

**Steve Hemming**  
**Anoka 10**  
**ROL**

How will using thinking maps impact the classroom? My research journey is encouraging me to pursue the answer to this question. With our changing global community, students must develop high levels of learning and thinking skills. Unfortunately, this is very difficult in today's classrooms. My classroom is in an urban setting, is multicultural and extremely diverse. After researching and learning about thinking maps and concept-based instruction from the National Urban Alliance, I decided to use thinking maps in my classroom as my focus to see what kind of an impact they will have on my students. I hope to see a positive impact. I also would like to see if thinking maps will unlock their potential.



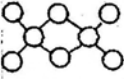





I teach 7<sup>th</sup> and 8<sup>th</sup> grade Social Studies in a looping program in an urban middle school in Richfield. My students range in age from 12 to 14 years old. Approximately 40% of my population is minority students. Additionally, roughly 50% of my students qualify for our school's "Free and Reduced Lunch Program," meaning half come from homes that are financially challenged. Approximately 20% of my students are second-language learners, and about 15% of my students are special needs students with I.E.P.'s. In my view, my students represent a fairly typical, urban middle school demographic, and thus present many challenges with respect to student learning, thinking, and understanding.

For the past two years I have been part of an initiative called National Urban Alliance or NUA. The focus of National Urban Alliance is on changing teachers' perceptions and expectations regarding underachieving urban students. The primary goal being, to close the achievement gap between diverse groups of students. National Urban Alliance feels that thinking maps or concept based instruction are the best tools to use for closing the achievement gap. "If teachers explicitly instruct students in the use of Thinking Maps, they are addressing language and cognitive blockers." (Jackson, 2005) Thinking maps are based on research and the development of a model of thinking processes by Dr. Albert Upton. In the late 1980's, Dr. David Hyerie revised the Upton model as the foundation for thinking maps as a set of tools for learning. Thinking maps

are eight visual-verbal learning tools, each based on a fundamental thinking process and when used together provide a set of tools showing relationships with respect to a given subject. Each thinking map has a basic visual starting point, or graphic beginner.

Thinking maps are key elements in concept-based instruction because they illustrate the structure and organization of information. By creating thinking maps, students are able to link prior knowledge with new learning, thereby deepening their level of understanding educational material. When teachers hand out worksheets, students often only focus on getting answers and they do not focus on the concept of the lesson. When using each of the eight thinking maps, students are guided to an understanding of the lesson, not just finding answers. This allows teachers and students to focus on all of the information that is necessary for understanding the critical facts of the subject matter.

This illustration sets forth the eight types of thinking maps.

							
<b>Define</b>	<b>Describe</b>	<b>Compare Contrast</b>	<b>Classify</b>	<b>Sequence</b>	<b>Cause and Effect</b>	<b>Whole/Part</b>	<b>Seeing Analogies</b>
brainstorm	traits	similarities	categorize	summarize	predict	take apart	just as...
list	characteristics	differences	organize	recount / retell	discuss consequences	spatial relationship	identify the relationship
generate	features	alike	group	procedure	identify / motives	put together	guess the rule
as many as you can...	properties	unlike	sort	tell / show how...	why did / does...	show structure	interpret symbols
... is the ...	describe feelings	opposites	details	steps	describe change(s)		represents
tell everything you know...	observe using 5 senses	distinguish between...	discuss strategies for...	first, next, then...	what would happen if...		reminds me of...
identify	attributes	unique	types of...	stages	outcomes		is like...
relate prior knowledge	use vivid language...	same	give sufficient details...	show degrees of	discuss strategies		
sum up	identify			patterns	impact		
explore the meaning of	use adjectives			rhythm			
	qualities			events			
				process			

Thinking maps are essential tools in bridging the cultural gap between teachers and students because they address three related factors. First of all, each of the eight thinking maps facilitates the development of one of the cognitive skills that are critical to learning and are also identified in all the State standards as skills students must have. Students need to be able to define and generalize concepts or themes; describe, identify, categorize, and organize details; compare and contrast; sequence; identify cause and

effect; analyze parts of a whole and understand analogies. Second, thinking maps provide a language base for thinking and learning that allows teachers and students to communicate with precision, thus bridging the cultural gap. Equally important is that they provide students with the tools for building competence in learning and communication, with confidence.

When thinking about my extremely diverse, multicultural classroom I reasoned that I needed to adjust the way I teach, so as to bridge the cultural gap between myself and my students. I realized there are several problem areas that are prevalent at Richfield. The first problem that students face is that they are not reaching their full potential. Another problem is a kind of cultural gap where students of color are not on the same communication level as the teachers and therefore learning is being impeded. An additional problem that the students are facing, are various types of learning blockers that inhibit the learning process. After learning about thinking maps and concept-based instruction I realized that I could change the way I teach my lessons. I could attack these problems in my classroom by using thinking maps. I could analyze whether using thinking maps will have a positive impact on my students. Thus overcoming these recurring problems.

Many students at Richfield have the potential to do so much more, when it comes to learning, but they either choose not to or they truly do not understand the teaching that is taking place. These are not just students of color, but also many of the other students at Richfield. "It's the same syndrome that my kids from urban settings are going through, meaning they have a lot more potential." (Jackson, 2005) My job as a teacher is to try to convey the lesson to my students in a manner that enables them to reach their full potential. My students come from a variety of backgrounds. It is very difficult to get them to reach their full potential, when they are wondering where I am coming from. "The students actually may have quite sophisticated levels of knowledge and skills-just not the kinds that teachers understand." (Sternberg, 2006) Sternberg is saying that the potential is there, but we as teachers need to un-tap it. This may sound like more of a burden is being put on the classroom teacher, however this is the teacher's responsibility. "If you know about learning and how learning happens, then you can improve the instructional technique, and if you really believe that kids have potential, you set high

expectations and have them meet those expectations with the tools that you give them.” (Jackson, 2005) Based on my work with thinking maps in my classroom, I believe that by using thinking maps and concept-based instruction, my students can reach their full potential. Thinking maps become the mediating tools for students and teachers. Now teachers can change their teaching habits by using thinking maps that will unlock students’ knowledge and skills. “Because most students cannot link facts to concepts, classroom teachers must take responsibility for identifying concepts within the curriculum, an explicit and overt act.” (McCoy, 2004) For the teacher thinking maps encourage teachers to identify the purpose and goals of the lesson before instruction in order to determine what kind of thinking is involved. Many teachers try to fix the potential problem by lowering expectations of the students. “That is they expect less of these students in exchange for the students’ good will and reasonable effort in complementing class assignments that typically require little, if any, reading. Lowered expectations, however, only accelerate the problem.” (Alvermann, 2005) By using thinking maps and concept based instruction teachers do not need to lower expectations in order for the class to do well. Thinking maps require different approaches at looking at assignments and tasks. They enable students to change their thinking habits solidifying their expectation level.

At Richfield Middle School our staff is made up of white Caucasian males and females. The diversity of our students is such that it really does not correlate with our staff. So one complaint from teachers and students is that they do not understand each other. Instead of an achievement gap, we have a cultural gap. “When teachers say there’s a gap between themselves and their students, they are referring to a “cultural gap” regarding their frame of reference as well as their language that is different from the students.” (Jackson, 2005) I have heard this from many Richfield teachers, “I can’t communicate what I need to with these kids. I can’t connect, so the students resist the learning.” “What teachers sometimes interpret as students not wanting to learn is really “out of sync rhythms between the students and their culturally different teachers.” (Jackson, 2005) I feel what Jackson is saying really describes Richfield and its staff. Another cultural concept that comes up at Richfield is the lesson that the teacher is teaching may not be relevant to the student. “Students from non mainstream communities

had adaptive knowledge and skills that don't show up on standard achievement measures." (Sternberg, 2006) Again, Richfield students come from all different backgrounds. We cannot assume that all of our students to know and understand something that we as teachers grew up with. "When we teach students in a way that fits how they think, they do better in school." (Sternberg, 2006) Thinking maps and concept-based instruction encourage discussion between the teacher and the students. When students are first given worksheets, communication often is lost. Examples of this lack of communication are; "what is this answer, or I don't understand this question." When students use thinking maps these questions are overcome by a mutually understood language. Students see the concept rather than focusing on just trying to find answers. Thus the dialogue changes to explicit conversations about language, process, and cognition development, which can be transferred across classes and curriculums. With shared visual representations, teachers and students can understand and communicate in the same language, shifting the power in the classroom. This neutralizes the cultural communications gap.

Another thing that I came across in my research about thinking maps and concept-based instruction was what Yvette Jackson calls learning blockers. "Learning Blockers are things that obstruct the natural learning process, specifically; cognitive, language, and textual blockers." (Jackson, 2005) The first learning blocker is cognitive. This is when students are not guided to identify the understanding or concept that should be the focus of the learning. At Richfield we ask our students all the time to think critically, to analyze, evaluate and compare personal experiences. This is very hard for many Richfield students. Many times we as teachers have to spoon-feed the answers to the students, because they cannot come up with them on their own. "Students presented with the concept-based approach performed much better on the open-ended assessments that required them to illustrate the concept in a new instance, demonstrating higher-order thinking." (McCoy, 2004) Thinking maps are a good tool in dealing with the cognitive learning blocker.

The second learning blocker is language. This is when the language used in the textbook and by the teacher is so distinctly different from the language students use at home, they cannot understand what is being conveyed. When I was a first year teacher at

Richfield, I often asked the students to read a section or chapter of the text at home. Quickly, I found out that the students were not reading and the reason was, because they did not understand most of the words. As Alvermann states, "Because they read so infrequently, they typically will not have acquired the requisite background knowledge, skills, and specialized vocabulary needed for comprehending the texts they are assigned as part of the regular school curriculum." (Alvermann, 2005)

The third learning blocker is textual. There are two types of textual learning blockers, semantic and structural. Semantic blockers are words such as pronouns or idioms that are often not identified by teachers as problematic and do not necessarily require a deep understanding of language codes or patterns, yet they can severely inhibit comprehension of text. Structural blockers are the patterns that authors use to communicate information. We as teachers are always trying to find the perfect vocabulary word, or the perfect lesson to go along with the subject matter. "Many students arrive at middle and secondary content classes reading significantly below grade level. Whether a result of learning disabilities, language barriers, or low skill levels, struggling readers often focus on decoding text at the expense of understanding material." (Jitendra, 2001) If the students do not understand the words around the vocabulary word or the background knowledge of the lesson, then the student will never understand what they are expected to learn. Thinking maps create a clearer pattern for teachers to teach with and for students to analyze text and to demonstrate understanding of the text in the pattern required. Thinking maps guide students in identifying and analyzing the textual structures or patterns needed to construct meaning from a reading or unit of study in any discipline. Thinking maps help teachers identify and analyze the kind of thinking that is going to be required to read a particular text. "Overt identification of concepts and their characteristics and the deliberate use of graphic organizers reduce the reading comprehension demands placed on students with low abilities." (McCoy, 2004) The process fosters the great link between reading and writing. "Thinking Maps help students unlock the frozen patterns of thoughts as well as their thoughts and freeze them in a pattern of thinking." (Jackson, 2005)

"Not only do students consistently perform as well as before on lower-level intellectual operations, they also reliably outperform students receiving traditional

instruction on assessment evaluation more advanced intellectual operations.” (McCoy, 2004) With all of the teaching that I have received from the National Urban Alliance regarding thinking maps and concept-based instruction, I now look forward to seeing what my research reveals. Thus far my research has fleshed out the problems that students are facing with high level learning and thinking. Using thinking maps and concept-based instruction, I will try to overcome the problems of potential, cultural gaps, and learning blockers in my classroom. I look forward to seeing a positive impact and students tapping into new learning, thinking, and understanding as a result using thinking maps and concept-based instruction.

## Annotated Bibliography

**Alvermann, Donna E (September 2005). Literacy on the Edge: How close are we to closing the literacy achievement gap?. *Voices from the Middle*, Vol. 13 NO. 1, 8-13.**

The article Literacy on the Edge, discusses how close are we to closing the literacy and achievement gap. Alvermann starts off by discussing the problems that cause literacy and achievement gaps. Some of the problems he states are, reading being so infrequent among children, low expectations of children, and not enough effort being placed on reading. Alvermann believes that teachers need to use re/mediation. This is a new metaphor for thinking about different ways, that teachers might intervene in their students' reading lives. Re/mediation is about changing the ecology of classroom teaching and learning by taking into account a broadened view of texts. He goes on to say that thinking of different ways and teaching styles may help bridge the literacy and achievement gaps.

**Delpit, Lisa (1995). Other people's children: Cultural conflict in the classroom. New York, New York: New Press.**

The book Other People's Children cultural conflict in the classroom, begins by stating that nearly 40 percent of children in America's classrooms are African American, Hispanic, Asian American, or Native American. However, most of the teachers in America's schools are white. Delpit goes on to suggest in her book that many of the academic problems attributed to children of color are actually the result of miscommunication as schools and "other people's children" struggle with the imbalance of power and the dynamics of inequality. She believes that before teachers can assess this new diversity of students, schools must go out and understand how to teach within the culture.

**Jackson, Yvette (2005). Closing the Gap by Connecting Culture, Language, and Cognition. National Urban Alliance. Vol. 5, 49-59.**

The article, Closing the Gap, is about the National Urban Alliance and its mission for effective education. The focus of NUA is on changing teachers' perceptions and expectation of underachieving urban students. NUA looks at brain-based instruction, cognitive development, and the impact of culture and language on cognition, critical thinking, and higher-order comprehension skills to try and improve achievement among the urban setting. One method they use is thinking maps. NUA believes thinking maps bridge the cultural gap between teachers and students. Thinking maps use cognitive skills, language about thinking, build competence in learning, and they are also identified in all the state standards, as skills students must have.



**Jitendra, A. K., Nolet, V., Xin, Y. P., Gomez, O., Renouf, K., Iskold, L. (2001). An Analysis of middle school geography textbooks: Implication for students With learning problems. *Reading & Writing Quarterly*, 17, 151-173**

The article, Analysis of middle school geography textbooks, is about increased difficulty in using textbooks in the classroom. Middle schools are facing the ever increasing problem of students not being able to read at grade level. This causes huge headaches when it comes time to use the class textbook. The article goes on to list more problems and comes up with some possible solutions.

**McCoy, Jan D., Ketterlin-Geller, Leanne R., (November 2004). Rethinking instructional delivery for diverse student populations. *Intervention in School and Clinic*, Vol. 40. No. 2, (88-95).**

The article, Rethinking instructional delivery for diverse student populations, is about concept-based instruction. Concept-based instruction is a way of teaching the concepts for students, so they understand the whole of what is being taught. The article goes on to discuss how graphic organizers are the best way to get concept-based instruction through in the classroom.

**Sternberg, Robert J. (September 2006). Recognizing neglected strengths. *Educational Leadership*, Vol. 64 NO. 1, 30-35.**

The article, Recognizing Neglected Strengths, is about minority groups having culturally relevant knowledge and diverse cognitive abilities that schools can use to promote learning. Sternberg is saying that students have sophisticated levels of knowledge and skills, just not the kinds that their teachers understand. Schools need to start teaching students in a way that fits how they think and then the schools will start to see success. He goes on to say that teaching for divers styles of learning will produce superior results.

**Steve Hemming**  
**Richfield Middle School**  
**Grade 8**

**Action Research Question:**

How will the use of thinking maps make an impact in the classroom?

For the past three years I have been part of an initiative called the National Urban Alliance. The focus of the National Urban Alliance is on changing teachers' perceptions and expectations with respect to underachieving urban students. The main goal of National Urban Alliance being, to close the achievement gap between different groups of students. For my action research, I wanted to determine what impact the National Urban Alliance technique, of using thinking maps, would achieve in my classroom. Thinking maps are based on a model of thinking processes developed by Dr. Albert Upton. In the late 1980's, Dr. David Hyerie revised the Upton model as the foundation for thinking maps as a set of tools for learning. Thinking maps consist of eight visual-verbal learning tools, each based on a fundamental thinking process which are used together as a set of teaching tools.

I teach eighth grade Geography at Richfield Middle School. Two other eighth grade teachers also teach this course at Richfield. The Geography units are taught at the same time, creating continuity within the school for all the eighth graders. I introduced my students to thinking maps at the beginning of the school year. I displayed the eight thinking maps around my room, familiarizing my students with what we were going to be using throughout the school year. The first thinking map I exposed my students to was the Circle Map. I had my students list as many things as they could think of about eighth grade. As my students were sharing this information, I was demonstrating to them how to list their responses on the Circle Map. I then went on to teach my students the Compare & Contrast, Cause & Effect, and Flow Maps. I wanted to make sure that my students had a good understanding of these three maps, because they were going to be the maps we would be using in the Mexico Unit. When first presenting these three maps, I focused on the concept of eighth grade versus seventh grade. The students were comparing eighth grade to seventh grade using the Compare & Contrast Map. I also instructed them to use the Flow Map to outline their school day schedule. We also reviewed the school rules by creating a Cause & Effect Map. Thereafter, over the period

of the next six weeks I taught my students the remaining four thinking maps. My students really enjoyed the Bubble Map and Tree Map, because they felt that they were the easiest to use. They did not enjoy the Analogies Map, because it involved more classroom time than the other maps. After more practice however, they became more comfortable using it. Through practicing and modeling thinking maps during the fall, my students became very familiar with all eight thinking maps.

While my students were getting familiar with thinking maps during the fall, three things emerged within my classroom; participation, classroom discussions, and work completion all increased noticeably. These three areas increased significantly over the previous units I had taught my students. As a result I decided that I would focus on these three results and chart them as data during the Mexico unit. I asked a colleague of mine, Andy Uhler, if we could use his class as a control group. Since we were teaching the same lessons, we would compare the impact thinking maps were having in my class versus his. When I was using thinking maps, he was using formal assessments to teach his lesson. When recording the data in the areas of participation and classroom discussion, we decided to use a tally system. We defined participation as a student raising their hand and answering a question about the lesson. We created a student checklist and anytime a student answered a question, we recorded it. We also recorded classroom discussion. We defined classroom discussion as sharing a thought, or posing a question to the class about the lesson. Andy and I used a similar type checklist and recorded thoughts or questions as they occurred in the classroom. We also wanted to see if thinking maps would have an effect on work completion. Andy and I recorded our classes' work completion throughout the Mexico Unit. I also wanted to compare work completion to the two previous units I taught on Canada and Map Skills.

The three thinking maps I used for the Mexico unit were Cause & Effect for Mexico City, Double Bubble Map with Mayas & Aztecs, and a Flow Map of famous Mexican figures. The Cause & Effect Map was used to understand the problems facing Mexico City. The Double Bubble Map was used for comparing and contrasting the Maya & Aztec cultures. The Flow Map was used for placing famous Mexican figures in historical order. While I was using thinking maps Andy Uhler was using textbook questions, worksheets and other types of assorted assessments to teach the same lessons.

This calendar illustrates how Andy Uhler and I covered the Mexico Unit.

**Mexico Unit Schedule**

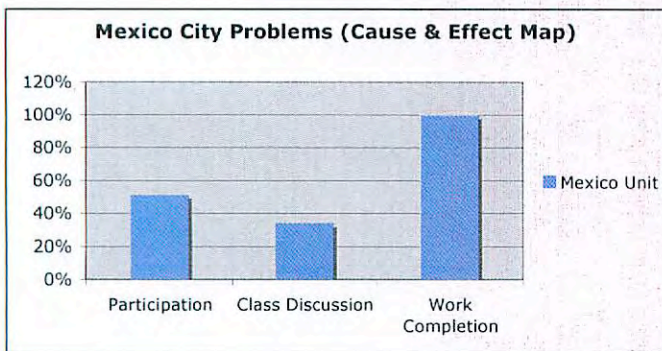
Day 1	Day 2	Day 3	Day 4	Day 5
Introduction on Mexico  Lesson on Cause & Effect Thinking Map  Mexico Power Point Mexico Vocabulary	Read Mexico City pg. 211  Letter from Mexico City  Mexico City newspaper article	Cause & Effect map on Mexico City  Class Discussion on the major problem facing Mexico City	Final Class Discussion on the Cause & Effect Thinking Map on Mexico City	Mexico Vocabulary Quiz
Day 6	Day 7	Day 8	Day 9	Day 10
Mayas & Aztecs video  Mexico History Packet  Lesson on Double Bubble Thinking Map Mexico Vocabulary	Read Pg. 1 & 2 in Mexico History Packet on Mayas & Aztecs  Double Bubble Thinking Map on Mayas & Aztecs	Class Discussion on the Double Bubble Thinking Map on Mayas & Aztecs  Read Pg. 3 & 4 in Mexico History Packet on Cortes & Montezuma	Read Pg. 5 & 6 in Mexico History Packet on 1910 & Famous Figures	Mexico Vocabulary Quiz
Day 11	Day 12	Day 13	Day 14	Day 15
Famous Figures Activity  Lesson on Flow Thinking Map	Flow Thinking Map on the Famous Figures of Mexico	Class Discussion on the Flow Thinking Map on the Famous Figures of Mexico- putting figures and event in the correct order	Mexico Unit Review	Mexico Unit Test

I was pleased by the data I recorded as a result of using thinking maps for the Mexico unit. My students' participation, class discussions, and work completion increased significantly. I was pleasantly surprised to observe how much more participation there was in my classroom. I also noticed how classroom discussions were increasing as a result of the use of thinking maps. Students were more involved in bringing up topics for discussion on their own and asking more questions about the

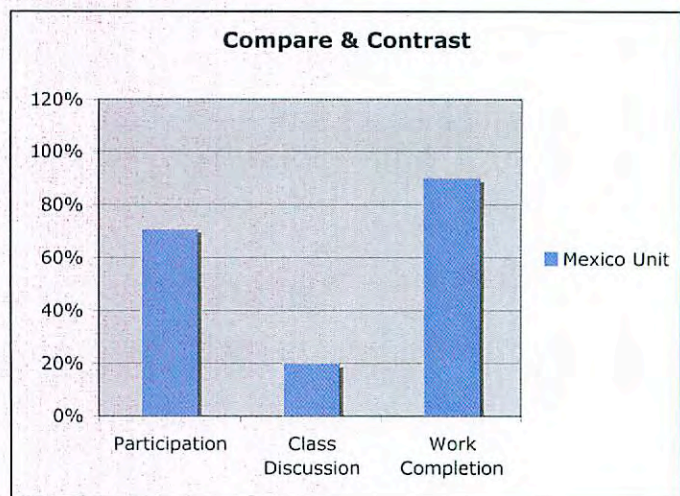
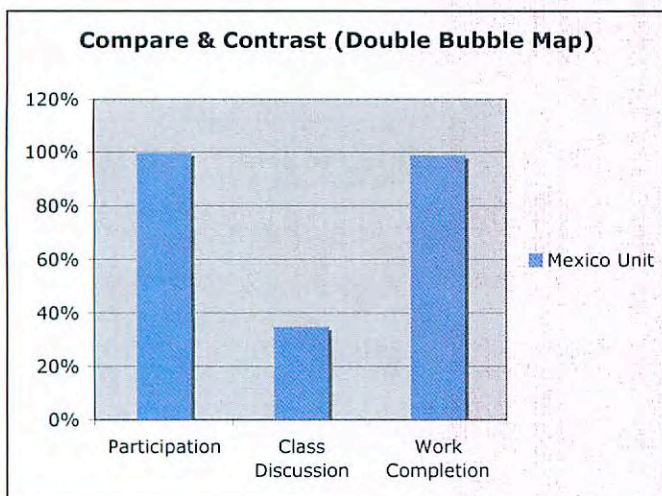
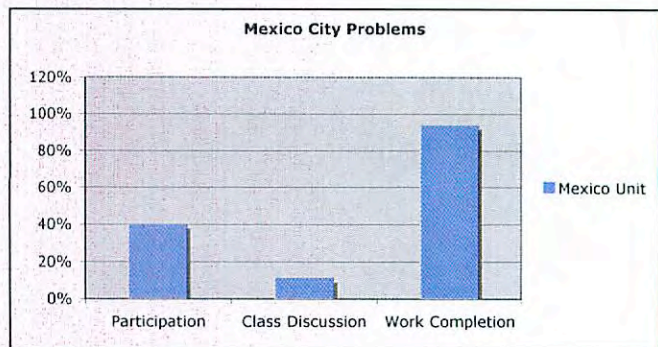
lesson. I also noted that my students' work completion increased as well, compared to the previous two units I taught on Canada and Map Skills.

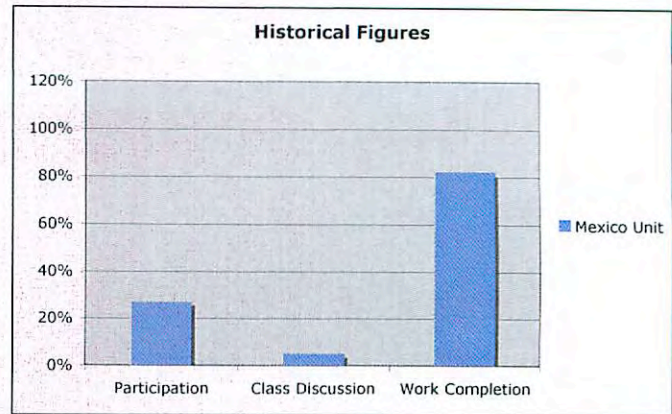
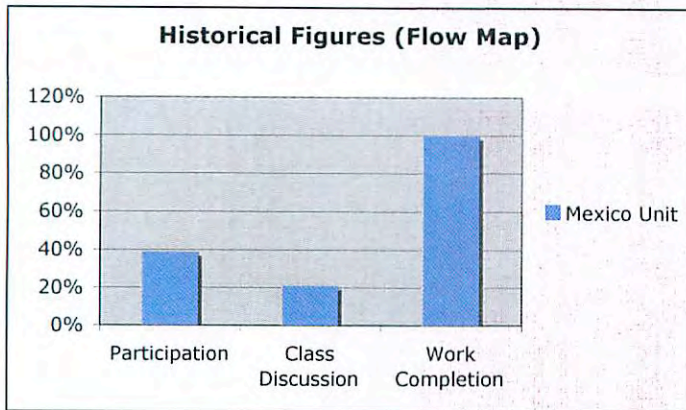
Andy Uhler and I then compared the data from his class to the data from my class. In class participation, my class outperformed his class with respect to all three lessons. Class discussions were more prevalent in my class as a result of my class using thinking maps. There was significantly less class discussion in Andy's classes. Overall work completion was good in both classes, however, it was slightly better in my class than his. I also compared work completion for the Canada and Map Skill Units. My class did much better on the Mexico Unit than it did on the two previous units.

### HEMMING

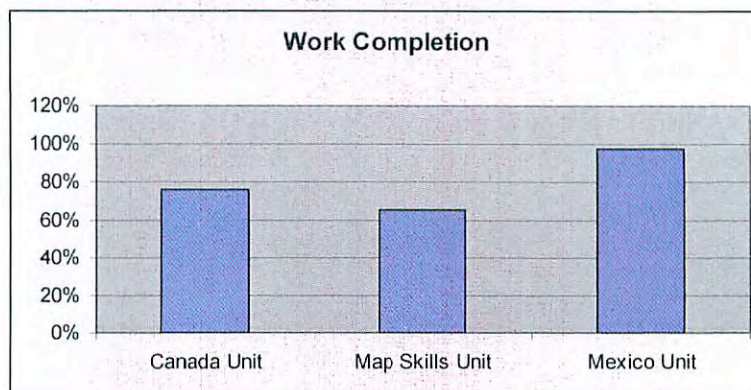


### UHLER





Work completion on the Mexico Unit in my classes compared to work completion on the two previous units, Canada and Map Skills.



When I asked my students what they thought of thinking maps, their reaction was mostly positive. They liked the way thinking maps guided them through a different way of learning a lesson. They also enjoyed the concept approach of looking at details first and then realizing that the details lead to an understanding of the overall lesson. This concept approach to the lesson, made a favorable impression on them. Not all the comments were positive however. A few students did not like all of the thought process that go into thinking maps. They preferred that I; the teacher, tell them what to write down so they could then memorize the information for the test. Their thinking maps were completed to a bare minimum and I could tell thinking maps were not an effective tool for these few students.

Clearly, the use of thinking maps had a positive impact on most of my students. I will continue using thinking maps in my classroom as a result. Thinking maps are another tool for the teacher to use to get a lesson across to students. I certainly saw a

positive change in learning of the subject matter by many of my students through the use of thinking maps. Several students are now asking me if they can turn their classroom notes into thinking maps. Also other classroom teachers, on our eighth grade team, are seeing students use thinking maps in their classrooms as well. This is happening without me or other teachers telling them to use thinking maps. Thinking maps did have a positive impact on my students. Certainly, the use of thinking maps unlocked a significant amount of my students' untapped potential.

## Demographics

### **Richfield Public Schools District #280**

Overall population	4,037
White	48%
Students of Color	52%
Free/Reduced Lunch	47%
Limited English Proficiency	18%
Special Education	13%

### **Richfield Middle School**

Overall Population	874- 473M 401F
White	42.25%
Students of Color	57.75%
Amer. Indian	1.25%
Asian	8.75%
Hispanic	23.25%
Black	24.50%
Free/Reduced Lunch	50%
Limited English Proficiency	22%
Special Education	15.7%

#### **2007 NWEA Test results:**

59% Below grade level in Math  
60% Below grade level in Reading

### **8<sup>th</sup> Grade Classroom Demographics**

This is a break down of classroom Demographics between my classroom and Andy Uhler's classroom.

#### **Hemming**

Overall population	94
White	49
Students of color	45

#### **Uhler**

Overall population	90
White	40
Students of Color	50