Final Report

Project Overview:

It is the intent of this study to examine the role of Thinking Maps in the transformation on teacher effectiveness. In addition we will analyze how the use of the common visual language provided by Thinking Maps has facilitated teacher collaboration and communication within and across grade levels.

It is the main focus of this project to assess the impact that Thinking Maps had in the teaching effectiveness at McKinley Elementary School. We will demonstrate that Thinking Maps training and follow-up coaching have significantly impacted teacher effectiveness. In addition we will confirm that teachers have raised awareness of their own and their students' cognitive processes.

We will prove that teachers have changed their instructional methodology after being trained in Thinking Maps resulting in significant improvement in quantitative as well as qualitative data. In addition, the data will confirm that the academic instructional level has risen from primarily knowledge based learning to higher order thinking skills such as application and synthesis.

McKinley School is a community where all are welcome. We develop a climate of empathy, respect and creativity. We value intellectual, emotional, social and physical safety for all. We pledge the courage to hold ourselves and each other to our highest academic and social expectations.

Demographics

Our research will be conducted at McKinley School. McKinley School is a K-6 school in the Franklin–McKinley School District located in San Jose, California. Eighty-seven percent of the students are English Language Learners (ELL), ninety-seven percent of the students receive free or reduced lunch, and the student annual migrancy rate is thirty-seven percent. The school is currently in its third year as a program improvement school although over the last five six years, McKinley has improved in State Test scores by 213 points.

Thinking Maps Training

Thinking Maps training and instruction have improved teacher effectiveness resulting in enhancing student academic results, especially English Language Learners.

English Language Learners (ELL) represent the majority of our students at McKinley School. We wanted to prove that the instructional use of Thinking Maps as a "non-linguistic representation" (Marzano, Classroom Instruction That Works), improved the academic skills of our ELL students. Standardized test scores as well as District Assessments and other qualitative measures will support this objective.

Bloom's Taxonomy

Instruction went from being primarily at the knowledge level (Bloom's) to application and synthesis

As a Program Improvement School, upon analyzing the initial "Classroom Walkthrough" data, it was clearly evident that our teachers were only instructing at the knowledge and comprehension level of Bloom's Taxonomy. At this time, the staff realized that different tools were needed to improve the effectiveness of our instruction. As a result, we received consistent and on-going staff development in Thinking Maps®. The team will compare initial and final data gathered from the "Classroom Walkthrough's". We are hoping to support Eric Jensen's statement in Brain Based Learning (1996): "Thinking Maps enable all students to access higher level thinking skills by providing a common visual language for thinking."

Staff Communication

Staff communicates more effectively within and across grade levels with the use of Thinking Maps®

Seven years ago, McKinley's staff was fractured philosophically and emotionally. Personal opinion regarding bilingual instruction, multiple

principals and numerous programs along with very low results on California State Test (CST), divided and alienated teachers. Six years ago, Aurora Garcia became the Principal at McKinley School. She was the sixth principal in during one school year. Mrs. Garcia brought consistency and created a physically, socially and emotionally safe environment. The staff spent endless hours coming to an agreement on the school vision as well as professional and student norms. However, grade-level collaboration skills were still lacking. Using grade-level collaboration forms and Thinking Maps® created during grade level and staff meetings, we will prove that collaboration is more effective and less negative.

Changing Methodology

Teachers have changed their methodology as evidenced by their lesson plans after being trained in Thinking Maps.

Prior to Thinking Maps®, lesson plans reflected activities for students to perform instead of developing their higher level thinking skills. By comparing the lesson plans before and after Thinking Maps® training, we will demonstrate that teachers have changed their instructional paradigm.

The Actual Research Work and Results:

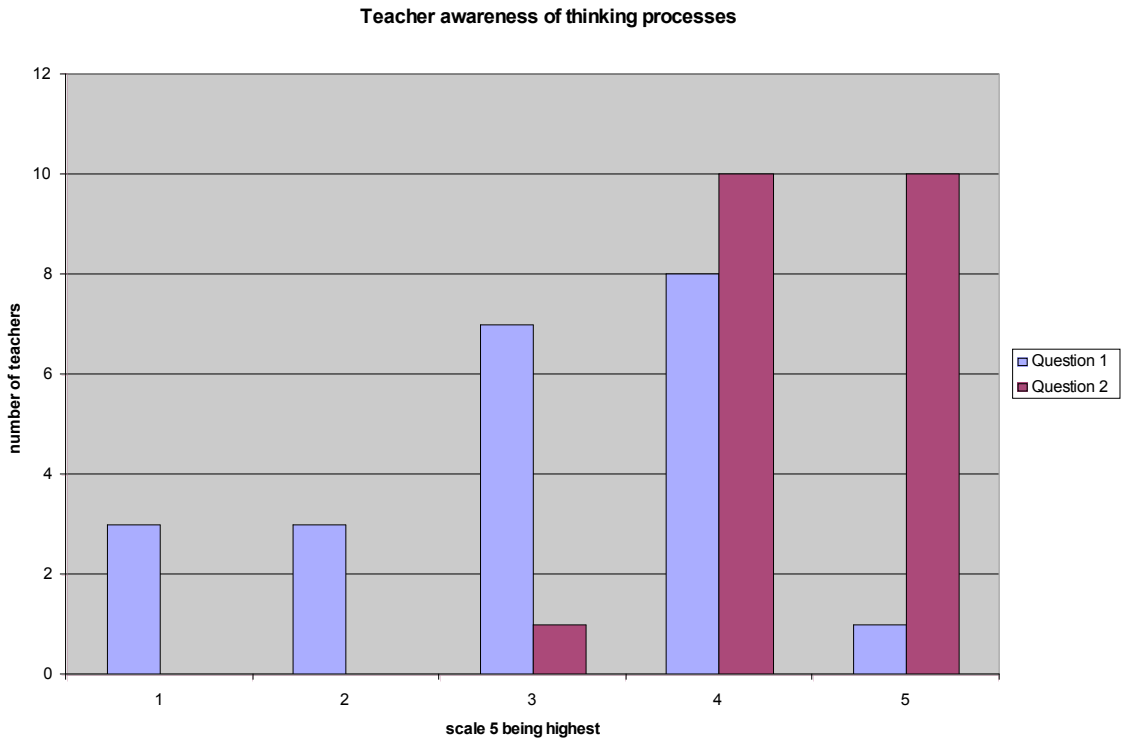
Thinking Maps Training

Thinking Maps training and instruction have improved teacher effectiveness resulting in enhancing student academic results, especially English Language Learners. We administered a teacher survey to gather authentic data from the staff at McKinley regarding their opinions of the Thinking Maps® training. In order to address the components of this Action Research, the questions were placed in appropriate sections of this report.

Thinking Maps® teacher survey

McKinley School

February 6th, 2007

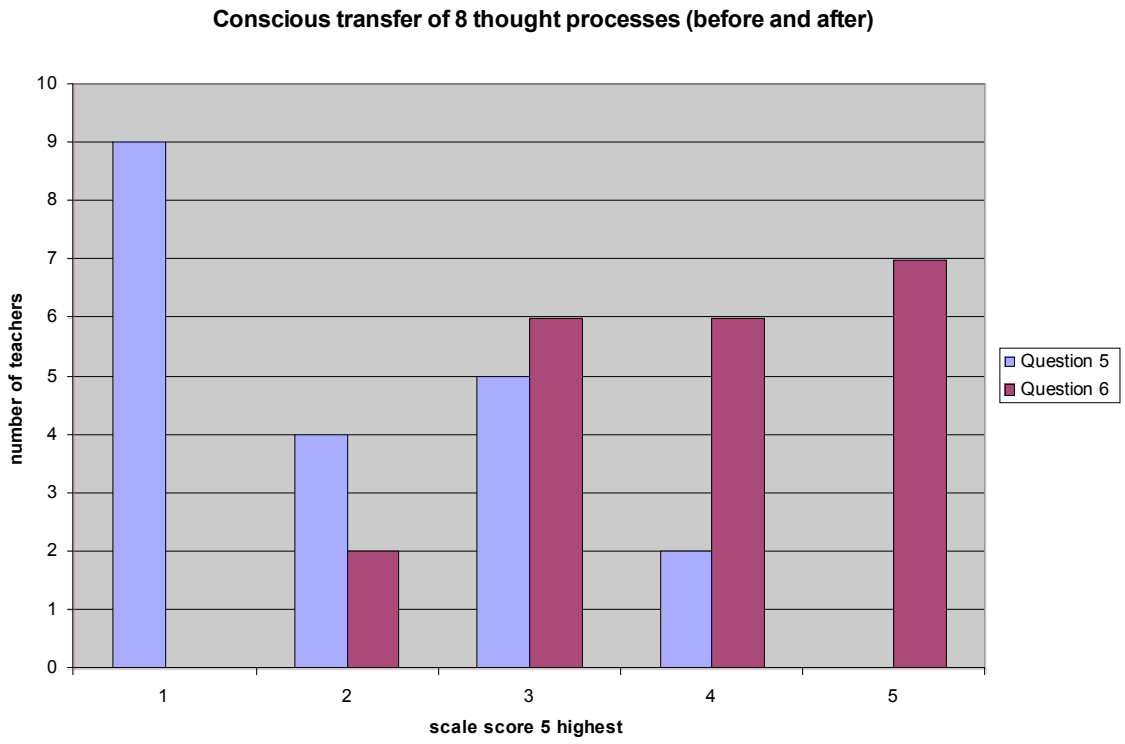


1. **Before T.M. training and coaching, to what degree were you aware of the thinking processes during instruction time?**

In looking out the data, prior to T.M. staff development, 68 % of teachers at McKinley School felt that they had a moderate understanding of the thinking processes during the instruction time.

2. **After T.M. training and coaching, to what degree were you aware of the thinking processes during instruction time?**

It is apparent from the data that 95 % of teachers from McKinley School are significantly more aware of the eight thinking processes during instructional time. Out of 21 teachers, 9 of them indicated that they are continuously aware of the thinking processes during instructional time.

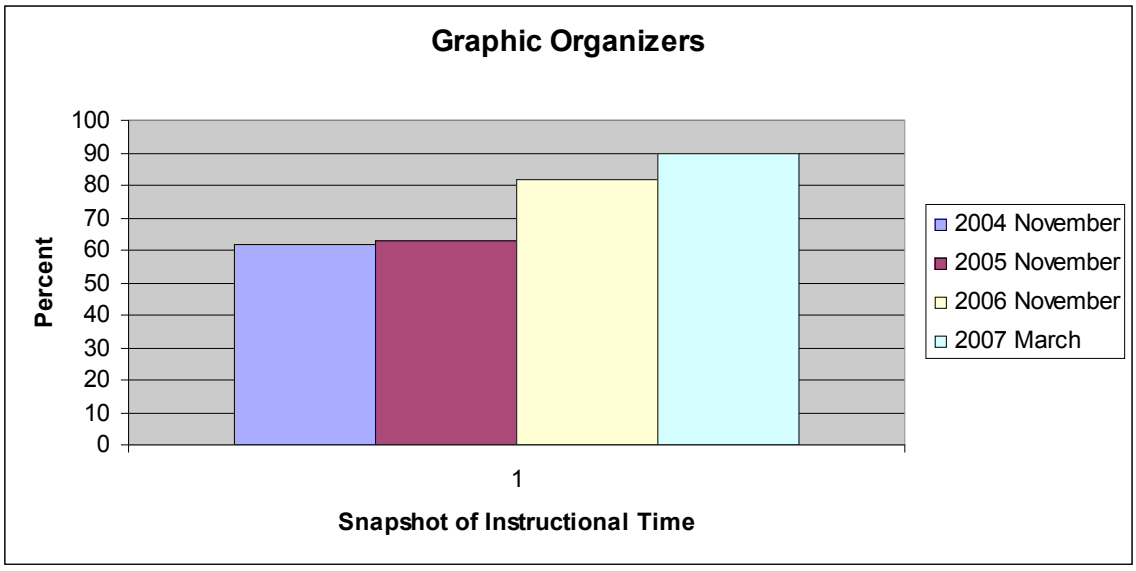


5. **Before T.M. to what degree were you aware of your students' ability to consciously transfer the eight thinking processes to content learning?**

From the data gathered 90% of the teachers indicated that they were not aware of the students' ability to consciously transfer the eight thinking processes to content learning.

6. **After T.M. to what degree were you aware of your students' ability to consciously transfer the eight thinking processes to content learning?**

After T.M. training 100% of the teachers from McKinley School have increased their awareness their students' ability to transfer the eight thinking processes to content learning.



The data gathered over the past three years through the Teams Assisting School Success (TASS) process clearly indicates that teachers are using the Thinking Maps® regularly during the instructional day. Add walkthrough document here. As seen in the walkthrough instrument, the term graphic organizers is an indicator of effective teaching practices. The McKinley team used this category explicitly to indicate the use of Thinking Maps® in classrooms.

California State Test Scores (CST):

The District has disaggregated the overall CST scores for the students who stayed at McKinley over the last five years. Here is our analysis of this data.

Thinking Maps® Training began in the Spring of 2003-04 at McKinley School. By the Fall of the school year 2004-05 all staff members were fully trained in the implantation of Thinking Maps®. Teacher fluency in Thinking Maps was supported by coaching and training throughout the school years from 2004-05 to 2006-07.

Significant subgroups for McKinley school are: English Language Learners, Economically disadvantaged and Hispanic or Latino. While looking at these graphs, it is important to consider that overall test scores went down in California during 2006-2007.

(insert Mathematics overall graphs here)

Five year overall CST Mathematics:

All grade levels increased in all significant subgroups in overall Mathematic scores during the 2004-05 which was the first full year of Thinking Maps® implementation.

(insert five year overall English Language Arts graphs)

Five year overall CST English Language Arts:

Overall, grade levels increased in English Language Arts scores during the 2004-05 which was the first full year of Thinking Maps® implementation.

All subgroups also showed improvement during the school year 2004-05 except the English Language Learner subgroup in 2nd grade. We must acknowledge that this group of students in 2nd grade was greatly affected by the District decision to only instruct students in English beginning this school year. Previously in Kindergarten and First grade, this group of students was learning how to read and write in Spanish.

The data from 2005-06 supports that Thinking Maps® training, coaching and implantation have significantly improved the student results on the California State Test for all subgroups in all grade levels.

Add District generated overall graph for all students over the last three years

Up until the year 2007, McKinley school has made an overall improvement of 213 points of growth on the California State Test (CST). In 2006, McKinley was one point away from being removed from Program Improvement. Even though we were still below the state expectations, we were closing the gap in student achievement.

California State Test 2007

Mathematics:

Overall :

McKinley student Math scores increased by 8.4% over the last three years. The target in 2007 was 26.5%. The average number of students who met the target goal in Math was 35.8%. McKinley met and exceeded the target in Mathematics by 9.3%!

English Language Leaners and Mathematics

The ELL subgroup also increased their scores by 11.8% over the last three years in Math. The target goal was 26.5% and the ELL population exceeded that goal by 6.5%.

English Language Arts

Overall:

Upon receiving the results from the CST test administered in the Spring of 2007, the staff was disappointed and frustrated by a seventeen point decrease in the overall score. McKinley students increased 3.6% in English Language Arts (ELA) over the last three years. The target was 24.4% for 2007. McKinley missed the target by 8.4%.

English Language Learners and English Language Arts:

ELL students increased 2.6% on the CST test over the last three years. The target goal was 24.4%. In 2007, 9.4% of the ELL students met the goal. This means that we were 15% short of the target goal.

In analyzing the individual student scores, the staff recognized that our students are continuing to struggle with reading comprehension and academic vocabulary. At the beginning of the school year 2007-2008, it was determined that the school wide focus needs to be reading comprehension and academic vocabulary development in content areas such as reading, math, science and social studies.

In order to meet the teachers' needs in staff development, the Principal, Aurora Garcia, determined that the staff should receive differentiation in the Thinking Maps® training. Video Clip Aurora Garcia part three. In the "next steps" section, there is a description

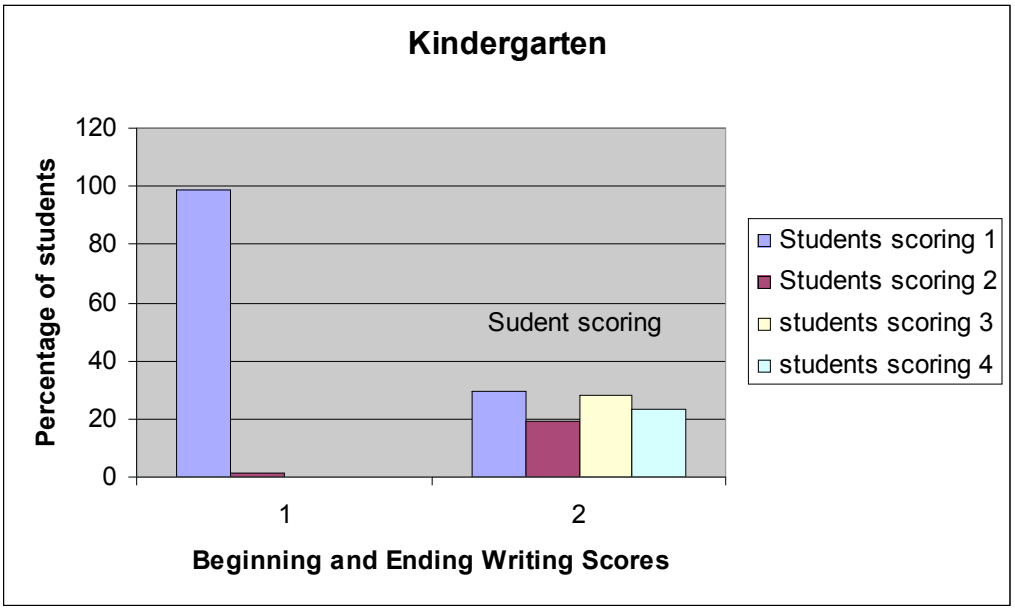
of the plan for focused, differentiated staff development at McKinley for the school year 2007-2009.

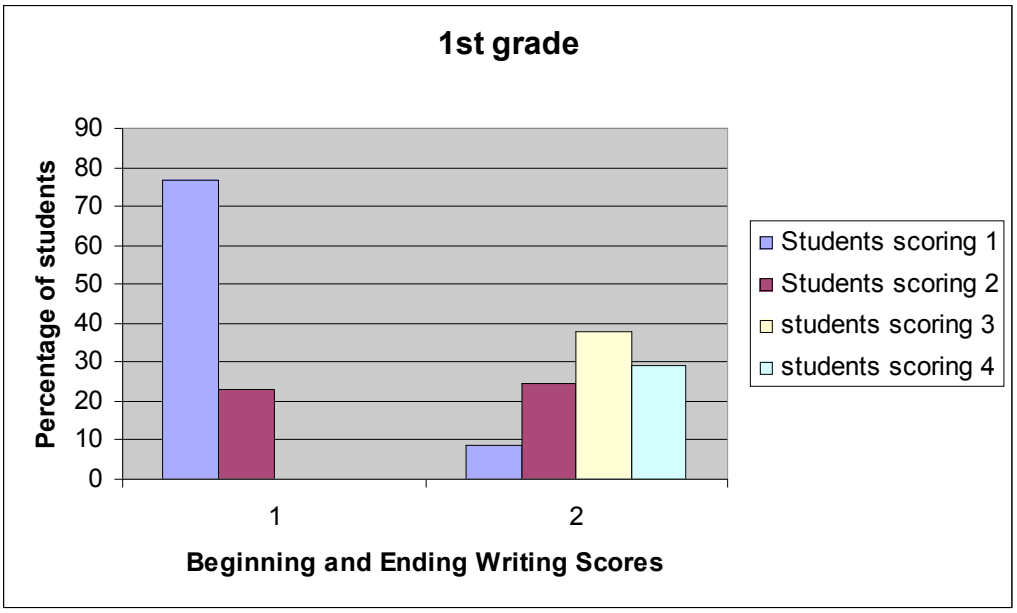
District Writing Assessment Scores:

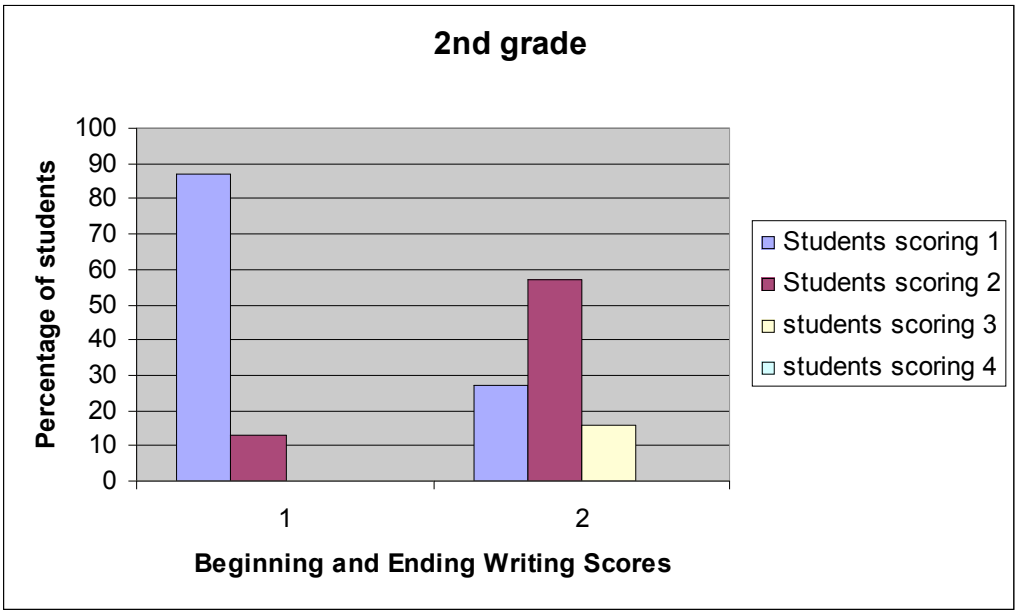
Because the majority of the students at McKinley School were scoring ones and twos on the District Writing Rubrics, the staff decided to create a -school-wide goal to improve student writing. Franklin-McKinley School District requires three writing prompts throughout the school year. In order to reflect and modify or re-teach writing skills, the teachers decided to give six writing prompts yearly.

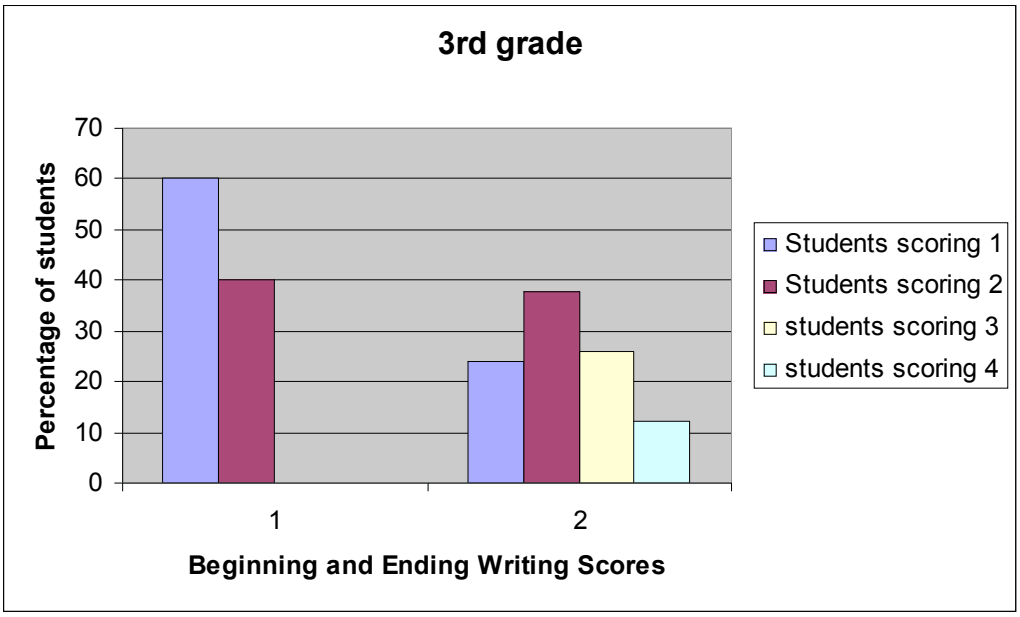
Teacher training with the Thinking Maps began in the Spring of 2005. During the school year of 2005-06, teachers developed fluency with Thinking Maps, particularly in the areas of Reading and Language Arts. At the end of the school year 2005-2006, it was apparent that student writing was not improving. As a result, staff development began with Write From the Beginning at the beginning of the new school year in the Fall of 2006. Staff development in writing with Write From the Beginning® continued through the school year 2006-2007. In the following grade level graphs you will observe that the

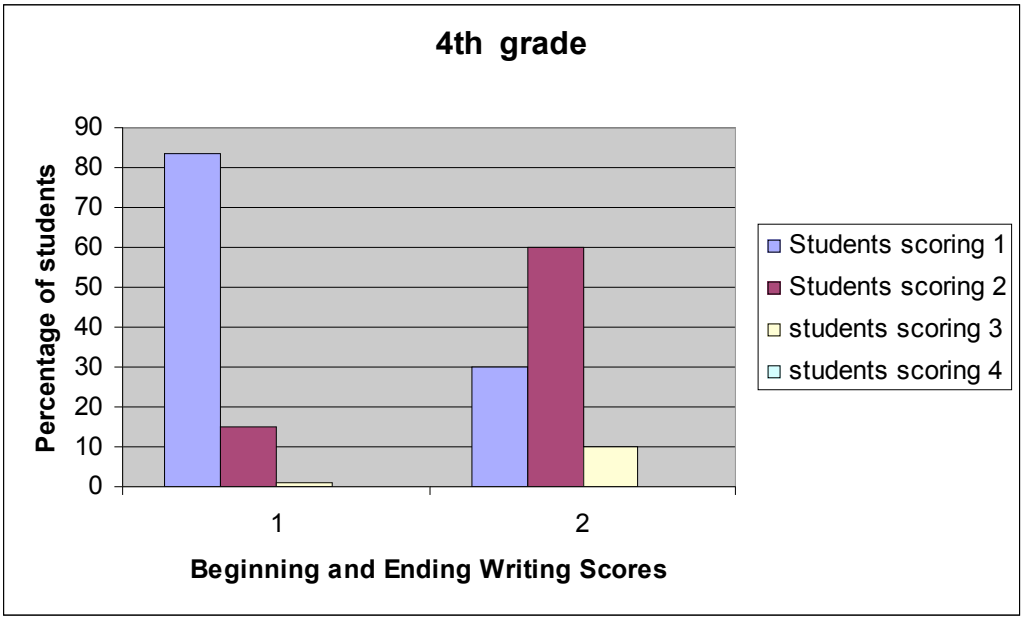
overall writing skills of students at McKinley increased. See videoclip with Aurora Garcia, Principal 3:30-4:40

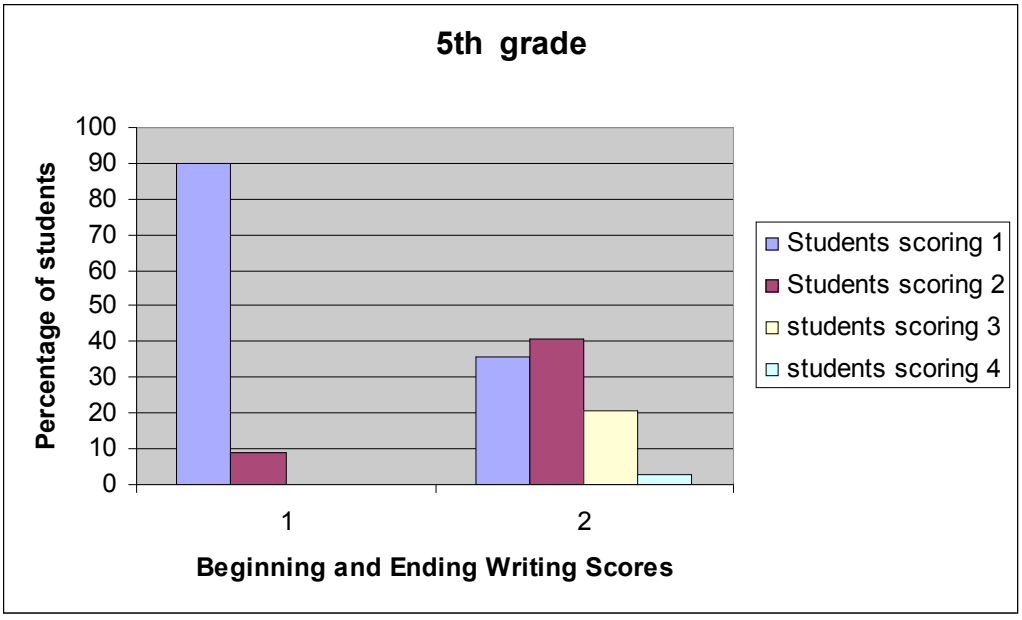





2nd grade
Percentage of students
100
90
80
70
60
50
40
30
20
10
0
1
2
Beginning and Ending Writing Scores
Students scoring 1
Students scoring 2
students scoring 3
students scoring 4


3rd grade
Percentage of students
70
60
50
40
30
20
10
0
1
2
Beginning and Ending Writing Scores
Students scoring 1
Students scoring 2
students scoring 3
students scoring 4


4th grade
Percentage of students
90
80
70
60
50
40
30
20
10
0
1
2
Beginning and Ending Writing Scores
Students scoring 1
Students scoring 2
students scoring 3
students scoring 4


5th grade
Percentage of students
100
90
80
70
60
50
40
30
20
10
0
1
2
Beginning and Ending Writing Scores
Students scoring 1
Students scoring 2
students scoring 3
students scoring 4

It is very clear from the student scores on the writing prompts during the school year 2006-07, that Thinking Maps® and Write From the Beginning® gave the teachers the tools they needed to more effectively teach writing to all students including English Language Learners. By looking at student writing, the higher-level thinking processes such as application and synthesis are present in their work.

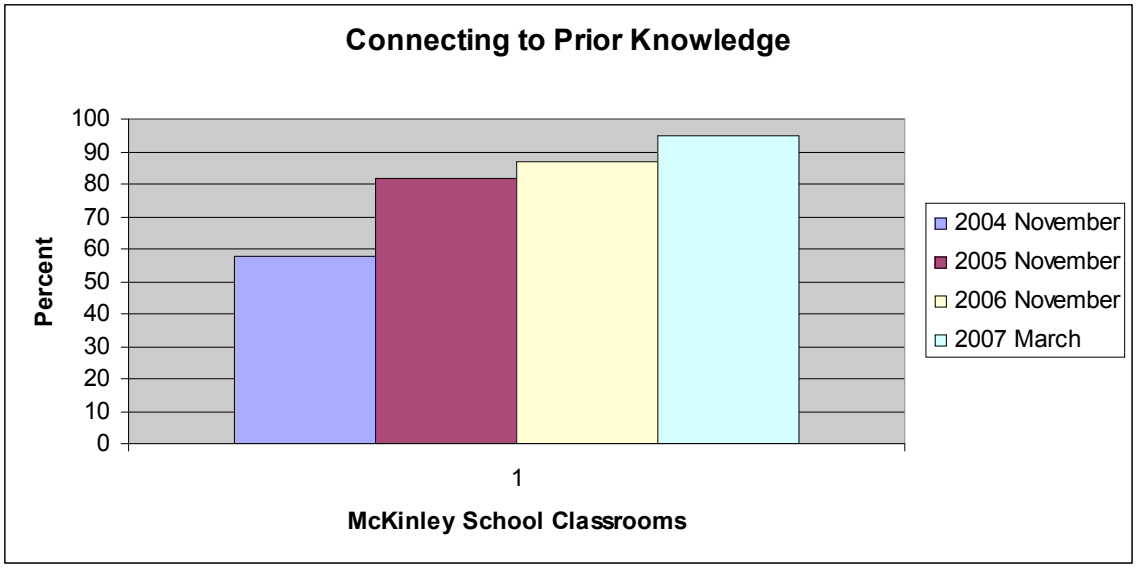
When acquiring a second language, writing is the most difficult skill to master. Thinking Maps and Write From the Beginning (WFTB) have provided teachers with the tools they need to improve the writing efficacy of our ELL students. WFTB has given McKinley teachers the confidence and strategies to more effectively guide our ELL population to become descriptive and on-topic writers.

Include pictures Thinking Maps 002,003,004,005,007

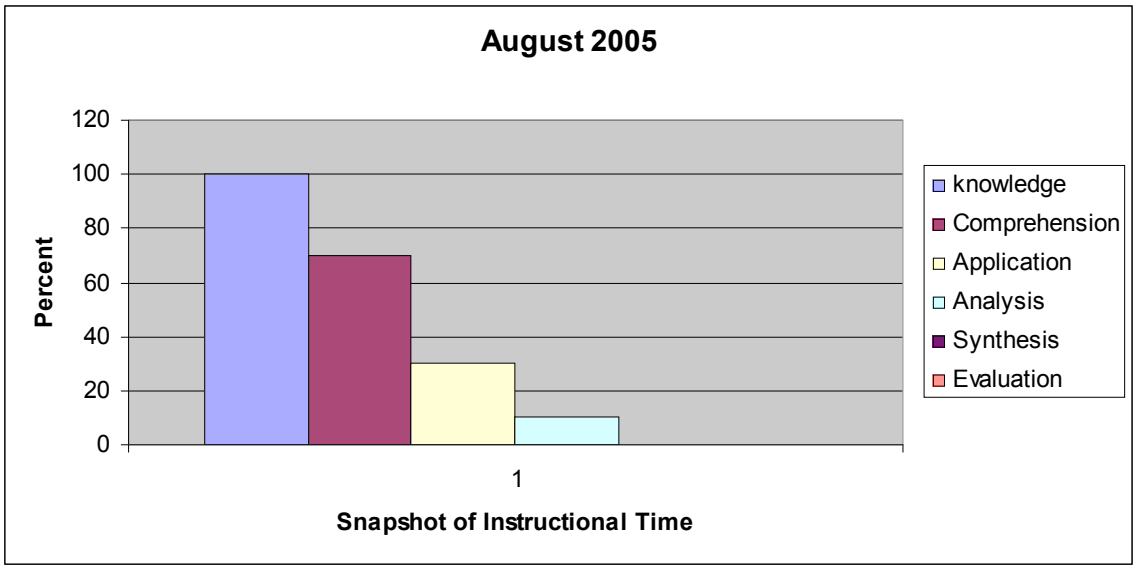
Bloom's Taxonomy

Instruction went from being primarily at the knowledge level (Bloom's) to application and synthesis

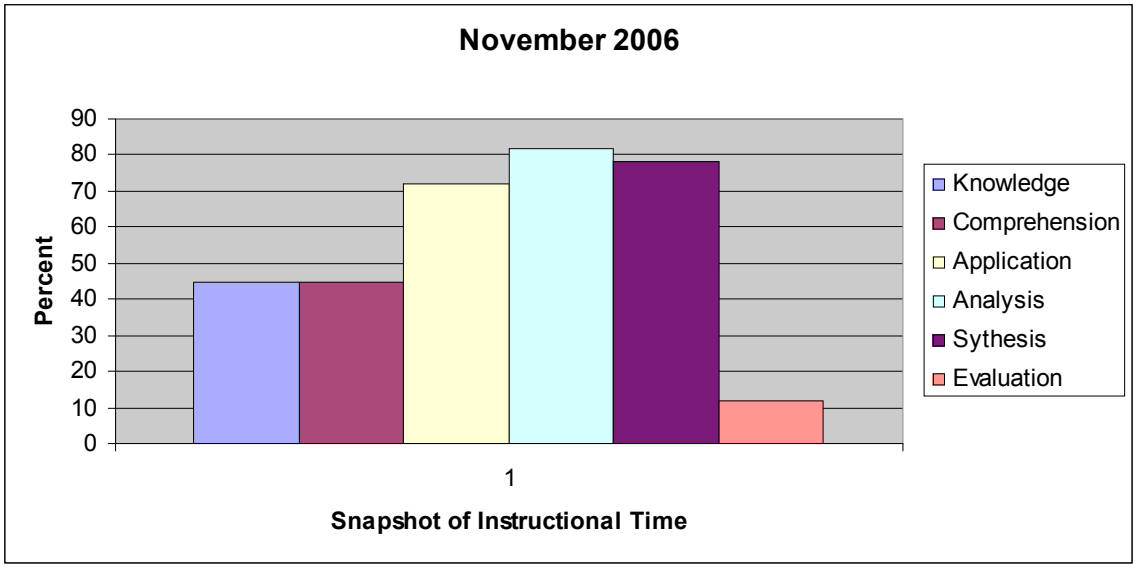
For the last three years, McKinley has been gathering data from the "classroom walkthroughs" in conjunction with District Personnel, Santa Clara County Office of Education, and the School Leadership Team. The graphs and reflection support that the instructional level has dramatically shifted from knowledge to application and synthesis. Insert walkthrough document here also. Digital pictures 102 1208,102 1197,102 1191, TM 008, TM 019, TM 017

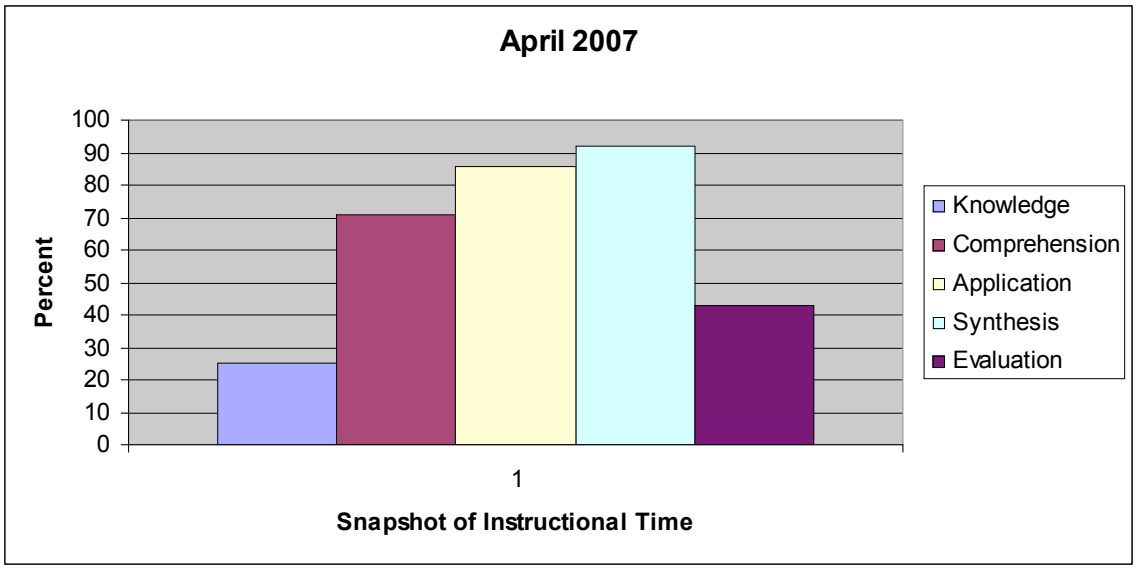


Bloom's Taxonomy data from TASS walkthroughs



There was no observation of synthesis or evaluation during this walkthrough

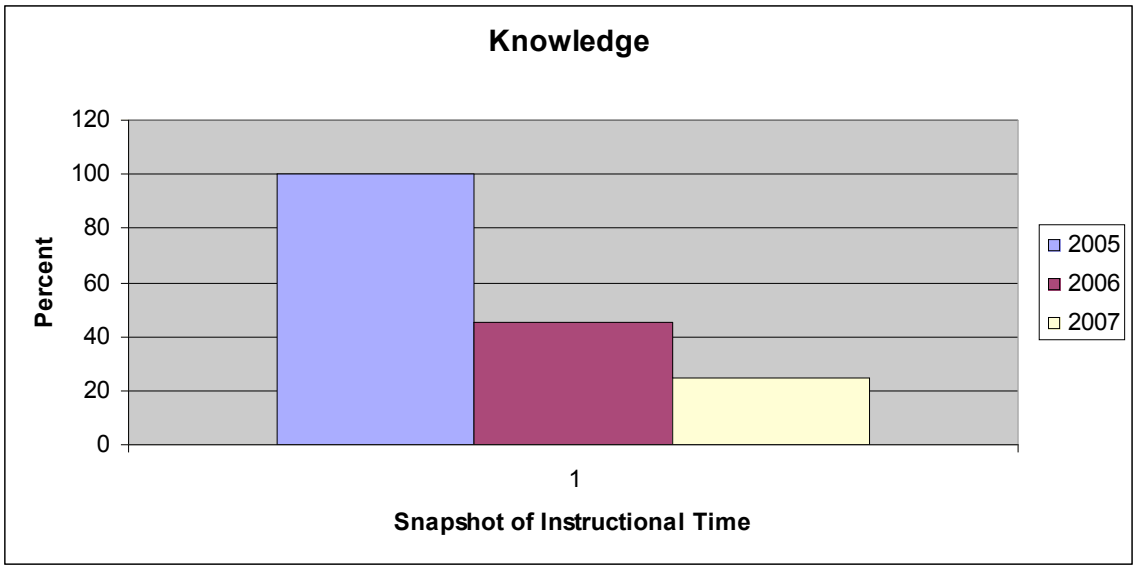


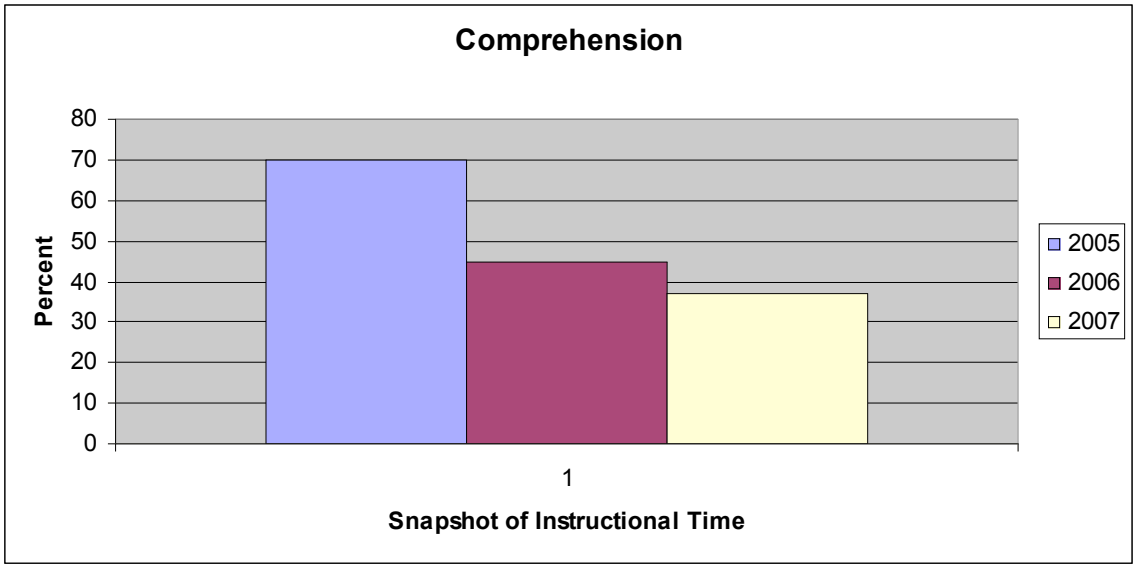


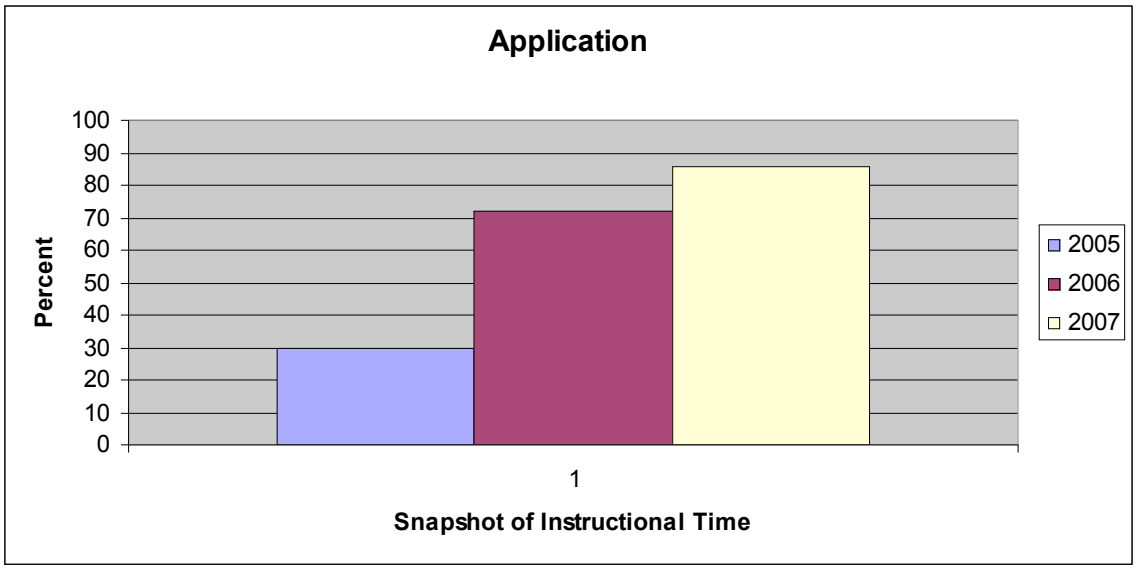
In comparing the three school years of data, from 2004-05 to 2006-07, it is very clear that the teachers are providing depth and complexity in their instruction to students. The student work observed by the TASS teams during the twenty-minute walkthroughs over these years indicated a significant increase in the higher level thinking processes such as application, synthesis and evaluation. This was demonstrated through the use of Thinking Maps® in content, process and product of instructional standards.

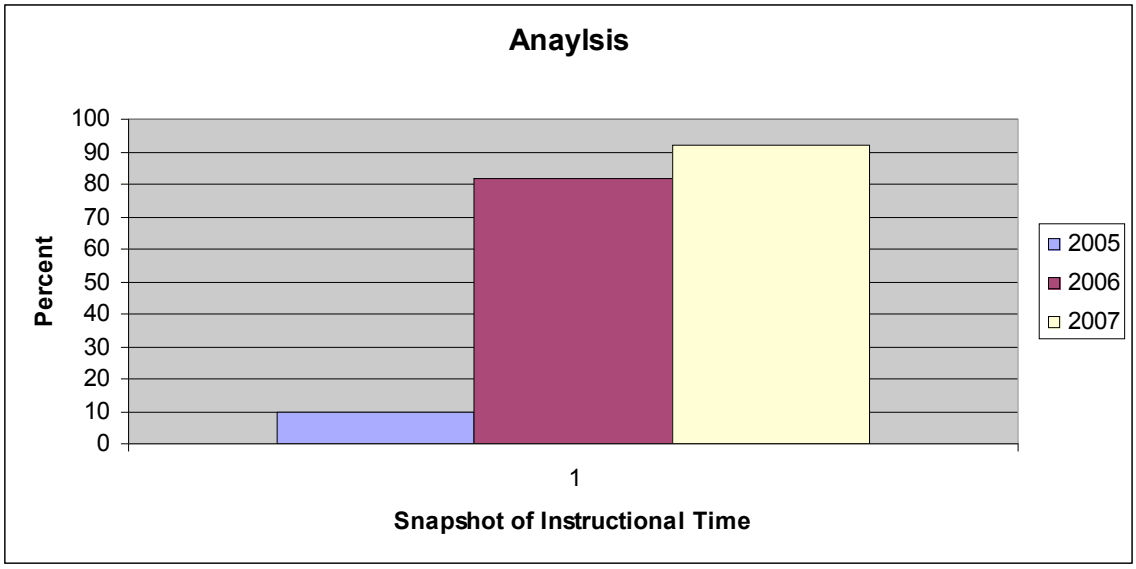
In looking at the following graphs, the desired outcome is to increase the scores in the higher levels of Bloom's Taxonomy. It is very clear from the breakdown of each level that as the teachers received

consistent training and coaching in Thinking Maps®, they improved the effectiveness of their instruction by addressing the higher levels of thinking.

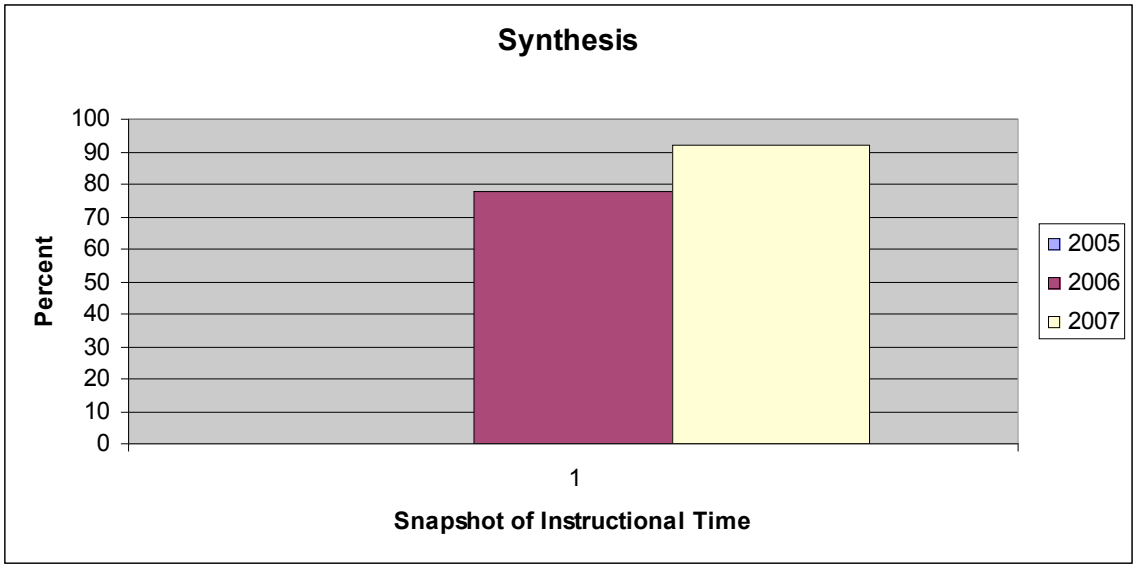


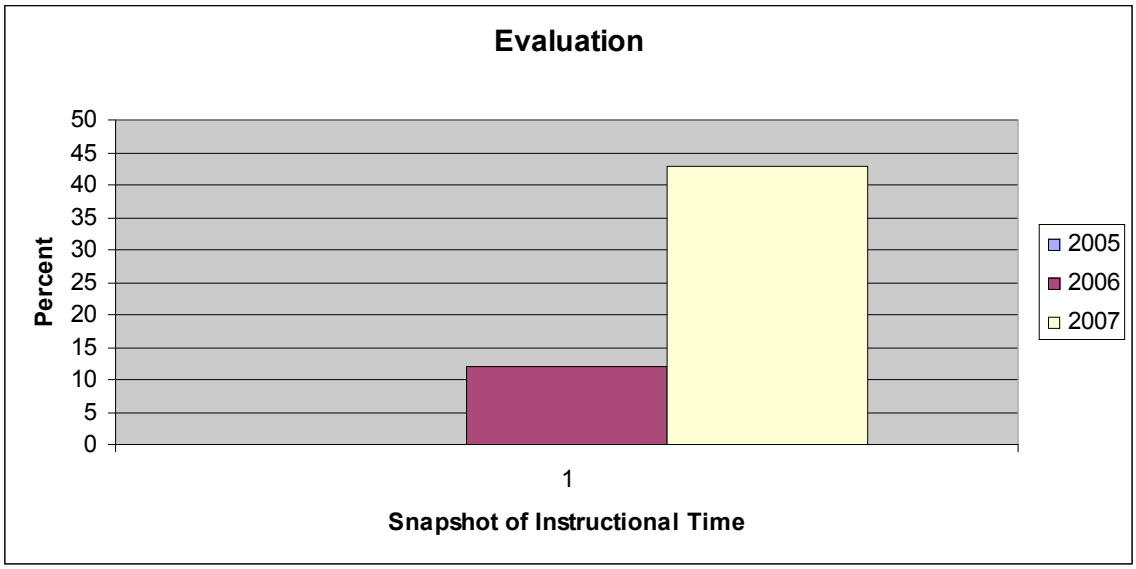



Application
100
90
80
70
60
50
40
30
20
10
0
Percent
1
Snapshot of Instructional Time
2005
2006
2007

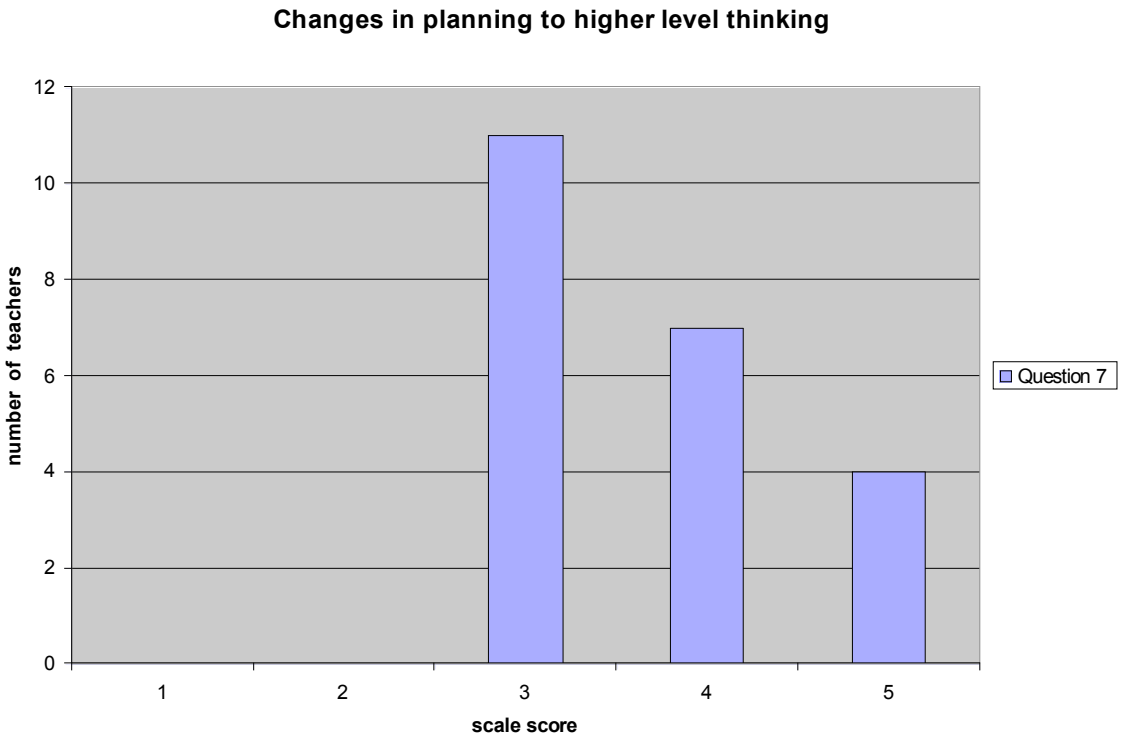

Anaylsis
100
90
80
70
60
50
40
30
20
10
0
Percent
1
Snapshot of Instructional Time
2005
2006
2007

The two areas of synthesis and evaluation were non-existent in the first year of the TASS walkthrough process. In the last two years, synthesis and evaluation were observed in the classrooms through the use of Thinking Maps.



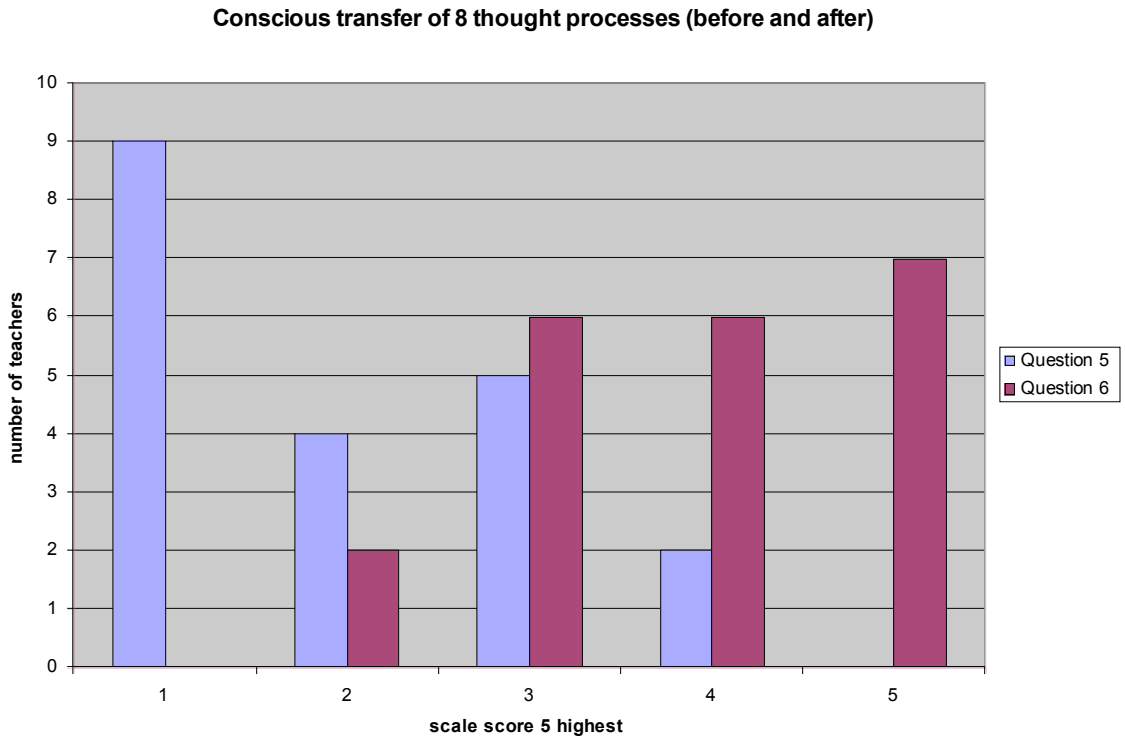


Also supporting the empirical data from the TASS walkthroughs, are the results from some questions in the teacher survey.



3. After the T.M. training rate from 1 to 5 how much did your planning and instruction reflect changes from the knowledge level to higher level thinking skills such as application or synthesis?

Obviously, the data reveals that after the training for Thinking Maps®, teachers' planning and instruction has been elevated to the higher levels of thinking according to the Bloom's Taxonomy.
From this graph we can conclude that teachers feel that the students are not yet completely aware of the thinking processes during instruction time. One of the goals for the teaching staff at McKinley could be that all teachers feel the majority of their ELL students are aware of the eight thinking processes.



5. **Before T.M. to what degree were you aware of your students' ability to consciously transfer the eight thinking processes to content learning?**

From the data gathered 90% of the teachers indicated that they were not aware of the students' ability to consciously transfer the eight thinking processes to content learning.

6. **After T.M. to what degree were you aware of your students' ability to consciously transfer the eight thinking processes to content learning?**

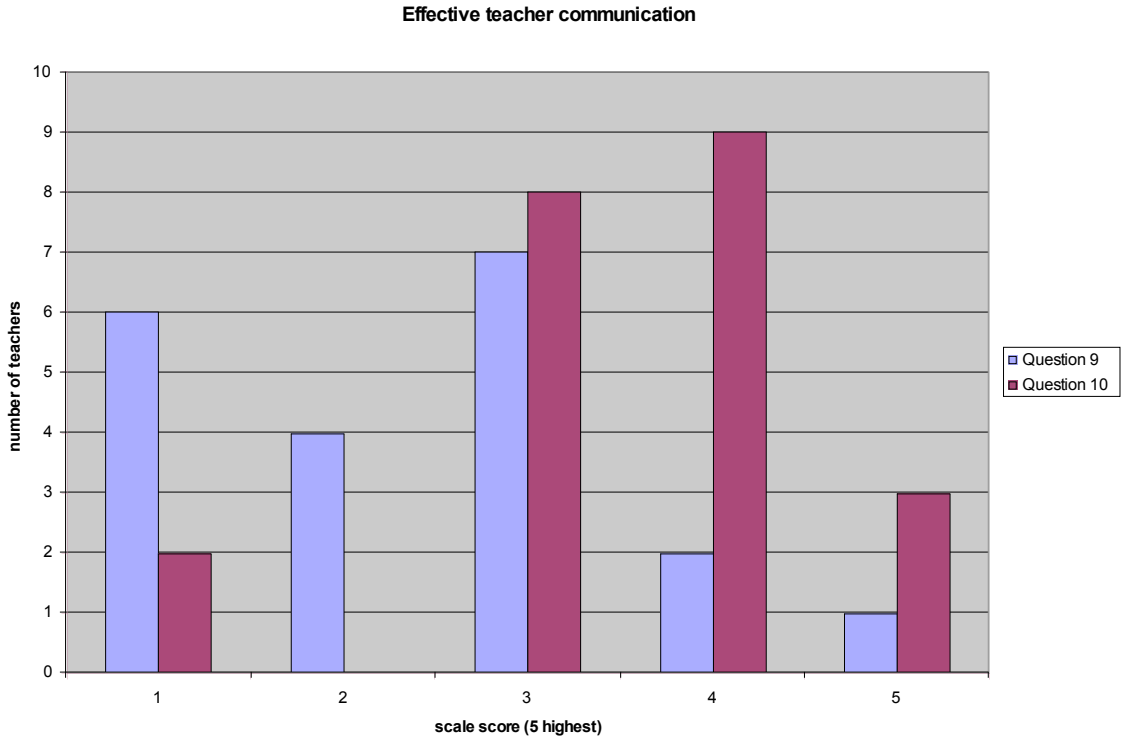
After T.M. training 100% of the teachers from McKinley School have increased their awareness their students' ability to transfer the eight thinking processes to content learning.

Staff Communication

Staff communicates more effectively within and across grade levels with the use of Thinking Maps®

Unexpectedly, the staff and Principal discovered that the Thinking Maps® provided a common visual language that created a "new" way to communicate during grade level and staff meetings. The Thinking Maps® provide the frame for a comprehensible, focused and professional conversation between all teachers. The Thinking Maps® effectively kept discussions during grade level meetings objective and positive. See video clip with Aurora Garcia, Principal at McKinley School 1st section to 3:29.

One of the teacher survey questions also addressed the issue of more effective staff communication after implementing Thinking Maps®.



9. Before T.M. how would you rate the effectiveness of communication across grade levels from K to 6th?

Before Thinking Maps® training, the staff did not feel that there was effective communication across grade levels.

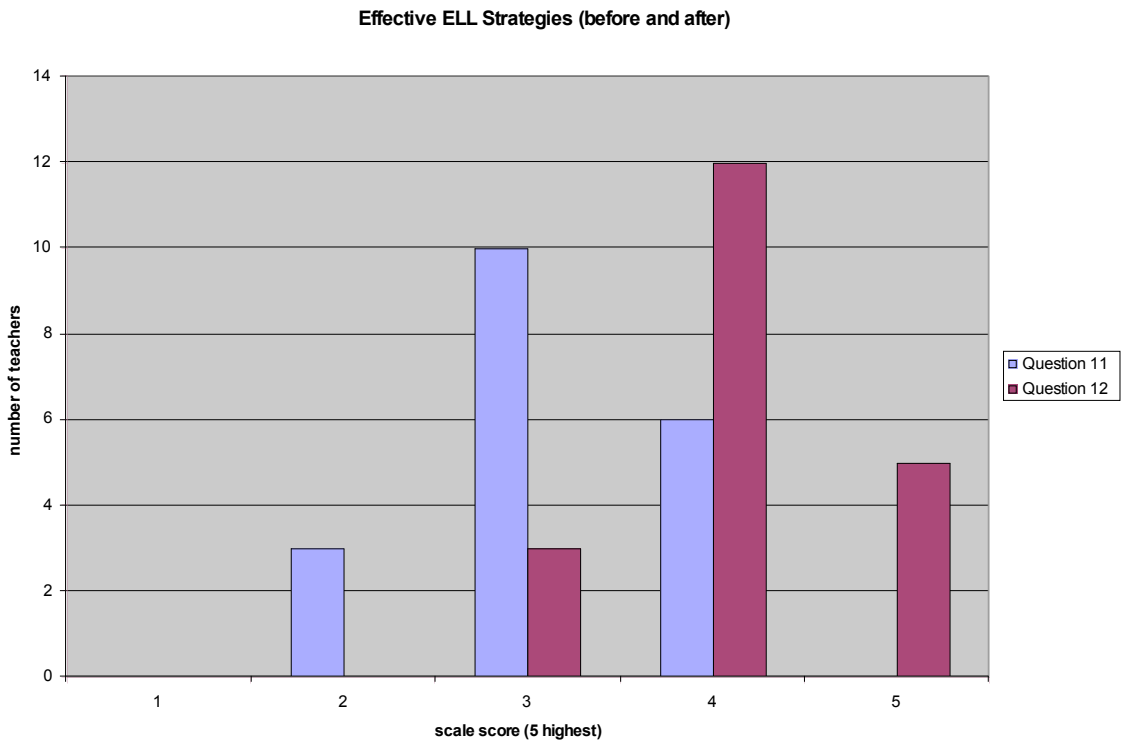
10. After T.M. how would you rate the effectiveness of communication across grade levels from K to 6th?

During the course of staff development teachers have become more effective in communicating across and within grade levels.

Changing Methodology

Teachers have changed their methodology as evidenced by their lesson plans after being trained in Thinking Maps. Videoclip with Aurora Garcia, Principal 4:29-11:43

As stated previously, lesson plans were focused around activities not thinking skills. Throughout the process of learning how to implement Thinking Maps®, teachers voluntarily began to show evidence of Thinking Maps® in their lesson plans. Based on the standards needed to be taught, teachers began to indicate the thought processes that relate to each Thinking Map®. (See digital examples) From these plans we can infer that the Teacher's Manuals have become a reference in teacher's planning but not the principal focus. Teachers are using meta-cognition in planning their lessons. They are thinking about their student's thinking processes. The Thinking Maps® have given the teachers the power to acknowledge student individuality and voice by allowing each student to choose how to visually represent their thinking. Insert video clip of new teachers.



11. Before T.M. came to McKinley how effective were your instructional strategies for the ESL?

The majority of teachers felt effective in ELL teaching strategies prior T.M. trainings

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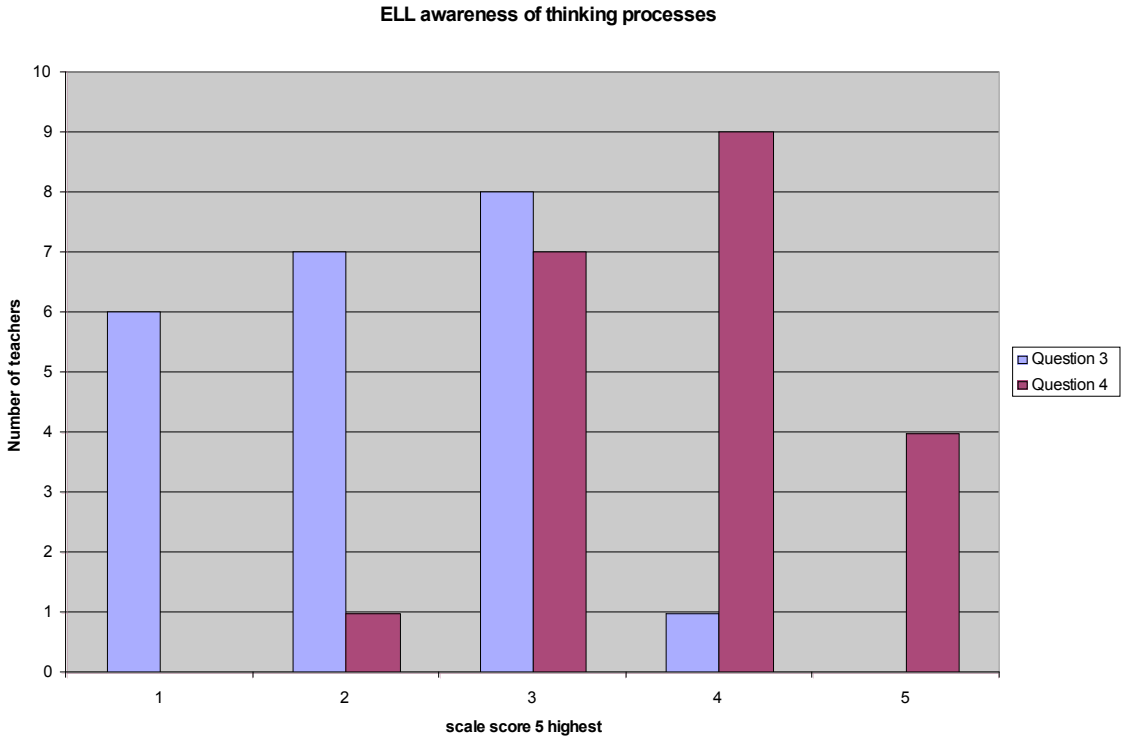
12. After T.M. came to McKinley how effective were your instructional strategies for the ESL?

Clearly the teachers indicated that T.M. training has given them more effective strategies for ELL students.

Insert videoclip of veteran teachers



3. Before T.M. training and coaching, to what degree were your ELL students aware of the thinking processes during instruction time?

Giving the data, teachers overall felt that ELL students were not aware of the thinking processes before T.M. training.

4. After T.M. training and coaching how would you rate your ELL students' awareness of their thought processes?

The graph indicates the staff from McKinley School feels that ELL students are significantly more aware of the eight thinking processes.

From this graph we can conclude that teachers feel that the students are not yet completely aware of the thinking processes during instruction time. One of the goals for the teaching staff at McKinley will be that all teachers feel the majority of their ELL students are aware of the eight thinking processes.

The after-school program teachers at McKinley have been trained in Thinking Maps®. This has resulted in more effective after-school teachers, increased collaboration and communication between the "regular" school day and the "after-school" program. See videoclip of After-school teachers and the Director Maritza Maldonado

Reflections on video interview process

Insert Tree Map

When we began thinking about an Action Research project, we did not consider videotaping as part of the process. However, after a few discussions with Dr. David Hyerle of Thinking Foundation, we realized that a video component would be a powerful addition to proving the influence of Thinking Maps® on teacher effectiveness.

We contracted with Robert Price to come to McKinley and assist with the videotaping and editing. He spent two full days videotaping

teachers, students, and administrators. During the process we became increasingly aware of the power of video in education.

The students who held the cameras and participated as videographers were empowered in addition to being amazed by the fact that teachers reflected aloud on their own teaching in front of them. They thoroughly enjoyed the process and felt like active participants in the school culture. They were developing positive "assets" to nurture their own educational future.

The teachers were very hesitant to participate in the videotaping. They felt they would not be able to have a conversation about their teaching with another person while being videotaped. We, as researchers, also felt reluctant and very afraid of being watched on television. We were finally able to convince a few teachers to participate after much persuasion.

As a research team, we have concluded that videotaping is a vital component of a quality research product. Although the two days were exhausting, it was also exhilarating to observe how the process empowered the staff and administration during the videotaping. In our "next steps" we will further investigate the usefulness of this tool in teacher reflection, inquiry and best practices.

We are anticipating using the videoclips for further teacher reflection during grade level and staff meetings. In addition, the video clips will be a powerful tool to present McKinley School achievements to our community and the Franklin-McKinley School District Board of Education.

Overall Interpretations and Implications

This Action Research Project: Measure of Success: Thinking Maps and teacher effectiveness has been an exciting and rewarding adventure for this team. In the Fall of 2006, upon writing this grant, we were anticipating positive results on the CST scores as well as excellent authentic data to support our belief that Thinking Maps have significantly improved the art of teaching at McKinley School. The survey and video results as well as writing scores and student samples definitively support this premise.

The drop in CST scores was very disappointing. Given this fact, last year's decrease in scores is forcing the staff at McKinley to self-reflect and self-evaluate on their own teacher effectiveness as an individual as well as a grade level team. However, a 213 point increase in scores over six years is an amazing accomplishment.

The teachers have taken a self-evaluation of their effectiveness in teaching the "thinking" of Thinking Maps®. Based on the results of these surveys, staff development in implementation of Thinking Maps is being differentiated for the teachers.

In addition, it became apparent that in order to truly analyze teacher effectiveness, the students need to individually demonstrate fluency with the Thinking Maps®. The first day of school, in August of 2007, all students in 1st -6th grade took a pre-test in Thinking Maps®. After eight weeks of instruction (one week for each map) a post-test was administered. The data gathered from this authentic assessment will demonstrate to teachers their own effectiveness in teaching the eight thought processes. Three students (high, middle and low) from each class will be tracked throughout the year with authentic Thinking Maps® assessments. These students will provide the McKinley staff with an insight into the effectiveness of using Thinking Maps as an instructional tool.

According to the surveys administered last year, the teachers felt that students understood the thought processes. (videoclips of students both primary and intermediate)

The student data gathered this year will help teachers hone their skills in nurturing thinking skills in their students. A possible goal for the teaching staff at McKinley could be that the majority of ELL

students are aware of and can demonstrate fluency in the eight thought processes represented by Thinking Maps®.

In conclusion, teacher effectiveness is measured in many ways, both qualitatively and quantitatively. The writing scores, teacher surveys and video interviews resoundingly support that Thinking Maps® are improving the teacher effectiveness at McKinley School. The challenge now is to dig deep this school year: target the instruction on reading comprehension skills and academic vocabulary and extend the feeling of ownership of the eight thinking processes to all McKinley students as well as teachers.

Further Research

We had thought our next research would revolve around Write From the Beginning and it's impact on McKinley students. However, the results from this research indicate that further work needs to be done in looking at deeper at student competency with the eight thinking processes over a variety of content areas.

This analysis will help the staff in reflecting on effective best practices. Videoclip with Aurora Garcia, Principal 11:44 to end

Activities and Strategies:

Quantitative data:

- School CST results, , TASS (Teams Assisting Student Success) data, staff surveys, student assessments

Qualitative Data:

- teacher interviews, administrators interview, student interviews, student assessments, samples of students' works and teacher lesson plans

Timeline

1. Winter 2008:
    - Prepare different interviews and surveys and interview student teachers.
    - Begin interviewing teachers and collect student samples from different grade levels
    - interview administrators and analyze CST data from 2004-2005
2. Spring 2008
    - Collection of TASS data: compare and contrast data from previous years to current year
    - District assessment data: compare and contrast data
    - Video interviews
3. Fall 2008
    - analyze surveys
    - prepare and submit interim report

- Analyze CST scores from May 2007 and add to interim report and submit final report