

Learning from Parent Involvement in the Warren A. Allison Elementary School Algebra Project

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I know how strange it can sound to say that math literacy – and algebra in particular – is the key to the future of disenfranchised communities but that is what I think, and believe with all my heart.

Dr. Robert Moses

Radical Equations: Civil Rights from Mississippi to the Algebra Project (2001)

Introduction

In our welcome letter to parents at the start of the 2009-2010 school year we wrote, “For too long, the students and families in our school have not had the same opportunities as other students in more affluent communities.” Prior to this year we did not have a way to act on our beliefs. Now, after hearing Dr. Moses, an important voice in the civil rights movement, speak about how economic access and full citizenship depend crucially on math and science literacy, we do.

We – Wendy Gallimore, Danalynn Zacharias and Kim Rohall – are teachers at Warren A. Allison Elementary School in the Twin Rivers Unified School District (TRUSD) located on the outskirts of Sacramento, CA. Building on what started as a dream became reality for us when our District (TRUSD), in partnership with California Teachers Association Institute for Teaching (CTA IFT) agreed to support us in a two-year Algebra Project pilot study.

A collaboration of partners including TRUSD, CTA IFT, Twin Rivers Unified Educators Association, UC Davis School of Education CRESS Center (UCD) and the Southwest Network of Industrial Areas Foundation (IAF)¹ was formed to provide project support and direction. Members of this collaboration served as an advisory committee and as advocates. A sub-set of this group became part of our working-group. This sub-set coalesced into our support team, contributing to our thinking and planning. They spent time in our classrooms during the school day, attended Family Math Nights and Field Trips, and also joined us for our quarterly Saturday work-days which is where most of our thinking about parent engagement took place. One of the support team members, Dr. Joanne Bookmyer (UCD), is listed as a co-author on this paper as she took an active role in helping us identify our research question, carry out our investigation and make sense of our findings, and in the

¹ The local chapter of IAF, the Sacramento Valley Organizing Committee (SVOC) was actually part of the original collaboration. IAF was brought in by AP Inc. when it became clear that SVOC did not have the capacity to fulfill its contract. IAF and AP Inc. have formed local partnerships aimed at improving outcomes for low-income, low performing students at other sites in California, including Los Angeles and San Francisco Unified School Districts.

actual writing of the report. We also want to acknowledge our other two work-group members, Marlene Bell (CTA IFT Project Coordinator) and Sister Maribeth Larkin (IAF-SVOC). You will find their voices interspersed with ours throughout this, our first co-authored paper.

In addition to rolling out the Algebra Project (AP) in our classrooms, the work-team simultaneously conducted a collaborative teacher research study. What follows are the results of our research which documents one small piece of the first year of the AP pilot study, specifically what happened when a concerted effort was made to engage parents as partners in the AP.

Note that while we use terms such as “parent engagement” or “parent collaboration” throughout this study the legal guardianship of children attending Allison is diverse. Guardianship ranges from biological mothers, biological fathers, biological couple parents, foster parents, grandparents, great-grandparents, godfathers, stepparents, brothers and sisters, aunts and uncles, distant relatives, foster-to-adoptive parents, family friends, and legal custodians.

Background and Context: Algebra is a gate-keeper for higher mathematics

The Algebra Project, Inc. (AP Inc.) was funded in 1982 by a Harlem-born and Harvard-educated Civil Right’s leader, Dr. Robert P. Moses. Over the past two decades AP Inc. grew from teaching mathematics in one school in Cambridge, MA to middle and high schools across the country, developing successful models of whole school and community change along the way. AP Inc.’s relationship with an elementary school is their first foray into expanding the model into elementary schools.

AP Inc. uses mathematics (algebra) as an organizing tool to ensure quality public school education in the middle and high school grades. We believe that the AP Inc. model might also be used to support algebraic reasoning in the elementary grades. Starting the program as early as the 5th grade, we reason, should better prepare students for middle grade mathematics and Algebra 1 by the eighth grade, thus preparing students for college preparatory mathematics in high school, and giving students access to the mathematical knowledge required for college entrance, success in college courses, and lifelong civic engagement.

AP Inc.’s approach to school reform intentionally develops sustainable, student-centered models by building coalitions of stakeholders within local communities, particularly in underserved populations. It provides a context in which students, schools, parents and communities can maximize local resources and take ownership of their own community building and mathematics education reform efforts. To learn more about AP Inc., we

suggest Bob Moses' 2001 book, *Radical Equations: Civil Rights from Mississippi to the Algebra Project*.²

AP Inc. has proprietary rights to its curriculum and participating teachers are required to participate in AP Inc. training (we attended a two-week intensive training program in July of 2009 and an AP Inc. consultant met with us on a quarterly basis throughout the school year).

As we have mentioned above, AP Inc. has not worked with elementary students. The Allison team, therefore, worked closely with AP Inc. to select developmentally appropriate lessons within the selected Algebra Project modules. They then aligned those modules to 5th and 6th grade California Content Standards. The corresponding topics found in the district adopted math text, enVisionMATH, was then reordered so that the topics taught were coordinated with the same topics addressed in the Algebra Project modules. A pacing guide showing the integration of the two programs was also developed, which further demonstrated a well-grounded program.

Forming a question

It is widely understood that access to algebra enables students to participate in advanced high school mathematics and science courses; algebra is often described as a gateway for college entrance. A primary goal of the Allison AP is to help make algebra available to all fifth and sixth grade students regardless of their prior level of skill development or academic achievement and a key strategy to reaching this goal is fostering the collaboration and support of parents and the local community.

We were in agreement from the start that our teacher inquiry would focus on parents' engagement in their child's learning and purposefully built parent involvement into our AP structure. Following is a summary of key events and activities in which parents were encouraged to participate. Collectively these opportunities provided a means for us to introduce parents to the AP, to build a common understanding of what algebra is and why we want their children to study it, and to encourage them to be full collaborators in our efforts in help students achieve math literacy.

<u>Parent Engagement Activity</u>	<u>Date</u>	<u>Purpose</u>
Pot Luck Kick-Off	8/21/10	Start of year celebration
Old Sacramento Field Trip	9/11/09	Introduce Trip Line Module
Sierra College Field Trip	10/30/09	College/University visit
Family Math Night	3/3/10	Family math experience
California State U. Sacramento Field Trip	3/25/10	College/University visit
University of California, Davis Field Trip	4/09/10	College/University visit

² Moses, R.P. and Cobb, C.E. (2001). *Radical Equations: Civil Rights From Mississippi to the Algebra Project*. Boston, MA:Beacon Press.

Family Math Night	5/12/10	Family math experience
M.L. Outdoor Educ. Field Trip	5/30/10	Team building
Sunsplash Field Trip	6/03/10	End of year celebration

Parents were also invited to volunteer and/or visit their child's classroom at any time throughout the year, and were encouraged to participate in the "routine" (e.g., Parent-Teacher conferences, PTA meetings, etc.) that take place at Allison throughout the school year.

Four factors that contributed to our research question

1. Our own perceptions and beliefs

The following excerpts from our journals make it clear that while all of us want our students to achieve academically, math literacy is secondary to each of us wanting the best possible outcomes for the children and families attending Allison.

Kim: I know that without parental involvement and encouragement the majority of my students will not reach their academic potential. Overall, I think I have parents who want the best for their children. They just maybe don't know how to get that.

Danalynn: I try to help students get excited about the world and the people in it. We learn the skills, the State's Standards, but then I try to create a safe place for them to use their skills to discuss and consider themselves, their community, and the world. How do they fit in, what do they want to accomplish, how do they feel about their classmate's ideas? It is time to take this to the next level – to create a safe place for parents to have these same kinds of questions in their children's behalf.

Wendy: I discovered earlier in my career that it isn't enough to simply teach students. By simply accepting our educational system I was helping keep children and families in a state of poverty and helplessness. I was playing into the idea that certain children had certain roles and we must prepare them for those roles. This simply is not good enough for me. Just as it is not good enough for Dr. Robert Moses who describes math literacy as being the last civil right not attained by our citizens, especially those of color and poverty. For change to happen, parents need to believe that they have the power to make a change.

2. Demographics

Allison Elementary is located in North Highlands (Sacramento County, CA), a mostly working class residential housing area with some commercial and industrial regions around the former McClellan Air Force Base, now a civilian business center and airport.

Families represent a wide range of economic levels but the vast majority are poor (in 2008-09 the federal Free/Reduced-Price Lunch rate at Allison was 87%).³ US Census data (2000)⁴ indicates that median income for the North Highlands zip code area as \$33,000, with 18% of families living below the poverty level; most North Highlands adults have a high school degree (73%) but while many have some college experience only 7% are college graduates.

Allison currently serves 370 students (K-6) and is part of the TRUSD (formed in 2007 with the merger of five elementary and high school districts). Students and their families are ethnically diverse. While California Department of Education data states the predominant ethnicities as being Whites, Hispanics, and African Americans, the 30% of students defined as English Learners speak Spanish (majority), Russian, Punjabi, Armenian, and Ukrainian.

The AP year one pilot included three classes: a 5th grade taught by Wendy, a 6th grade class taught by Danalynn, and a 5th/6th grade Special Day Class serving students with disabilities taught by Kim. The school's 5/6th combined classroom teacher elected not to participate in the AP, although these students were invited to participate in several AP activities (e.g., Family Math Nights and the After School Program). While Wendy and Danalynn's students reside in the immediate neighborhood – within walking distance – Kim's students are drawn from across the district, with most relying on bus transportation. This created a different level of challenges for Kim's parents (e.g., transportation issues, other children in the family attending different schools).

In many respects these demographics are our very reason for implementing the AP. Allison serves historically underserved populations, those whom we believe can most benefit from being empowered to learn mathematics and to demand a quality education.

Our students and their families are, of course, much more than a generalized set of characteristics. They are complex people with complex lives that we, as teachers, have access to and connect with in ways few other professions, with the possible exception of social workers, experience. In October, Joanne asked the participating teachers to write about the parents of their students. What follows is an edited excerpt from Wendy's response. For confidentiality, references to specific student's names and gender have been removed.

Wendy began by writing, *"My parents are fantastic but they can be a challenge."*

**They have pooled together to bring in supplies for the class - candy, tissue, paper towels and art stuff.*

**[Student's] family has not responded to any of my phone calls. They did not come to back-to-school night. I wonder how to engage them? I have never even met them.*

³ California Department of Education, Ed-Data. (2008-2009). Retrieved July 29, 2010 <http://www.ed-data>

⁴ US Census. (2000). Retrieved July 29, 2010 <http://factfinder.census.gov>

**[Parent] volunteers at least 4 hours weekly in the classroom correcting papers, helping students or whatever. She is worried that [her child] is below grade level in language arts and no teacher had ever told her their concerns.*

**I know [parents] from my experience with their older daughter 10 years ago. They are familiar. They want the best for their children and it shows. They send in good snacks for [student]. They call and check on [student]. They are happy and supportive.*

**[Student's] mom has come in twice - she came to the AP parent meeting - but came to make excuses for [student]. I was sad to see that.*

**[Student's] grandma got [student] getting work done [Student] is late everyday to school, yet the dad will spend all day with the sister in kindergarten because she is scared.*

**[Student] is struggling with parents' divorce and [student] had told me that she attends Narcotics Anonymous meeting with dad.*

**[Student's] mom has kept [student] home from school two times already this year, because she was afraid that [student's father] would come to take [student] out of school.*

**[Student] shared with me that [student's] father had an affair and mom sent him away.*

**[Student] is a lost and confused because mom keeps telling [student] they are moving, but [student] does not know when.*

**[Student's] mom works in the district. She moved [student] here so that her child could "go to the good schools."*

**[Student] tries hard, but struggles. [Student's] family has visited several times. They know [student] is low achieving, yet they want the best for [student].*

**[Student's] mom is a meth addict. She comes to school at times high and in various forms of dress. [Student] has diabetes and must have shots daily. She comes and does that for [student]. She came on the field trip the other day and did a marvelous job with the other children. I was surprised and impressed at the same time.*

**[Student's] mom is soft spoken and just wants the best for her [student]. She is a single mom who has expectations and will help her [student] reach high.*

**[Student's] family is at a crossroads. Dad wants [student] to grow up and be responsible; mom wants to keep [student] like a baby. It is apparent in [students] behavior. [Student] is a 40 year old in a 10-year-old body.*

**[Student's] parents have openly said that they do not want to put limits on [student], so they let [student] say whatever [student] wishes. While they seem to love [student], they seem to not punish [student] for inappropriate behavior. They tend to avoid me like the plague.*

**[Student's] family babies [student]. Mom asks many questions and tries to help [student], but seems overwhelmed.*

**[Student] cannot see well. [Student] is [from another Country]. [Student's] father is ashamed of [student's] "defect" and will not buy [student] glasses because "no one else in the family needs glasses- so why should [student]? I have talked to him some, but I do not know how to address that.*

**[Student] did not show up for the field trip. [Student's] family is not consistent in checking [student's] homework. [Student] comes in late and I have never met anyone from [student's] family.*

3. Parent Surveys

One of our first data collection efforts was a survey designed by the teachers and distributed to parents who attended the first Family Math Night (April 15, 2009).⁵ The survey asked parents to respond to several basic questions: Do you like math? Does your child like math? Do you feel you are good at math? Why is it important to learn math? What is it you like or dislike about math? Do you feel you are able to help your child in math?

A follow-up survey was distributed at the second Family Math Night (May 20, 2009). This survey was intended to elicit additional information from parents about their own educational experiences: Do you like school? Does your child like school? How far did you get in school? Did you want to go to school more (continue your education)? What would have made your school experience better? If you could go back in time to school what would you do differently/the same?

Joanne summarized the results and provided a preliminary analysis (Table 1).

Table 1: Family Math Night Survey - Preliminary Analysis

1. The majority of parents like math.
2. The majority of parents believe that their children like math.
3. While most parents indicated they are good at math, their reasons about why were vague.
4. All but one respondent felt that math is a necessary survival skill.
5. Parents dislike the repetition, formulas, and the sense of frustration when they get "lost in the process" and when it becomes abstract (e.g. when you substitute letters

⁵ The survey was available in English and Spanish. Interpreters were also available to assist parents complete the survey.

and symbols and shapes) and that it takes a lot of work. Parents like basic math (addition, subtraction), the challenge, and the sense of success when they get it “right”.

6. Most parents believe they can help their child in math (either because they are good at it or because their children are smart). Those who don’t believe they can help believe it is because of their own lack of math skills.
7. Allison school parents are mixed in terms of their own educational achievement. Of those surveyed, the majority had at least some college/vocational education.
8. Most parents said that they liked school (some because they liked the social part; some because they liked the academic part – learning).
9. Most parents said that their children liked school for the same reasons they did (either they liked the social part or the academic part – learning).
10. Most parents indicated that they would have liked to go to school more. Almost everyone who responded ‘yes’ said they left because they had to work and/or had a family. The main reason for not going was not having enough money (i.e., could not afford the cost).
11. Responses about what would have made their own school experience better were mixed – ranging from nothing to not moving so often to not having to get up so early to better guidance and more knowledge.
12. Parents’ responses to what they would do differently if they could go back in time were mixed – ranging from attending school every day and being on time to focusing more on learning to not wanting to change anything.

After discussion, the teachers decided on three overall conclusions.

- Parents have many of the same frustrations with math as their students
- Parents seem to be pretty positive—overall—about their child's math education
- Parents struggle with the transition from the concrete to the abstract—as do the students

4. Classroom Observation Logs

Our second data collection effort was to create a log that tracked 1:1 interactions between teachers and parents. The log captured the student/parents’ names, date, type of interaction (phone, face-to-face), the reason for the contact, and whether or not the contact was a positive (+), negative (-) or neutral (+/-) experience for the teacher. After the first trimester these logs were summarized and Joanne calculated the total number of contacts with each parent, the percentage of positive and negative contacts, and the percentage of contacts that involved math.

Table 2 provides an example of Danalynn’s interactions (information on 10 students) with her parents during the first quarter of the year. What we realized, when looking at the data was that the AP was the primary reason for our interactions with parents during this time frame, and because most of those early contacts were informational (e.g., to invite them to the AP Kick-Off Potluck or let them know about an upcoming AP fieldtrip) they were largely

positive. As hoped, the AP had given us a way to establish positive, non-threatening relationships with our parents. In some instances, we also realized that if not for the AP we would have had minimal contact with some of our parents.

Table 2: Example of Parent Teacher Contact Log – Danalynn 1st quarter

Student/Parent	Total Contacts (#)	% Positive Contacts	% Contacts re: Math
A	8	100	63
B	9	78	44
C	9	78	44
D	8	63	75
E	11	45	45
F	8	63	63
G	7	71	71
H	7	71	57
I	7	71	71
J	9	78	67

A second realization was that in almost all cases it was the teacher who initiated the contact. We speculated that if the AP was successful in meeting its goal of having parents be full collaborators in our efforts to help students achieve math literacy, that this might change by the end of the year—that parents would eventually initiate more of the contacts. We decided to repeat the process in the spring, adding one additional column to indicate who initiated the contact (the teacher or the parent).

Table 3 is an example of Wendy's interactions with her parents (information on 10 students) during the last quarter of the year. Our sense is that while we continued to initiate most contacts with parents, several of them did take the initiative and contacted us. Also, we noticed that fewer of our later contacts with parents were specific to mathematics—although when we did talk about math it was almost always marked as a positive experience.

Table 3: Example of Parent Teacher Contact Log – Wendy 4th quarter

Student/Parent	Total Contacts (#)	% Pos. Contacts	% Contacts re: Math	# Parent Initiated
A	2	0	100	0
B	2	0	50	0
C	5	60	40	2
D	8	88	75	6
E	2	100	50	1
F	4	100	100	1
G	6	100	100	3
H	2	50	100	2
I	3	100	67	1
J	1	100	100	1

Here again, we found a difference in Kim's class. All of her contacts with parents over the last quarter took place over the phone. In contrast, in Wendy's class the majority of conversations happened face-to-face. What we take from this is the understanding that teachers/schools need to accommodate parents—not the other way around. It isn't necessarily a lack of interest that keeps them from being engaged, it could simply be that we haven't found the right way(s) to allow them to engage. For most of our parents the use of media-based communication would be vastly inappropriate; few have access to computers/Internet. For Wendy's families, most of whom had a parent at home during the day, asking them to chaperone a field trip was reasonable, whereas many of Kim's families who were either single, both working during the day, or had other children at their home school, appreciated being able to attend evening events where other siblings were welcomed.

Research Question

The research literature is full of convincing articles stating that parent involvement is an important component of children's academic success (Patrikakou, Weisbert, Redding & Wallberg, 2005)⁶. When teachers or school personnel use parent involvement, students' attendance increases, students' dropout rates decrease, and students develop positive attitudes toward school (Epstein & Hollifield, 1996)⁷.

Precise predictors of what effective parent engagement should look like (e.g., volunteering versus homework help versus attending PTA. meetings) and "how much is enough" (e.g., the appropriate or sufficient intensity and dosage required to translate into a child's academic success) remain open for discussion. Epstein's (1995)⁸ widely recognized framework is based on six types of family and community partnership, each of which recognize a range of activities that take place outside the classroom: workshops/training for parents; school-to-home and home-to-school communication; volunteering; homework support; decision making (e.g. participation in a school site council); and collaboration with the broader community (e.g. community service, college visits). It is not clear to us whether or not certain of these types, or differing levels of intensity or dosage yield better results but it seems reasonable to predict that any involvement with the school is better than none, and that the more directly involved in helping their student master the content the higher the likelihood that their child will benefit academically.

⁶ Patrikakou, E.N., Weissberg, R.P., Redding, S. & Walberg, H.J. (2005). *School-Family Partnerships for Children's Success*. Columbia University: Teachers College.

⁷ Epstein, J.L., & Hollifield, J.H. (1996). Title I and school-family-community partnerships: Using research to realize the potential. *Journal of Education for Students Placed at Risk*, 1(3) 263–278.

⁸ Epstein, J.L. (2001). *School, family and community partnerships: Preparing educators and improving schools*. Boulder, CO: Westview Press.

The question then, becomes just *how* does one go about engaging a parent. Anderson & Minke (2007)⁹ looked at how parents of elementary children in an urban setting decide to be involved in their child's education. They found that specific invitations from teachers had a greater effect than the parent's sense of efficacy or level of resources. As it turns out, our inquiry took us along a similar path.

We didn't actually decide on our final research question until an AP team meeting in February. The question emerged out of a conversation around the data we had collected up to this point (including all of the factors described above). We knew we had established positive relationships with parents who were generally supportive, and in some cases highly enthusiastic, about the AP. But we decided to push a little harder and address a question we had—one for which the answer didn't appear in our review of the literature. Our hypothesis was that while any level of parent involvement with the school is a good thing, having parents directly involved in what is happening in the classroom would be even better. After discussing what we could do to help parents become more active partners *in the classroom* we decided on this overarching research question:

Does providing parents with simple skills/strategies to support their child's learning (around a particular challenge) impact their child's academic success?

Each of us had other related questions. Wendy wanted to know what part of "parent participation" really helps students achieve academically. Could we, she wondered, separate the difference between parent attendance and parent support? Danalynn questioned whether or not parents would use the information. Could we actually find a way, she asked, to increase the time parents and students spend learning and sharing information with each other? Kim's wondering and questions fell along similar lines. She also recognized that many parents of special education students are unsure how to encourage/help their children improve.

Danalynn tried to approach the inquiry with no expectations—she just decided to see what happened. Wendy hoped that all of the parents would work with their children on a regular basis and that we would see huge academic gains from each child. An idealistic position she knew, so she also noted that more realistically she hoped that at least half of the students would make some academic gains around the particular skill that was identified as lacking in their performance. Kim expected a range of results. Some of the parents, she predicted, would work with their children and call her if they needed help. Others would work with their child for a week or two before giving up in frustration or the time stresses of their everyday lives. Still others would likely do nothing, either because they believed that their child's academic or behavioral success was her [the teachers] job, or they had enough difficulty getting their child to do what needed to be done at home and they did not want to add another area of contention.

⁹ Anderson, K.J. & Minke, K. (2007). Parent Involvement in Education: Toward an Understanding of Parent's Decision Making. *The Journal of Educational Research* 100(5) 311-323.

Methodology

To answer our research question we, working independently, listed each student in our individual classrooms. We then identified one specific barrier that, from our perspective, was preventing learning (e.g., basic facts/multiplication and division, multi-step problems, or reading at grade level/comprehension). Tables 4, 5 and 6 provide a summary of the identified barriers. As it turned out, the barriers we identified were not specific to mathematics/algebra, but touched on basic skills (numeracy, reading, writing) that are essential to learning in any content area.

Table 4: Teacher identified barriers to learning: Wendy's class (n=27 students)

<i>Focus Area</i>	<i>Student(s) by #</i>	<i>Identified barrier</i>
Math skills	1, 4	Basic facts/ multiplication and division
	13, 14, 24	Basic facts addition/ subtraction/multiplication/division
	10	Basic math facts/ application
	6	Word problems/math
Problem-solving skills	11	Cursive practice/ step-by-step problem solving
	15, 17, 22	Multi-step problems
Reading / comprehension skills	2	Reading at level - write each day
	3, 9, 16	Reading at level/ comprehension
	23	Reading and asking questions
	25	Basic facts – reading and answering questions
	27	Word analysis- antonyms, synonyms etc.
Writing skills	5	Handwriting practice/ written expression
	7, 19	Written response in a time limit
	8	Edit/revise sentence structure
	12	Creativity- especially in writing
	20	Writing- details and descriptions
	26	Writing- details with expression
Other*	18	Social Studies (student's choice)
	21	Response to Literature (student's choice)

* Two high-performing students were asked to self-identify areas to work on.

Table 5: Teacher identified barriers to learning: Kim's class (n=15 students)

<i>Focus Area</i>	<i>Student(s) by #</i>	<i>Identified Barrier</i>
Math skills	1, 2, 6, 13	Multiplication and division facts
	3,8	Improve addition and subtraction skills
	9, 11	Improve subtraction skills
	14	Numbers 1-10
Writing skills	4, 5, 15	Writing two and three related sentences
	7	Editing skills
Other	10	Anger and frustration management techniques
	12	Keyboarding skills

Table 6: Teacher identified barriers to learning: Danalynn's class (n=28 students)

<i>Focus Area</i>	<i>Student(s) by #</i>	<i>Identified Barrier</i>
Math skills	9	Basic math facts (addition/subtraction)
	10, 17, 21	Basic math facts (multiplication/division)
Reading / comprehension skills	2, 6, 12, 13	Reading comprehension
	1, 7, 11, 14, 15, 20, 22	Reading comprehension/paragraph development
	5, 8, 26	Reading comprehension – recalling detail
	3, 16, 18, 23, 24, 7, 28	Recalling story/text details
English language skills	19, 25	English language/ vocabulary word play
Other	4	Proof reading written assignments

Our next steps differed, as each of us elected to pursue different strategies for getting our prescriptions to the families.

Wendy's approach was to write an individualized "prescription" in the students' second trimester report card. This particular step made some of us, Joanne in particular, nervous. She worried about how parents would respond to comments such as the one that follows:

[Student] is still struggling in many areas. Her reading level is well below grade level. Her math skills are inconsistent especially when it comes to basic facts. She needs to really strengthen her multiplication and division skills. This will allow her to be more successful with more difficult mathematical concepts. Also, she needs to be more consistent on getting homework completed on time. Some weeks, she has it done. Other weeks, she does not turn in anything until the last day and then scrambles to get some completed. She needs consistent practice every day for a set amount of time. I suggest spending an extra hour every night in addition to her regular homework to practice her basic skills. STAR Reading level: 3.7 (Her grade level needs to be 5.67 at this point in the year).

The team considered Joanne's concern and Wendy discussed with the school's principal. Ultimately Wendy continued with her original plan, saying, "My comments are always like this. They [parents] always appreciate the honesty and suggestions. Only those that are many grade levels behind have such a request for an hour of time."

Just after the spring break Wendy, with the help of parents and volunteers, made practice packets and sent them home with instructions for the student and parent. The packets included practice sheets, readings and activities for each student based on the identified skill. Several weeks later (May 2010) she asked parents to write a response to the activity for the practice packets. She received responses from the majority of parents. These responses became the data that she used to analyze the results of her efforts.

Kim scheduled three Reading Celebrations at the end of the second trimester and used that opportunity to review report cards with parents and to explain her prescriptions for each child. She also had students play math games with their parents at the end of the Celebration. It, says Kim, was a "great time to encourage parents to help their child because Reading Celebrations show parents that their child does experience academic success." For the parents that could not attend, Kim called and explained the prescription over the phone. After parents knew what to expect, Kim sent the prescription materials home with students. Some students went home with math-dice or cards, others with simple games or journals. One student went home with an AlphaSmart—his task being to improve his keyboarding skills.

After the packets were sent home Kim paid close attention to each student's academic progress and made a point of asking her class members if they were playing the games at home. She also made a point of talking to parents, expressing her concern or optimism about their child's progress on the set goal. On occasion, she suggested modifications for the games.

Danallynn provided packets of practice work for parents and their children to work on together based on the student's prescription. Practice work ranged anywhere from math facts to comprehension strategies. Each packet was sent home with instructions and a short explanation of why parent involvement in practice work could be beneficial to their student. Her recommendation was that parents work with their students on these practice pages two to three hours a week. At the end of the practice packet she included a list of games and ideas parents could use that would provide practice time in a fun way. Each practice book averaged 20 pages, front to back. She also checked in with one student's parents (her lowest achieving student) to see if they needed any help understanding the information. The student's mom said she was the one working with the student and that they were doing fine.

Danallynn's prescription packets included a note to parents explaining the intent of the packets and asking them to work with their children. This was during parent conferences so she also used that opportunity to speak with the parents about the prescribed work. All were very enthusiastic about the work coming home and planned to complete it with their

student. About three weeks before the year was over, Danalynn sent home a three-question survey about the packets and the parents' responses and ideas about them. Most surveys were completed by the parents and returned by the students.

This experience was similar to *Vacation Challenges*, practice work Danalynn sends home with students over breaks. Typically, about a third of the families complete the *Vacation Challenges* (8-12 students). The 'challenge' is to complete all of the pages in the packet with at least 80% correct responses. Students who meet the challenge are rewarded, usually with food (such as Ice Cream Sundaes or pizza).

Analysis

How each of us analyzed our data differed as well. Wendy spoke to several parents about the packets and what they accomplished. She also read each of the returned notes to determine what each parent did or did not do with their child. Some parents wrote back saying that they did not work with their child. Many acknowledged some work and wished that there were more time to complete their assignments. One parent related that her child hid the work and claimed that she did not know where it was. Still others must not have read or understood the directions as they had their children complete the packet on their own (remember the point was for parents to support their child's learning). Yet another parent completed some of the work with her child but then returned the packet with a request for a different level of work. She thought that the work was too difficult and was creating more stress than success. This particular student was an English Learner working at about a 3rd grade level in English.

A number of Wendy's students (at least seven) did not show the packet to their parents until right before they were to return the requested note. This caused a bit of panic with parents who tried to cram the work into a short period of time. Others though, said they would work with their child over the summer.

Finally, one of Wendy's parents wrote that while they did work on the packet together she was not concerned about her son's work as he was already a high achieving student. Wendy found this puzzling, because her "natural inclination is to push all of the students as far as possible but here was a parent who was content to just push a little." Oddly enough, he was the student in whom Wendy saw the most improvement in his classroom work and assessments. His skill area was in writing. After working, even minimally, with his mom his grades went from low B's to pretty solid A's.

Kim had conversations with each of her parents to ask how the games, journal, or other materials were working for them. In addition, two weeks before the last trimester ended, she gave each student the district's leveled special education assessments to determine how much progress each child had made. She then compared the results (if applicable) to the previous semester.

Danalynn used the survey results to see whether the parents worked with the packets, liked the content, worked with their child, or the student worked alone. There were four or five students who did not take the packet home to their parents but she didn't find out about that until she sent the surveys home. This reinforced for us that asking students to serve as the point of communication between a teacher and a parent might be problematic. Particularly if the student understands that while they are being invited to practice they won't actually be held accountable for showing the results of their efforts. Danalynn also reported that two parents stated they didn't care to participate because they felt their students did not need the work.

In response to our research question – did providing parents with strategies to support their child's learning make a difference for our students – our conclusion is that the results were mixed. Wendy believes that the parents who really worked with their child contributed to improvements in their child's academic progress. Two of her students showed that they were better with their math facts and one student improved his handwriting and was able to complete more, and more legible work, after practicing with his mom. Several of Wendy's parents also noticed differences:

I have noticed [student's] writing has improved. He has been working a lot on the practice sheets that were sent home.

Me and [student] have been working hard on writing and spelling and some math. We did some packets. Thank you for helping [student]. She is doing much better.

It's impossible for us to know if anything about this activity will have a long-term impact on how parents support their child's learning but our feeling is that a number of parents appreciated the experience. Several of the notes from Wendy's parents support this conclusion. The first quote is a translation of a note written in Spanish.

This packet that was given to students was a good idea because it provides practice with us parents so that we can be more involved with the work that our child is doing in school. This way parents and teachers together can continue to motivate students to be successful. And in our free time we can continue to work with our children and continue to support our children as much as possible. As I look at [student], she is busy working on her packet.

My husband and I are very pleased to see such progress in [student's] work. He tries real hard and he has learned to take his time in doing so. His handwriting is more readable. If we can't read what he writes we tell him to re-write it so that we know what he is trying to write. So by next year you will be able to see such a difference.

Three of Kim's students made outstanding progress. One dramatically improved his keyboarding skills, along with his overall writing skills. The second, whose prescription

was to write three related sentences in his home/school journal each day, is now able to do so without prompts. An added benefit for him is that his mother was able to show some of his journal writing to his doctor. This enabled the mother to get her child the counseling for him that she had sought for over a year. The third student, who has excellent parental support, was able to memorize his addition and subtraction facts. This was evidenced by the student's consistent ability to help the class correctly add the number of miles they ran during the Morning Run Math and by changes in his ability to quickly and correctly add and subtract when doing division.

Discussion

Overall, the results of our inquiry were disappointing—"a whole lot of work for not much bang"—although many parents did thank us for our effort. They said that they appreciated that we took the time to find things to help *their* child be more successful, but many still failed to use this opportunity to make working with their child part of their daily or weekly routine. We're not sure why. Maybe we needed to spend more time with parents up front, training and guiding them on how to help their children. Maybe, what we were asking just wasn't realistic for parents who face numerous stresses and time constraints. Maybe, there will always be a small percentage of parents who believe that helping children master material is the job of the school.

Perhaps more likely is the reality that the bulk of our energy and time over the last year was spent organizing and learning the Algebra Project math modules and combining that curriculum with our district's new math curriculum. We had no previous experience with either set of curriculum. The research question really didn't get our attention until half way through the year and in many ways was outside of the work we were doing in the classroom.

Perhaps a greater disappointment was the actions of some of our students, the ones who waited until the last minute to share the packets with their parents, or who did not share it at all. How do we get students to understand that we need to practice to get better? How do we help our students realize that they have the power and ability to change?

That said we still consider the first year of the AP pilot study as a success. None of us knew what our parents' response to the AP would be, but we were all hopeful. The first event, a Pot-Luck Kick Off Lunch was very well attended and as it turned out, a good indicator of what was to come. Parents bought into the AP right away and consistently demonstrated their support in a number of ways. For example, we offered three Family Math Nights over the school year, with somewhere between 100 and 150 participants in attendance (including our students, siblings and parents as well as teachers, students and parents from other Allison classrooms). Our Afterschool Program was also highly successful and provided a venue for including other classrooms (all 4th, 5th, and 6th grade students were invited to participate).

One unexpected outcome this year was the impact the Allison AP had on parents in Kim's classroom. Reflecting on the first year of the project at the end of the year, Kim wrote:

I believe that my parents have benefited from the Algebra Project.

In general, I have found it difficult to help my parents see that their children with disabilities are capable of achieving overall personal, social, and academic growth with encouragement, high expectations, and exposure to the everyday activities that other children experience. The reality is that my average parent's job in raising their child with disabilities is frustrating, time intensive, and often painful. Sometimes this leads to apathy and a lack of willingness to become involved in their children's lives.

The Algebra Project provided a much-needed positive experience, as well as a way to be much more involved in and excited over their children's educational growth. Many of my parents were excited this year because their child's academic progress had improved significantly and by the fact that many of their children were coming home and talking to them about what they had done in Algebra Project that day. Many of my students were very excited over learning division with regrouping in Chinese Zodiac. It made sense and was accessible due to the winding game and the overall set up of the curriculum. Negative numbers were actually easy to understand because of the Tripline module. Their excitement got their parents excited.

It is not just about math for my families, it is also about the overall growth, engagement, self-esteem and wellbeing of a child with disabilities. At the end of the year many of my parents said that they are more willing to work with their child at home based on the guidance I provided. Parents also reported that the children's social growth has reduced sibling and peer difficulties in the home environment. This year, more of my parents have taken their children out to public events than ever before because their children are better able to handle social group situations due to exposure with group activities, greater socialization with general education peers and exposure to the public on field trips. The Algebra Project has revitalized my parents' interest in taking an active role in their child's life.

We all agree that when a teacher makes themselves available to their parents, parents feel much more comfortable and will actively engage themselves with the school and the classroom and the student. We also believe that it isn't just parents of students with disabilities who feel a little lost when it comes to the question of how to help their student master subjects.

There is a community-organizing component built into AP Inc. and we built this into our model as well. Maribeth, an organizer with IAF, filled this role at Allison. IAF parent/community organizing consisted of two strands: supporting the AP team in its first

year of implementation, and outreach and training for Allison parents and community leaders. In addition to spending 6 to 8 days each month at Allison, Maribeth conducted trainings, identified parent leaders, and began to develop a network of adults. Because of many changes underway in TRUSD involving potential school closures and campus restructuring, organizing work during the spring focused considerable time on building strategies to influence the District's proposal to close Allison. Tom Madden, a CTA organizer was brought in to offer additional support to this effort. It isn't clear to us if the small turnouts and limited participation in parent organizing meetings Maribeth experienced was due to poor scheduling, Maribeth's relatively late arrival to the project, the fact that Maribeth comes from outside the community, parent's lack of interest, or any number of other factors. It is clear that this level of participation was markedly lower than what we were seeing in our classrooms, most particularly in what we were seeing in Wendy's classroom. Anderson & Minke's (2007) research provides some insight into what we observed.

Anderson & Minke tested a parent involvement model developed by Hoover-Dempsey and Sandler (1995, 1997)¹⁰. The original model suggested that generic invitations from the child and the school, such as "*children sharing their enthusiasm about their schoolwork with their parents or schools being perceived as being inviting to parents, as evidenced by the welcoming attitude of the office staff*" (p. 312) play a role in parents' general decision to be involved. The revised model suggested that the specific ways parents became involved are influenced by a different set of variables including, (a) a parents' specific knowledge and skills (e.g. knowledge of a subject area), (b) competing demands on their time (e.g. family and employment demands), and (c) specific invitations from their children and their children's teachers. Anderson & Minke concluded that their results support other literature in emphasizing the importance of parent involvement as a multidimensional construct. Most notably, they concluded that specific teacher invitations had the strongest relationship with parents' involvement behaviors. The findings suggest that parents who perceive teachers desire their participation find ways to be involved regardless of their resources (e.g., time, transportation, childcare).

Our experience has led us to believe that what Anderson & Minke found in their investigation is similar to what we observed throughout the year. The generic invitations from the school (e.g., Pot-Luck, After-School Nights, inviting parents to participate in fieldtrips) we made to establish relationships with parents early in the year were key to our later success. As was the fact that Allison is a welcoming environment. We were fortunate to have the full support of Debbie, the school secretary. Debbie actually attended the national AP Inc. training in Chicago with us. She told us, "What I experienced in Chicago made me realize as an adult that algebra is important, that it is used everyday. Today education is losing this. We are stuck on STAR Testing and kids are tuning out. I am 100% behind the Algebra Project."

¹⁰ Hoover-Dempsey, K.V. & Sandler, H.M. (1995). Parental involvement in children's education: why does it make a difference? *Teachers College Record*, 97, 310-331; Hoover-Dempsey, K.V. & Sandler, H.M. (1997). Why do parents become involved in their children's education? *Review of Educational Research*, 67, 3-42.

We found that the personal and casual contacts (such as face-to-face interactions and phone calls) along with a specific request almost always resulted in higher levels of parent involvement than did formal or “second-hand” requests. This would explain Wendy and Kim’s success, admittedly inconsistent, in having parents take on the extra task of working with their children on a specific skill area. It also provides insight into why some of the parents who received a formal invitation (a letter delivered by their child) may not have actually interpreted it as an invitation.

One of the APs most involved parents suggested that we be more explicit about telling parents why they needed to be involved, and to be very clear about what it was we wanted them to do: “I need to be told, ‘This is what I need you to do.’” We plan to take this advice to heart next year. Kim has already committed to calling her parents and asking for their assistance to help their children master some of the academic, social, or behavioral skills where they are weak. Wendy who will be following her current 5th grade students to the 6th grade is exploring the idea of mentoring the parents as instructional leaders for their children. She hopes that she will be able to build on the relationships she has already established and find a way to empower both her students and their parents to feel that they can identify a weakness and make a plan to strengthen it. Danalynn will not be part of the AP next year but still sees the value of providing a way for parents to be directly engaged in their child’s learning. She plans to modify her Vacation Challenge so that at least 50% of the homework is tailored to the individual needs of her students.

Conclusion and Next Steps

We are proud of our accomplishments this year and we’ve learned a number of things that will contribute to our ability to engage parents in the coming year:

1) Suggesting things parents can easily do with their students provides a way for the parent to be directly involved with their student and a way for the parent and student to be engaged with each other. The idea of providing practice work for individual students is very appealing; and we would expect it to benefit each student more than blanket assignments. Ideally the student masters a skill but also benefits from the relationship or shared experiences with their parent (such as a parent who shares a method of learning or stories about themselves growing-up). Our experience has been that most of our 5th and 6th grades parents like having meaningful opportunities to work with their students. We think most of the students do too.

2) Parent engagement depends on teachers who are willing to provide frequent opportunities and nurture the connection between a child’s progress and their parent’s involvement. That support can be delivered in the classroom or outside the classroom. Our experience has been that informal connections (such as phone calls and face-to-face conversations yield stronger results than do formal invitations (such as sending notes home with parents), especially if those conversations include constructive dialogue related to a child’s progress. Not consistently engaging parents in this way actually seems to result in parents’ disconnection from the classroom.

3) Our data collection methods and analysis techniques would not stand up to the rigors of a university research study. We are fine with that as our intent was to try to learn more about how the AP impacted our practice and our student overall success in the classroom. We wish we had much more time throughout the year to reflect on what was happening but finding time for that reflection was extremely difficult. We hope that with a year's worth of experience behind us next year's investigation will allow us to strengthen our inquiry and research skills. In the meantime, we are looking forward to the results of UCD's evaluation of the year one pilot study's impact on student performance. One of their tasks is to consider how the pilot might lead to implementation of a large scale, multi-year effort to examine the impact of the AP as a mathematics intervention strategy in TRUSD.

4) As it turns out adopting a new curriculum (*enVisionMATH*) while simultaneously implementing four AP modules is a lot of work! Not to mention the time spent in all of the activities that took place beyond the school day: Family Math Nights, After School program, logistics around field trips, etc. In addition, in December the District announced that it would be relocating 7th grade students from a neighboring school to Allison. We were elated because we saw it as an opportunity for our students to continue their AP experience into the middle school. By the end of March those plans changed and instead, the District announced that it would be closing Allison in 2012. This decision was changed again in May, due largely to efforts of CTA and IAF. At this time, Allison is slated to remain open but due to the fiscal environment we will be trying to grow the program amidst budget uncertainty and potential teacher layoffs.

In summary, parent engagement was both as typical as in many classrooms, and completely unique due to the Allison Algebra Project. Parents engaged when they had concerns regarding their child's progress; were engaged, frequently or occasionally, in classroom activities and made donations of classrooms supplies and snacks. There were a few parents who chose to be completely anonymous, but were met with a level of persistence on the part of the teachers to be involved in their child's learning. Some of the family units were intact, wanting the best for their student and willing to invest the time to assist student learning. Also evident was the dysfunction of some of the family units. No matter the family condition, it was evident in all cases, but in varying degrees that parents want their children to be successful. The strength of that desire, and the parents' ability to invest in that success may vary, but nonetheless, the desire is there. A teacher's ability to engage the parents as a partner is essential to the relationship between parents and teachers that can yield huge benefits in learning. The Allison Algebra Project was a vehicle for developing that relationship.