (70%) and that being in the classroom was "a lot more" fun compared to the previous year (60%).
- Sireci and 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%).
- Teachers in a study by Watts-English (2007) 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 indicated improvements in Attitude to School and Locus of Control, though neither were statistically significant (p=.19 and p=.13, respectively).

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 (Bontempi & Nash, 2002; Gates, 2002; O'Sullivan, 2002; Crandell, 2005; Combs & Jackson, 2006; Fiore, 2006; Harman, 2006; Ashmore & Holcombe, 2007; Lightfoot, 2007; Sireci & Keller, 2007; Watts-English, 2007). For example,

- A study by Fiore (2006) found that academic gains for students with IEPs that had Schools Attuned teachers were equal to or larger than those reported for comparison students across six of the seven Academic Competence Evaluations Scales; differences 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). Statistically significant gains were reported on the Engagement scale (+.26, p=.000) for students of Schools Attuned teachers only.
- In an Ashmore & Holcombe (2007) study, 3rd through 6th grade students who had at least one teacher who participated in the Schools Attuned program had higher 2005 mathematics scale scores, higher 2005 and 2006 reading 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.

- Sireci and Keller (2007) found that 79% of teachers 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 Schools Attuned participants 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 participants performed similarly to comparison students in the 2005-06 analysis years, while students in grades 6 through 8 associated with teachers who participated in the Schools Attuned program 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.
- Teachers in a study by Watts-English (2007) 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 with learning difficulties. Students' standardized English and Math test scores showed improvements from the 2004-05 to the 2005-06 school years, though improvements were not statistically significant. Students' standardized test scores showed statistically significant improvements in both English scores (p=.01) and Math scores (p=.00) from the 2005-06 to the 2006-07 school years.

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 (O'Sullivan, 2001; Gates, 2002; Pack, 2002; Harman, 2006; All Kinds of Minds, 2007; Sireci & Keller, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- Several action research studies conducted in schools have provided information on behavioral improvements for students (All Kinds of Minds, 2007). 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.
- An evaluation led by Sireci and 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%).

- In a Watts-English (2007) study, teachers reported improved social interactions (85%) and improved behavior (84%) among their students with learning difficulties. Pre-post test comparisons on a standardized teacher rating scale also indicated statistically significant improvements in students' Social Skills (p=.05) and in Behavioral Symptoms (p=.02).

IMPACT ON EDUCATIONAL SYSTEMS

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 (O'Sullivan, 2001; Gates, 2002; Ort, 2003; Ashmore, 2005; Combs & Jackson, 2006; Dyson, 2007; Lightfoot, 2007; Tushnet & McCormick, 2007). For example,

- Teachers in a study by Ashmore (2007) 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.
- Lightfoot (2007) concluded that a project which included comprehensive learning assessments for students and the Schools Attuned program for teachers had "helped foster a tone of empathy, care, and understanding at the school." For example, the school's assistant principal commented 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."
- A study led by Tushnet and McCormick (2007) reported that the Schools Attuned program provided staff with a common language and a way to describe children that all staff members understood. Teachers reported using the Schools Attuned program to collaborate with colleagues on student learning (75%), and had statistically significant higher ratings than comparison teachers for positive school culture ($t = 2.68$, $p < .01$), including the integration of Schools Attuned principles into school policies.

2 Schools refine their special education practices

Several studies have documented how the use of the Schools Attuned program has resulted in enhanced communication between regular and special educators, assistance for teachers in the referral process, and improved use of special education resources at many schools. Other studies examining the effect of the Schools Attuned program on special education practices, however, have resulted in mixed findings (O'Sullivan, 2001; Gates, 2002; Pack, 2002; Combs & Jackson, 2006; Fiore, 2006; All Kinds of Minds, 2007; Dyson, 2007; Ort, 2007). For example,

- Gates (2002) reported that because of the Schools Attuned program, 98% of teachers in the study were more willing to teach students with learning disabilities and learning needs, there was a 78% decrease in pull-out special education services, and special education placement accuracy increased from 63% to 97%, meaning that special education assessments were being directed more accurately to the students who needed special services the most.
- Participants in a Fiore (2006) study 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. Schools using the Schools Attuned program were also found to have an increase in the percentage of time students with Individualized Education Programs (IEPs) spent in the regular classroom setting, as well as increased participation and proficiency among students with IEPs in reading and math achievement tests. 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 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.
- Dyson (2007) found that when Schools Attuned strategies were integrated into a school's Assistance Team (or pre-referral team) process in order to reduce the number of students referred for psycho-educational testing, the placement accuracy rate increased from 27% (2004-05) to 69% (2005-06). 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."

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 (Gates, 2002; Crandell, 2005; Hendrickson, 2005; Fiore, 2006; Harman, 2006; Sireci & Keller, 2007; Tushnet & McCormick, 2007; Watts-English, 2007). For example,

- Educators in the Gates (2002) study reported that the Schools Attuned program appeared to be integrated into teacher-parent communication and increased both the level and quality of home-school interaction.

- In a study by Harman (2006), 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, 61% reported increases in their ability to communicate with parents around student learning, and 33% of teachers reported regularly providing parents with resources related to the Schools Attuned program.
- When examining the teacher-parent-student relationship, Tushnet and McCormick (2007) 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. Teachers who participated in the Schools Attuned program had statistically significant higher ratings for parent and community involvement than comparison teachers who had not participated in the Schools Attuned program ($t = 1.97$, $p < .05$), including collaboration with parents around strategies to use at home.
- Watts-English (2007) found that teachers participating in the Schools Attuned program reported improved teacher-parent interactions (86%) and increased collaboration with parents (88%). Parents 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%).

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.

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 (Bontempi & Nash, 2002; Ashmore, 2005; Crandell, 2005; Hendrickson, 2005; Tushnet & McCormick, 2007). For example,

- Ashmore (2005), reported that campus facilitators or mentors and teachers supporting one another are important factors to effective implementation of the Schools Attuned program and that implementation is expected in a district where a large number of teachers have participated in the program.

- A study by Hendrickson (2005) 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.
- A recent study by Tushnet and McCormick (2007) 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. 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 participating in the program. Analysis of survey data from teachers comparing mentored to non-mentored 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 ($\chi^2_{1,144} = 6.58$, $p < .05$).

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 (Wolfe, 2004; Ashmore, 2005; Crandell, 2005; Harman, 2005; Fiore, 2006). For example,

- An examination by Wolfe (2004) of the Schools Attuned program as an element of school reform revealed the importance of administrative investment in and commitment to the program for its success. Wolfe concluded that both teachers' approval and administrators' backing of the program were crucial for sustaining it in the school.
- Ashmore (2005) 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 studied had both a facilitator/mentor for supporting teachers' implementation and an administrator who participated in the program and created and promoted support mechanisms for teacher implementation.
- Based on interviews with administrators, Harman (2005) concluded that "leadership is critical to promoting the use of Schools Attuned" in these schools and that a "broad base of support" within the schools was necessary in order for the program to be sustained.
- Fiore (2006) reported that support and buy-in for the Schools Attuned program 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 program.

> 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 (AKOM) 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 a 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 AKOM's 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 AKOM 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 AKOM. 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. AKOM 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 OF THE ALL KINDS OF MINDS 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 (AKOM) 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 AKOM's programs.

In addition, AKOM 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, 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 AKOM's broader independent research efforts.

RESEARCH STUDIES DETAILS CHART

STUDY TITLE	PARTICIPANTS	METHODS
Schools Attuned: Effects on educators and students. Chapel Hill, NC: O'Sullivan and Associates; Evaluation, Assessment, & Policy Connections. Principal Investigator: R. O'Sullivan (2001)[2]	382 elementary and middle school educators across California, Hawaii, Michigan, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, and Texas.	Post intervention survey research via web, paper/pencil, and telephone.
Oklahoma Schools Attuned 2002 program evaluation. Norman, OK: Education Evaluation Associates. Principal Investigators: E. Bontempi and S. S. Nash (2002) [2]	61 educators and 522 students at 6 elementary and middle schools in Oklahoma, as well as case studies with 40 additional students.	Post intervention survey research, Document review, and Case study methodology.
Evaluation report: Project STYLE. Sulphur Springs, TX: Texas A&M University-Commerce. Principal Investigator: G. S. Gates (2002) [3]	9 educators and students in grades 1-4 from a public elementary school in Texas.	Pre/Post assessment of standardized student achievement data, Document review, and Interview methodology.
North Carolina Schools Attuned: 2001 outcome information. Chapel Hill, NC: O'Sullivan and Associates; Evaluation, Assessment, & Policy Connections. Principal Investigator: R. O'Sullivan. (2002) [2]	182 teachers and 216 students in grades K-8 across elementary and middle schools across North Carolina.	Post intervention survey research, Course grade analysis, and Standardized student achievement data growth analysis.
Schools Attuned Jewish Day School evaluation report. New York, NY: Sophron, Inc; Teachers College, Columbia University. Principal Investigator: G. Pack (2002) [3]	14 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.	Pre/Post survey research, Site observations, and Interview methodology.
Schools Attuned program evaluation 2003: The report card study. New York, NY: Teachers College, Columbia University. Principal Investigator: S. W. Ort (2003) [3]	Report cards produced by 27 teachers for 158 students from 10 Jewish Day Schools across New York, New Jersey, and Connecticut.	Pre/Post document analysis.
Comprehensive school reform grant evaluation (Cycle 1) Scio Central School. Olean, NY: Cattaraugus-Allegany Board of Cooperative Educational Services. Principal Investigator: A. Wolfe (2004) [3]	6 middle school teachers, 20 middle school students, the school principal, the district superintendent, and 8 members of a Schools Attuned Committee from Scio Central School in western New York.	Pre/Post survey research, Classroom observations, and Document review.
Schools Attuned: A report of classroom implementation based on teacher self-reporting. Denton, TX: University of North Texas. Principal investigator: B. A. Ashmore (2005) [3]	10 K-3 educators from a rural district in Texas.	Interview methodology and Document review.
Schools Attuned training: Teachers' survey. Santa Barbara, CA: University of California, Santa Barbara. Principal Investigator: S. Crandell (2005) [3]	24 teachers from 4 elementary schools in Santa Barbara, California.	Post intervention survey research.

Schools Attuned opinion survey summary report. Lafayette, IN: Indiana Design Consortium, Inc. Principal Investigator: L. Hendrickson (2005) [3]	9 teachers, 4 administrators, and 3 tutors from 4 schools in Indianapolis, Indiana.	Interview methodology.
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) [3]	83 educators, 135 students (grades 3-6), and 17 district personnel from an independent school district in Texas.	Post intervention survey research, Interview methodology, Document review, Site observations, and Analysis of student achievement data.
A research study to measure the impact of Schools Attuned on special education. Durham, NC: WESTAT. Principal Investigator: T. A. Fiore (2006)[1]	Phase 1: 65 educators and 11 parents from 7 schools in the Northeast, Mid-Atlantic, Southwest and Southeast regions. Phase 2: 14 public elementary schools (7 implementing Schools Attuned and 7 comparison schools) in the Northeast, Midwest, and Southwest regions. Phase 3: 11 public elementary schools in the Northeast, Midwest, and Southwest regions. Phase 4: 62 educators and 213 students from 4 public elementary schools and 1 public intermediate school in the Northeast and Central regions.	Post intervention and pre/post survey research, Pre/Post standardized rating scales analyses, Quasi-experimental comparison group analyses, Document analysis, Classroom observations, and Interview methodology.
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)[2]	23 administrators and 51 teachers across 10 schools in New York City (7 elementary schools, 1 middle school, 2 high schools).	Post intervention survey research and Interview methodology.
Action research on the Schools Attuned program and special education outcomes: Data submitted to All Kinds of Minds between May 2003 and June 2007. Chapel Hill, NC: All Kinds of Minds. (2007) [2]	Data from 5 elementary and middle schools in New Jersey, Texas, and California, and 1 school district in Ohio.	Document review.
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) [3]	2003-06 data for teachers and their students at 32 schools in the Forth Worth Independent School District in Texas.	Analysis of student achievement data and Document review.
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) [2]	17 educators from a public elementary school in North Carolina (10 who had participated in Schools Attuned and 7 comparison teachers).	Interview methodology, Classroom observations, Problem-solving vignette and concept mapping analyses, and Document review.

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)[2]	20 students from a public New York City elementary school.	Interview methodology, Site observations, and Portraiture case study methodology.
The IEP study: Evaluation of the Schools Attuned professional development program. New York, NY: Teachers College, Columbia University. Principal Investigator: S. W. Ort (2007) [3]	10 educators and 114 students with IEPs from high schools in New York City.	Document review.
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)[1]	Part 1: 235 educators from NC, 181 educators from OK, and 5 educators from unidentified states. Part 2: • Data from grades 3-8 students in North Carolina across years 2003-2005: 3,500-4,200 students each year of teachers who had particiapted in Schools Attuned; 613,500-621,700 comparison students each year. • Data from grades 3-8 students in Oklahoma across years 2005 and 2006: 4,000-5,600 students each year of teachers who had particiapted in Schools Attuned; 11,200-13,300 comparison students each year.	Post intervention survey research and Comparison group analyses using statewide standardized student achievement data.
Schools Attuned and mentor applications of Schools Attuned. San Francisco, CA: WestEd. Principal Investigators: N. Tushnet and T. McCormick (2007)[1]	17 administrators and 325 teachers from 21 public, private and charter schools in northern and southern California (159 teachers who had participated in Schools Attuned and 166 comparison teachers).	Post intervention survey research, Classroom observations, Interview methodology, and Quasi-experimental comparison group analyses.
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)[2]	110 students, 48 parents, and 36 educators from 2 public elementary schools in New York City.	Post intervention survey research, Pre/Post analysis of standardized rating scales, Pre/Post assessment of standardized student achievement data, Document review, and Interview methodology.

[1] Funded through All Kinds of Minds Request for Proposal process [2] Funded through specific grants obtained by All Kinds of Minds [3] Independently funded and submitted to All Kinds of Minds

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