Running Head: WHAT HAPPENS WHEN

What Happens When I Infuse Metacognition into a Sixth Grade History Class?

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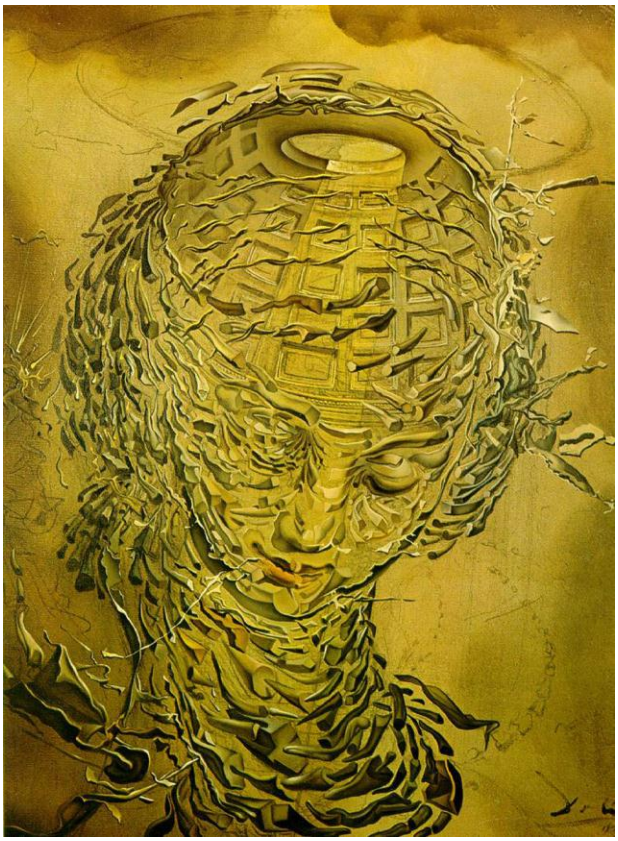

"Cogito ergo sum."
"I think, therefore I am."
---from *Discourse on the Method* by René Descartes 1644

Introduction

Thinking, we all do it. Or do we? What do we think about? Perhaps it is what to eat for dinner, where to go on vacation, or whether or not these shoes go with those pants. One could infer from Descartes's statement that if we did not think, we would not exist. I am not convinced that this is true. It seems to me that many of us exist, yet we go on about our daily routines without giving much thought to what goes on in our heads. If we reflected upon ourselves daily, then perhaps we might wish we hadn't. Therefore, we file these thoughts away in a place labeled, "Things not to think about". However, reflecting upon the day's events is the cornerstone of what teachers do. It would be incredibly difficult to create the next day's lessons if we were not to ruminate upon the ones from today. I have noticed that if I honestly and consciously attend to thinking about how my day has unfolded, I find that a significant amount of brain power in concentrated on my successes and failures as a teacher, as well as those of my students. I question, plan, prepare, assess, reflect, and begin the cycle over again.

It was during one of these thinking cycles, as I drove home from school on a cold November day, that I found myself realizing how disgruntled I was that afternoon because I had had to instruct my students to "think" and "to use their heads" more times than I could count. Where had I gone wrong? Were my instructions weak? Were my students inattentive that day? Were my expectations too high? It was mental machinations like these that led me to my investigation of how and what my students think. What part of student thinking is under my auspices as the teacher? What sort of thinking abilities do my students bring with them and what parts can I affect? That November drive home was the beginning of a parallel journey for both my students and

me into the realm of what was to become my research on "thinking" and "metacognition". As I was soon to learn, the terms thinking and metacognition are fraught with ambiguity and entrenched in a great deal of professional research and literature.

Educational Setting and Context

I teach sixth grade social studies and world history in Everyday Middle School in Anywhere, New Jersey. This is a suburban township with an economically diverse population, although the majority would be considered middle class by today's standards. The student population in our building numbers approximately 1000, and seems evenly divided between 6th, 7th, and 8th grades. Within this population, 11% of students speak English as a second language, with the majority of those being Spanish speaking. Additionally, 14% of the population is classified with Individual Education Plans (NJ Dept of Education, 2007). Since it is the district's policy to place all students in the least restrictive environment, full inclusion is the predominant classroom setting, thus the inclusion classes are quite large with a wide range of cognitive abilities.

Each grade level is divided into 3 teams of approximately 100 students. I am in contact with the over 100 students on my team each day. Due to facility issues, the average class size in my building is 26.8 students, 5 students above the state average (NJ Dept of Education, 2007). I teach four world history classes per day, two regular education classes with 24 students each, and two inclusion classes with 28 students per class. I co-teach with a different special education teacher in each inclusion class, but it is interesting to note that even with two teachers, 28 students can occasionally be an overwhelming number. The challenge of class size is especially evident when one stops

to recognize that one-third of the group requires individual accommodations such as extended time to complete tests and assignments, study guides, and modified assessments. In addition, these classes require that directions be consistently repeated and reinforced, printed copies of class notes are distributed, and homework pads are initialed. Finally, the most obtrusive accommodation is the downloading and printing of Alpha-Smart personal keyboard documents.

The irony of the situation lies in the fact that all of these accommodations are to occur covertly, as not to bring attention to the special education students, while the rest of the students are required to hand-write their work, study without study guides, generate their own written notes, and complete their tests and projects within the expected time period. It is for these reasons why my teacher research project will be focused in the regular education population. However, I already see the emerging question of the differentiated classroom and its effects on thinking and metacognition as a possibility for future inquiry.

I am fortunate when it comes to the physical environment of my classroom. The sixth grade wing is the newest wing with a long list of amenities. It boasts large rooms, four white board surfaces, fashionable cabinets and countertops for storage, sinks, air conditioning, window blinds safely tucked inside the glass, and air conditioning. In addition, we also brandish six internet connections (even though the computers are ancient), LED projectors, Phonic Ear microphones, and a variety of wireless computer gizmos. We are very spoiled in our wing, and enjoying every minute of it. It is the case however, that once we fill this sizable room with 30 student desks, three computer work

tables, and two teachers' desks (facility issues require teachers to share classrooms) it can become a bit crowded. We like to call it cozy.

The learning environment is visually stimulating; our walls are never blank. There is always a colorful compliment of student creations and thematic decorations. We also delight in a hodgepodge of child friendly paraphernalia like Greek Goddess Barbie, seasonal Beanie Babies, Egyptian Pharaoh Sponge Bob, and a director's chair for the Cat in the Hat. Our desks are arranged in a Kagan-esque style comprised of eight table groups with four desks each. These groupings help to facilitate cooperative learning activities and discussions, but occasionally the face to face positioning of the desks allows for conversation and socialization at inopportune moments. We regularly engage in many activities that necessitate discussion, laughter, gaming, movement, music, and the like. Since my door is always open, we may not be the quietest neighbors, but I am confident that we are learning and having fun. My slogan is, "If this wasn't any fun, I wouldn't be doing it."

In the midst of all of this fun and learning, the development of my research question has become a daunting and difficult task. I develop new questions everyday. As I drive home, these questions swim crazily through my head like a school of hungry piranhas. Sometimes the piranhas focus on individual students, other times on the population as a whole, and often times on me. In most cases, they munch hungrily on the recent events of the day. When our lessons and activities yield the results I had planned for, the piranhas are satiated; when my well planned lessons run awry, the frustration of the day offer my synaptic piranhas a feeding frenzy.

Lately, I find myself thinking about how surprised I am that my sixth graders have not made concrete habits of the patterns I have initiated since the beginning of the school year. I began to focus on how I manage my classroom and how that affects the actions, behaviors, and ultimately the successes of my students. My management and teaching style require that my students apply a fair amount of self-regulation and self management each day. For example, since September I have laid out the patterns of action for daily activities. Upon entering the room, students have been instructed and are expected to (1) check the board to see what we will be doing, (2) make any bathroom trips, (3) take any handouts on the table, (4) get a textbook from the stack, (5) sharpen pencils, (6) take out their homework, and (7) be ready to work. Yet, despite my explanations, lists, prompts (oral and written), encouraging, cajoling, pleading, and on occasions chiding with consequences, I still have students who have yet to embrace these rules and routines as habits. Why not? What have I missed? Why aren't they seeing the patterns? How can I help them to learn to ask intelligent questions and to solve their own problems if they are unable to internalize and manage daily procedures?

Are my expectations too high? Am I asking too much from 12 year olds? I watch. When I try to fix numbers to my problem, I notice that about half of my students can, in fact, follow these procedures without trouble. They are ready and waiting to move on. The other half varies in its ability to follow routines and procedures. It is the time it takes to rally the latter group to task that causes our class to lose instructional time, which inevitably frustrates me and those students who are ready to work. We have so much to do and so little time to do it.

Along the same vein, my 6th graders ask me questions that, in my opinion, are dreadfully obvious if they would just stop and think. They are questions similar to these that blow my mind every day:

- "Is this good?"

  I respond, "What would make it good?"

- "I don't get it."

  "Get what?" I ask innocently.

- "What do I do now?"

  I respond gently, "I instructed you before we began, and I wrote it on the board."

- "What do I do when I am done?"

  I repeat less gently, "I instructed you and I wrote it on the board."

- "Where are the rulers?"

  I retort with a sigh, "Where they have always been, unless someone has moved them; in that case you might have to look around."

- "How do I find the name of a desert in China?"

  I answer with roll of my eyes, "Where can we find the name of any physical feature on the Earth?"

After some time, I have learned to respond to the questions that irritate me with, "Why don't you think about it for a minute and then come back if you don't figure out." By the end of the day my responses become more and more curt, and what my students may hear sound a bit more like, "Is there another way you can figure it out aside from asking me?" or "Why don't you find someone else who knows?" Eventually the students

meet with the 'I have had enough' response which usually takes the form of, "Go think about it! I feel like I am being pecked to death by chickens." When I react in this way, I begin to question my teaching abilities as well as my ability to control my temper. Perhaps I have not set them up to be successful, despite my feeling that I have. Perhaps I need to practice patience. Perhaps I need to figure it out.

It was these types of interactions with my students and the internal conversations in my head that led me to believe that I needed to help my students learn how to solve those simple problems. If they can't figure out how to find the rulers for themselves, how can I expect that they will figure out how to use them? In order to help my students reach a higher level of academic achievement I believe that they need to begin thinking for themselves. Thus the term "think" became the focus of my question. Can I encourage them to think for themselves? What would that look like? What would it feel like? I became excited about the possibilities. Oh, the accomplishments we could make! Eureka! We will focus on thinking, we will talk about thinking, we will think about thinking. Metacognition, defined by scholars is "thinking about thinking". That's the answer. I can encourage my students to think for themselves. Promote self-awareness and engage them in self-reflection. Okay, I've got it. My question: *What happens when I infuse metacognition into a 6th grade history class?*

If I analyze more carefully the systems I use to establish procedures and organize activities, will it help my students to be more self-sufficient? Despite the fact that I feel as though I am going to great lengths to affect independent thinking, I will have to look more closely to discover if that is actually what is happening. What works for some, clearly doesn't work for others. We live in a differentiated world. Have I misread the

maturity level and cognitive development of some of my students? Am I teaching to the higher cognitive abilities? I must continue to remember these children are only sixth graders. If I encourage them to ask themselves questions and analyze their own thought processes, will it give them more confidence in their own abilities? If I model techniques for managing activities with a methodical approach, will they be able to figure out for themselves when they have or have not met the requirements? The questions are mounting.

I have only seen the tip of the iceberg. It appears as though my initial question only leads to more questions; three quarters of them lie beneath the frigid water. However, I am coming to realize that my question and its purpose are not just important to the teaching of history. The infusion and employment of metacognition into my classroom routine does not just interest me for the purpose of higher achievement in history as much as it interests me to the see these students acquire the ability to think and solve problems for themselves in real life situations. My goal is that through the development of metacognitive skills, my students will be able to learn and follow through with whatever interests them. If it turns out to be history, that would be lovely. More importantly the skills developed through the use of metacognitive processes will likely be farther reaching than just the study of history.

Literature Review

It is my impression that a certain level of guided-internal thinking and metacognition occur in my classroom whenever the opportunity avails itself. Very often I find myself explaining to the students how I might solve a problem or begin a project. I articulate what goes through my mind when a question is posed or a problem arises. I

demonstrate techniques in answering those challenging ‘evaluate’ and ‘synthesize’ questions at the end of chapters in the history text. What I must ask myself now is: Are the metacognitive techniques and strategies that I model and demonstrate in my classroom working? Is my methodology supported by current research? Am I yielding the results I desire? And if so, how can I be sure?

My research began with references to metacognition as a concept used by educational psychologists and often credited to John H. Flavell to mean “thinking about thinking” (Livingston, 1997, p. 1). That didn’t sound like a revelation; I had heard the term in several college courses and workshops. The revelation would come when I figure out if what I am calling metacognition in my classroom truly qualifies as metacognition according to the literature. And if so, which aspects of metacognition or “thinking about thinking” am I targeting in my teaching? The plot thickens. Can thinking about thinking become any more ambiguous or circular? I needed to find additional definitions.

The Nature of Metacognition by Gay (2001) also discusses Flavell’s work and amends Livingston’s (1997) definition by stating that “metacognition includes knowledge and regulation of cognition” (p. 1). Gay goes on to qualify his definition by naming three variables that affect metacognition: “personal variables, task variables, and strategy variables” (p. 1). It also appears that within this construct there is a distinction between knowledge about thinking and the regulation of thinking (Gay, 2001). According to the literature, I can develop student awareness of their own thinking patterns and abilities while bringing well needed attention to student growth and development of self-regulation.

There is no end to the volumes of work regarding thinking and metacognition. Wilen and Phillips (1995) are vested in studying metacognition and critical thinking in the social studies classroom. Hurray! They must be speaking to me. What Wilen and Phillips (1995) propose is an infusion based model where in "the teacher directly teaches students specific critical thinking skills within the context of subject matter. The teacher primarily accomplishes this through modeling and application of critical thinking. In addition, the skills are also modeled by the learners" (p. 135). "There is strong evidence for the effectiveness of the modeling component of the metacognitive approach" (p. 135). Wilen & Phillips (1995) bring up a point that is very near and dear to my heart: The creation of "classroom environments that foster thoughtfulness" (p. 136). They identify primary dimensions of classroom thoughtfulness as:

> …observable qualities of classroom activity and talk that facilitate students' development of subject matter understanding, thinking skills and dispositions of thoughtfulness. The most important characteristic is the demonstration by the teacher of how he/she has thought through problems, rather that the mere provision of answers. This is modeling. Other characteristics are that the teacher shows interest in the students' ideas and their approaches to solving problems, and acknowledges the difficulties students have in understanding problematic topics. (p.136)

With the addition of this tidbit of information I become increasingly confident that my theories in regards to teaching history and social studies are on track. Wilen and Phillips (1995) have affirmed the basic foundations from which I teach and have also given credibility to the infusion theory and overall research question.

Yet I have only broken through the initial membrane of this seething, pulsing organism called metacognition. As I continued reading Livingston's (1997) article, *Metacognition: An Overview*, she cites and credits Robert Sternberg's development of a three pronged, "triarchic theory of intelligence". It seemed only natural then that I go directly to the source. Sternberg's Triarchic Theory of Intelligence delineates three executive processes as the thought processes that govern metacognition. The three metacomponents that guide the metacognitive process are: "planning, monitoring, and evaluating problem-solving activities" ((Sternberg, 1988, p. 59). According to Sternberg, "these metacomponents act as executive processes that control other cognitive components as well as receive feedback from these metacomponents." (p. 59) I am comfortable with Sternberg's definitions and descriptions as they clearly describe the thought processes I use with my students daily. I repeatedly encourage my students to stop, think, and plan first. Later we take stock of our current tasks and the processes we employ to complete them. Finally, before anything is handed in as completed, I remind them to check, proofread, and ask any final questions.

Further reading brings forth a strong relationship between metacognition and intelligence. Livingston's (1997) article suggests that there is a correlation between a learner's ability to use metacognition and the learner's intelligence, which indicated to me that I needed look more closely at this relationship. I commenced searching for information regarding metacognition and intelligence in the classroom. As I have become quick to learn, the works done by Robert Sternberg and his cohorts are pervasive in the scholarly literature. In his article entitled, *What Does It Mean to Be Smart?*, Sternberg (1997) again references the four metacognitive skills or abilities. Sternberg goes on

further to recommend that targeting each of these skills will afford today's students, our future adults, the ability to adapt, adjust, and compensate in our ever growing, diverse and pluralistic society (Sternberg, 1997). Well suited to my teaching style, Sternberg's work leads me to believe there is a method to my classroom madness. My efforts to I encourage my students to attend to their individual creative abilities, as well as foster the development of practical abilities is supported in the professional literature.

This information led me to realize that I do, in fact, notice that my higher achieving students demonstrate a greater ability to be self-directed and are better able to manage a variety of authentic real-life performance tasks with less assistance. The same students also stand out in my mind as responsible invested learners who appear to enter my class with purpose. Furthermore, the cooperative learning activities, which are the crux of my classroom, require self-motivation and self-regulation. These higher achieving students inevitably turn out to be the leaders and role models in both individual and group activities. Can I then say that my observations suggest that high achieving students use metacognitive strategies? Can I say that these students are more intelligent? Not quite yet, but the possibilities are intriguing. I cannot control my students' inherent intelligence, but capitalize on what they bring with them.

There is a significant amount of research linking metacognition and intelligence. As there is more than one definition or measure of intelligence, it is clear I will have to discover which types of intelligences, if at all, I am targeting. I did not plan for this inquiry to lead down the paths of intelligence tests and multiple intelligences. Although I haven't completely ruled it out at this juncture, a little refresher in Gardner's Multiple Intelligences may be helpful down the road. However, within my avenue of study

Sternberg's definition of intelligence in terms of abilities seems more applicable to today's society and the job markets my students with have to contend with in the future. His premise is that there are four abilities that we, as teachers, can focus on and teach our students to apply in multiple situations. These abilities are described by Sternberg & Williams (1997) as "memory, analysis, creativity, and practical ability" (pp. 2-3).

Another area of interest and a common phrase in the literature was "teaching thinking". The forks in the road have led me on a literary journey that only compounded my confusion and lengthened my reference list to an almost insurmountable heap. Thinking, from an educational perspective, comes in numerous shapes and sizes. Bloom's Taxonomy, Think Trix, cognition, metacognition, creative thinking, critical thinking, infusion, and transfer are just some of the terms that make it to the top of any search list. In Cotton's (1991) article, *Teaching Thinking Skills,* she summarizes 56 documents all claiming to focus on the need for thinking skills in both educational and real world situations. She concluded that any program that focused on thinking skills, regardless of the its style and focus, was sure to make a positive difference and would result in higher levels of achievement over time. Cotton brings to the forefront the controversy over two models of teaching thinking skills. One model recommends teaching thinking as a separate program, while the other model suggests that it be infused into the content area (pp. 7-8). Cotton's research suggests that both approaches can be effective. I feel as though for my purpose, my question, and my classroom, "infusion" is the method I plan to follow since it most closely resembles what I do in my classroom.

Upon referring back to my question and the sub-questions that were generated, I realized I had not yet addressed my question regarding maturity and its relationship to

cognitive development. As mentioned earlier, there is a plethora of information regarding thinking and metacognition. Finding information is not a problem. Sorting through the quagmire of literature to find which will most reflect my question is the challenge. It all seems so pertinent; even the cleverly created titles intrigue me. Who would have ever thought that I could be engaged by such academic prose?

Brain Development in Young Adolescents: Good News for Middle School Teachers, (Lorain, 2002) reminds educators that:

> Adolescence is a critical time for brain growth. Significant intellectual processes are emerging. Adolescents are moving from concrete to abstract thinking and to the beginnings of metacognition (the active monitoring and regulation of thinking processes). They are developing skills in deductive reasoning, problem solving, and generalizing. (p. 1)

In concert with Lorain's work, Salyers and McKee (2007) maintain a similar view suggesting that, "Early adolescence is a time of unprecedented growth for young people." (p.1)

The influence of adolescent brain development and maturity on thinking is also reflected in this segment of Salyers and McKee's work:

> Young adolescents are moving from concrete thinking to abstract thinking. But this transition is occurring at varying rates for different children, and individual students move back and forth from concrete to abstract continually functioning differently in different classes. Students are beginning to think about thinking, and this sometimes confuses them. (p. 2)

There is one facet of this investigation that nags at me. Throughout all my research and literature review I can't rid myself of the sense that there are certain elements and interpretations of teaching, of children, of personality and temperament that simply exist as gut feelings. Sometimes I simply have to say that, "I just know something" or "It feels right." Realistically and intellectually I am aware that in the realm of educational research these statements lack reliability. Even a gut instinct must be validated on some level. With this idea stuck in my craw, I happened upon a piece of literature that has merit and may justify my gut feelings. It turns out to be quite a boon. Koriat (1999) has done research that may lend some validity to my instincts. In his work, *The Feeling of Knowing: Some Metatheoretical Implications for Consciousness Control,* Koriat suggests the value of a "noetic" (p. 149) feeling, a place between implicit thought processes and explicit thought processes. Research in regards to the "feeling of knowing" has injected a glimmer of hope in my "gut feeling" hypothesis. Koriat goes on to describe the tip-of-the-tongue feeling we have all experienced when trying to retrieve data from our memories. He also mentions that metacognitive monitoring and control seems to be the driving force in unconscious and implicit functioning (p. 151).

Support for metacognition and its value in education dominates the professional literature and introduces teachers to volumes of information and ideas. My research thus far has demonstrated that I am on the right track in my classroom when it comes to the necessity and value of teaching thinking and metacognition to support higher achievement. My initial question at the beginning of this inquiry, *What happens when I infuse metacognition into my sixth grade history class*, still stands. I am confident that

this research can only improve the use of metacognition for my students, as well as assist me in identifying when, and with what level of expertise, I am encouraging this skill.

Methodology

The official launching of my data collection was March of 2007. I set sail with feelings of trepidation. Before collecting any data I needed to put my ethical ducks in a row. I drafted a letter of permission to be signed by the parents of the students in my first period allowing them to participate in my research (Appendix A). The principal approved the permission letter and wished me luck. I was excited when my students met the challenge of returning the signed letters promptly (If only I could get such an immediate return of their homework!) A few parents sent kind notes of luck and kudos. The mother of one boy even asked, "If I figured out how and what the children were thinking, I should let her know." I felt that her comment, in particular, displayed genuine interest and support.

The data sources I chose to chronicle our metacognitive journey were journals of my own (TJE) and those of my students (SJE), audio recordings of lessons and discussions (AR), and observational field notes. I began by writing down as much as possible concerning the events of each day. In my journal, I recorded my feelings about the day's lesson. I wrote down notable comments made by my students. I commented on those annoying meetings that gobbled up my prep-time along with those unrelated assemblies that interrupted our instructional time. I even documented when I didn't have time to journal.

I introduced the students to "Thinking Journals". In these booklets, they were to respond to sentence stems and idea prompts designed to help them describe their thoughts

and strategies during certain activities. Initially I felt the students' first few journal entries were weak and lacked awareness. How could I expect a sixth grader know what I was looking for considering that I was still figuring it out myself? I recognized that I needed a way to interest and encourage them to look at themselves more closely as learners. Unsure at first, I administered a learning styles survey in an effort to lure my students into a mode of self awareness and self reflection (Appendix B). The survey was adapted from a learning styles inventory based on Gardner's Multiple Intelligences model and was intended to identify visual, auditory, and kinesthetic learners (What's Your Learning Style?, 2007). Convinced that my students were quintessential preadolescents and hungry to learn about themselves, I felt this might be a good jumping of point toward self reflection. My students embraced the assessment survey and Andrew, a particularly candid young man, blurted out in his usual fashion, "I love this kind of stuff!" (TJE, 5/5/07).

The overall effect of the survey was positive. We had enlightening conversations comparing what my students had learned about themselves with what they believed they had known about themselves. Most students were not surprised by their individual results and responded in their Thinking Journals that they enjoyed knowing this kind of information, although they were not quite sure about how to put it to academic use. Samantha indicated in her journal that she thought this knowledge could "help her focus on what she could do better" (SJE, 5/5/07). I felt as though this was a forethoughtful notion on her part which rang slightly of metacognitive to me. Samantha was cognizant of what she needed to know and planned to put it to use (Livingston, 1997).

I reviewed my existing lessons and activities in search of metacognitive moments. While studying ancient civilizations for example, my students are introduced to the practice of breaking down each civilization into six elements or components. These elements are: geography, government, economics, religion, society & culture, and science & technology. We refer to this exercise as the, "Elements of Civilization Organizer" (Appendix C). This worksheet is employed in studying each civilization. As the school year goes on, most students become proficient at comparing the developments and changes of each element over time.

It is important to note that at the beginning of the year my sixth graders were overwhelmed by this activity. I had noticed that most students had a limited understanding of the meanings of terms such as government and economics. I had also observed that almost all students brought with them little knowledge of any religious practices or beliefs other than those practiced at home. Furthermore, all were amazed to find out that a Stone Age tool, chipped from rock, qualified as technology. However through the systematic examination of ancient civilizations like Sumer, Egypt, and Greece, the group became adept at seeing subtleties within the categories and components and was able to argue their opinions coherently.

In May I asked the children to communicate to me in their journals, "Has the Elements of Civilization Organizer become any easier since you first encountered in back in October?" Sarah articulately echoed the sentiment of a majority of the class when she wrote, "At the beginning of the year I thought I would never be able to do it without help. It was really hard. Now that I am doing it for Rome I only need a little help." (SJE, 5/5/07). According to Gay (2001) Sarah had demonstrated a distinction between

"novelty" of a task and "automation" of a task (p. 1). This was an "ah-ha" moment, but was it metacognition or repetition?

I wrote back to Sarah in her journal, "Why do you think this activity is easier now than it was in October?" Sarah elaborated, "Now I understand the words. I also know how to use the book better." I was able to discern a certain level of metacognition from Sarah's response. She was able to identify that the reason that she was more successful over time was because she had integrated the necessary vocabulary and skills needed to navigate the textbook more efficiently. I could see glimmers of metacognition. Gay (2001) asserts that a first step toward metacognition can be seen in one's self-awareness. In this case, Sarah exemplified this idea.

In one cooperative group project, the students were instructed to create an informative poster and group presentation detailing the characteristics of life during different Chinese dynasties. I had named it the "Dynasty Triptych" and used it as a summative assessment to culminate a unit on China. The class was divided into eight groups of three students each. For this activity, the children were allowed to choose their own groups. When offered this coveted opportunity, the children were reminded that it was a privilege to choose their partners. I had high expectations for on-task behavior and explained that the reputation of the entire group was at stake. My intention was to instill a sense of community within each group.

On this particular day, the students where required to bring to class individual "contributions" for the group's Triptych poster. I chose the term contribution in hopes that it would provide the students with a sense of ownership for the activity. These contributions were, in actuality, homework that the students were asked to assign to

themselves the day before. I had no idea how they were going to handle assigning their own homework, but they seemed to enjoy the novelty of the idea. Would they take it seriously? Had I given them the sense of community and ownership that would motivate them to be thoughtful and creative?

The project plans and directions were copiously detailed and modeled (Appendix D). I had allotted a significant amount of time for collaboration, planning, and discussion. Whimbey (2001) suggests that learners can integrate skills and learning more effectively when they collaborate and "think out loud" (p. 560). Corroboratory evidence along this line of thinking is also reported by Bransford, Burns, Delclos, and Vye (1986) as they contend that metacognition is more likely to develop in situations where students are required to teach one another. They state, "Reciprocal teaching groups in which the students act as teachers can help to develop metacognitive strategies." (p. 69) The presentation aspect of this Triptych assignment fit that bill and seemed to yield positive and practical effects. On March 13, 2007, my journal entry recounted:

> Kids came in excited! It took some time to get class started. Everyone was so busy looking, sharing, and reading. Proud of their contributions. This word seems to have motivated them. I'm not sure why. I was thinking about how the students grouped themselves. I am thinking about my biases regarding the ability levels of some of the individuals in different groups. Nick's group is so highly motivated; they seem to be excited over school work. What a coup. They are producing a beautiful poster. And Tom is totally in the mix. At first I worried about him. Nick and Jared are quick, assertive, accurate, and competitive. How do I describe Tom? He's a

> mess, an absent minded professor, bright, big thinker, but weird-smart, out of the box. I think he ended up with these two because he wasn't picked up quickly by other kids. This is one hazard of allowing students to choose their own groups. However, Tom has assimilated beautifully here among two of the high achievers and he is proving to be a real asset to the group. It appears as though Nick and Jared know how to integrate Tom's special gifts into the mix. I wonder if this is because these two boys are so easy to work with or because they have developed a sympathetic awareness to Tom. Perhaps their higher cognitive abilities offer them better coping and communicative skills making group work easier for them. (TJE, 3/13/07)

I was feeling as if my initial plan was reaping some benefits. The children were engaged and excited about their posters. They continued to impress me by following through with both the individual and group demands of the task. Pride, effort, forethought, and quality work abounded. I was pleased. Were there any true metacognitive moments? I believe that within those hardworking cooperative groups success could be attributed, in some way, to the fact that the students were given the means to consider quality planning, monitoring, and evaluating (Sternberg, 1997). They were vested and engaged. I did not yet know if I was noticing bona fide metacognition.

I began to look for that "feeling of knowing" mentioned by both Koriat (2000) and Gay (2001). In order to execute this task I generated an impromptu quiz that focused on our recent lessons related to the history of Islam. The three days leading up to this quiz were centered on reading, discussion, and video clips detailing the creation of the Islamic

religion and culture. The students were not aware that I would be administering a quiz that day so I was expecting to be razzed by the group.

I began by introducing the concept with an anticipatory question: "Have you ever had the experience, while taking a test or a quiz, that you knew the answer but just couldn't think of it?" The class answered with a resounding, "All the time!" (AR, 6/06/07).

"Me too", I replied. Following some discussion, I told them they were going help me to test this feeling by taking a pop-quiz on the history and culture of Islam (AR, 6/06/07). The expressions on their faces were priceless. The children were unaccustomed to taking assessments without timely notice and/or the obligatory class review and study guide. We had entered uncharted territory.

After appeasing their initial pangs of anxiety I prompted the students to answer this "confidence judgment" (Gay, 2001, p. 6) in their Thinking Journals: "How do you predict you will perform on this Islam quiz?" (TJE, 6/6/07). I asked them to qualify their prediction by simply adding if they thought they would pass or fail.

I distributed the quiz (Appendix E) and instructed the children to do the best they could and to leave no answers blank; an educated guess is better than no answer at all. Now that the quiz was completed I needed them to make a "judgment of learning" (Gay, 2001, p. 6). I asked them to respond to a second question: "How do you think you actually did on the quiz?"

It wasn't until the next day that the children received their graded quizzes. The anticipation was killing them; it was as if they held a potentially winning lottery ticket. Much conversation and comparison ensued as I returned the papers. At this juncture, I

needed one final question to be answered in their Thinking Journals. I wanted to see if their initial confidence judgments accurately reflected their performance. I inquired: "Now that you have your graded quiz, did you perform better than you had predicted or worse? If you scored higher or lower than you had anticipated, do you have any theories or ideas to explain why?" (TJ 6/07/07).

I hadn't intended to count the grades at all, since this quiz was unscheduled, but some of the children were so pleased with their performance that I didn't have the heart to disappoint them. I gave the students the opportunity to keep the grade or to throw the paper in the trash. Applause filled the room. This was their favorite part. Those who didn't do well were pleased take a foul shot at the trash can. Tim, a charming fellow, but not academically stellar, retorted, "We should do this every time we take a test!" (AR 6/07/07). The class unanimously agreed.

My final probe in search of metacognitive moments was during an observation of the processes and strategies my students were using to complete a graphic organizer entitled "Major World Religions Matrix" (Appendix F). It was now June and the children had explored the history and belief systems of the five major world religions. In addition, the children had been meticulously instructed throughout the school year in the ways and means of using the textbook to retrieve information. I called it "making friends with the book". I wanted to notice what strategies my students would employ to complete this task. The intended academic goal of this activity was to diagnose and assess two skills: (a) the developing mastery of my students' resourcefulness in using the textbook, and (b) their abilities to recognize key terms. Noticing metacognitive moments would be an added bonus.

My students expressed concern that they might not finish in one class period. I agreed and told them it was my expectation that they complete as many boxes in the matrix as possible. They had anticipated the extent of the task at hand and were able to make an immediate judgment as to what it would take to complete. This was the metacognitive forethought I was hoping for.

I questioned the class, "When we use a giant book like the text, how do we begin to narrow down our search for information?" I received the expected responses: table of contents, glossary, and index. Excellent, we were off to a solid start. I then asked, "Does anyone have a particular strategy or method that they plan to use in order to begin filling in some of the boxes on this matrix?" Their silence was not a good sign. I rephrased the question, "Do you think it would be better to start by filling in the boxes you already know? Or do you think it may be easier to work down the list handling one religion at a time?" The audience was split, so I encouraged them to use whatever method suited them. The pencils started moving, the pages were turning, and we were off (AR, 6/15/07).

As the class worked diligently, I circulated to observe their progress. This was not a silent seatwork activity; it was more of a communal knowledge fest. We all worked together guiding the group toward the answers while remaining concerned with individual task completion. As a question arose I posed it to the entire class.

"I don't know where to find the prophets for Hinduism." Greg would admit.

"Look in chapter seven." emerged a voice from the gallery.

Soon after, Greg piped up again, "I still can't find it."

With that a few children chorused, "Check the timeline on page 122."

This was an excellent prompt to check for strategies. I interrupted their work to ask about the use of timelines, pictures and graphics. Fifty percent of a sixth grade level history text is illustrated, so I was constantly beseeching my students not to forsake the pictures and graphs. Sometimes the illustrations summarize written text in a reader friendly format. Other times there is more detailed information in the pictures and captions. An exemplary dialogue demonstrating the student use of textbook strategy begins with a student's inquiry:

> "How did you find the answer to Greg's question?" I posed.
>
> Ryan raised his hand, "I found the name on the timeline of Hinduism."
>
> I polled the class, "How many people are finding that the pictures and graphics are helping them complete the matrix?" About one quarter of the hands went up. "What was it about the pictures that caused you to find them useful?"
>
> Scott answered, "You can read the graphs and lists faster."
>
> Nick's response was, "The information comes in smaller pieces, but there isn't a picture or graph for everything, so sometimes you have to read the section." (AR, 6/15/07)

Here we were, thinking and discussing techniques in problem solving and sharing strategies. Together as a class and also as individuals we continued to work on the World Religions Matrix, offering up little tidbits and clues to help one another along, discussing strategies and methods to conquer the task. I was feeling the growth and development of thinking and metacognition dripping from the ceiling like intellectual rain drops.

Findings

My students and I embarked on parallel journeys into the *thinking zone* in an attempt to find out what happens when metacognition is infused into a sixth grade history class. When we began the journey I wasn't sure what I was looking for; consequently I wasn't sure what I hoped to notice during our regular classroom activities Thinking: We can't see it, touch it, or taste it but we know it's there.

This was truly a parallel journey. One of the first things I noticed was that I, as a teacher, must be metacognitive on a regular basis. According to Costa and Kallick (2001), we need to be conscious of the steps and strategies we use during problem solving situations. While attempting to infuse metacognition into my classroom, I found that I often noticed my own metacognitive processes. My strategies mirrored Costa and Kallick's (2001) description of a teacher's metacognitive awareness: "…developing a teaching strategy for a lesson, keeping that strategy in mind throughout the instruction, then reflecting back upon that strategy to evaluate its effectiveness in producing the desired student outcomes." (p. 5) The identification of my own metacognition was a fascinating revelation despite that it was not the primary purpose of this inquiry.

It took me some time to lure my students into a frame of mind in which they were actually able to think about their own thinking. They found it difficult at first to journal about their thinking processes. While reading their journal entries I identified a possible explanation for this difficulty. At the onset, even I was unsure of what metacognition would sound like or look like as it oozed from a sixth grader. How could I expect my kids to know? At twelve years old my students had not yet developed the conceptualizations or the vocabulary necessary to articulate what they were thinking.

There were occasions when a student' response did not really answer the question. One example of this can be seen in Mike's journal entry. The question to be answered was, "What do you think about the learning style survey and do you feel it describes you?" Mike's response was, "I thought it was cool and stuff, but I already knew what style I was." (SJE, 5/7/07) Knowing Mike, my interpretation was that he either didn't understand the question clearly or he just didn't care to answer it clearly. Although willing to participate in my research, not all students cared to write in their journals consistently or seriously. This was the occasional pitfall of the student written reports. Gay (2001) alludes to the fact that a student written reports can be flawed because "they rely on memory and are limited by the questions they ask." (p. 6)

However there were far more quality responses as time went on. Upon the completion of a long term project where the metacognitive spin was to look at our abilities to plan, monitor, and evaluate our progress across time, Vincent wrote in his journal:

> Planning I think was the hardest because I tended to procrastinate a lot. I realized I must start planning my time better because I am horrible at planning. I had to do pages mostly everyday. I stared planning better and getting my work done consistently. I feel better about the way I plan. I can get my work done better. It doesn't feel that hard now. I can get my work done faster. (SJE, 6/01/07)

It was insightful journal entries like Vincent's that kept me going when I was felt that the intangibility of metacognition was going to get the best of me and my research.

For the most part, I see my students exemplifying Lorain's (2007) description of adolescent learners. He states:

> Adolescence is a critical time for brain growth. Significant intellectual processes are emerging. Adolescents are moving from concrete thinking to abstract thinking and to the beginnings of metacognition. They are developing skills in deductive reasoning, problem solving, and generalizing. (p. 1)

Lorain's definition of adolescent thinking is the developmental challenge I observed each and every day. I found that each student was unique and each was developing metacognitive skills at his or her own pace.

I noticed an improvement in the journal entries occurred after I had administered the learning style survey. The group results of the survey showed the majority of students to be a combination of visual and kinesthetic learners, with only four identified as solid auditory learners. Those individuals identified as auditory learners had always struck me as slightly different learners than the rest. Although these students were not as interpersonal as their peers they demonstrated an ability to soak up information and skills like little sponges, able to squeeze out what was needed when necessary.

The children were intrigued by the findings and in their usual fashion jumped directly into conversation mode. The comparisons and understandings sparked dialogue and questions. I am seeing that we indeed spend a lot of time on discussion in my class. I love it! The children have so many stories to tell but rarely have the opportunity to share them during a busy school day. I am glad I can fit to stop the hamster wheel and take some of this in.

Those metacognitive moments were elusive. I found that these moments appeared more naturally during impromptu discussions rather than in planned situations. It was also it was easier to notice what and how the students where thinking while they were deeply engaged in activity. They appeared unable to be metacognitive on cue. However, when caught in the midst of an activity, they were more apt to explain what they were doing and why. I recognized this during the World Religions Matrix activity. I noticed that there was a great deal of candid discussion. On task conversation abounded, sharing of ideas and strategies was occurring spontaneously, and the students were able to explain the techniques used to achieve success.

I planned my lessons with a significant amount of cooperative grouping and class discussions which had always yielded exciting and unexpected moments. During the China Triptych project Tom was grouped with two unlikely group mates. Among two self-guided and independent students, Tom was able to leave behind some of his absent minded and disorganized habits and temporarily replace them with organized participation. The scholarly work done by Whimbey (1980) assesses that thinking and problem solving can be facilitated through the use of cooperative activities like "thinking aloud" (p. 561). Costa and O'Leary (1992) are in agreement with Whimbey when it comes to the value of cooperative groups.

> Some students are unaware of their own thinking processes while they are thinking. They lack a plan of action before they begin. They are unable to determine if the plan is working or should be discarded for another. They seldom evaluate their strategies for effectiveness. They seldom plan,

> reflect, or evaluate their own strategies. Through collaboration, students can develop metacognitive skills through co-cognition in groups or metacognition when alone. (p. 52)

I continually observe the value of cooperative learning. However, it should be noted that I am acutely aware of the pitfalls. Cooperative learning can be management intensive, difficult to assess, have a tendency to eat up class time, and may occasionally require skill in conflict resolution. I enjoy cooperative activities, but I would caution that they are not for the faint of heart and necessitate practice.

The search for that "noetic" feeling (feeling of knowing) turned out to be an interesting glimpse of student confidence and judgments of learning. Twelve students felt confident that they would at least pass the quiz while ten indicated that they were fairly sure they would fail without the opportunity to study. Anthony's journal response was interesting to me because it echoed something my sixth grade son has said to me once. Anthony, who has always impressed me as even keeled, clarified his prediction in his journal: "I think I will do well on the Islam quiz because if you pay attention in class you should know what the answers are." (SJE, 6/06/07)

The tally results from the students' journals showed that 14 students out of 24 accurately predicted their performance on the Islam quiz. Twelve of the students second guessed their performance after taking the quiz and changed their initial performance predictions. Of the 12 who modified their predictions, eight were wrong to have second guessed themselves. What does this mean? I can only extrapolate from the data that approximately half of the children were unaware of what they knew and therefore were unable to accurately gauge their performance. Costa (1984) states, "Metacognition is our

ability to know what we know and what we don't know." (p. 60) If this statement were to hold true, then it may suggest that a significant number of students were not particularly metacognitive during this activity.

My final observation recognizes that the infusion method of developing thinking skills within the context area feels most natural and effective in my classroom. I realized this when I reviewed lessons that were audio taped. I was hesitant and uncomfortable when it came to listening to myself. It was a familiar yet abhorrent feeling like the one I get when confronted with my images on video. I was afraid to know what I had sounded like to my students.

What I found was that it wasn't as dreadful as I had anticipated. In fact, I reveled in the lively conversations, clearly stated instructions, and clever student inquiries (I wonder why it doesn't feel like that during that moment in time). I was delighted to hear the classroom dialogue during instruction. The students raised their hands often and I was pleased with the way I provided feedback. With a positive inflection and a touch of humor in my voice, I commented on student responses: "That's a great answer! Too bad we're not in Greece anymore" or "I can see why you would think that, but go back and check it again first." (AR, 5/23/07) I didn't sound as course and curt as I had expected.

I recognized that in each of the audio recordings there was a noteworthy amount of instruction on planning, monitoring, and evaluating in each lesson. Sternberg would be proud. We analyzed our progress frequently, shared ideas, and spent a regular amount of time on formative assessments and feedback. Our discussions were responsive and timely. A humorous, yet clever anecdote which typifies an average day is credited to my "honest and proud of it" student, Andrew. It was during one tangential discussion about

how different cultures from around the world might view the United States. We had concluded that we as Americans can appear to be consumption oriented. No matter how much we have, we use it up, and then want more. Dialogue ensues:

> Andrew interjects, "Well, if you could consume, why wouldn't you?" The entire class fell silent.
>
> Anthony broke into the quiet with, "Dude, that's exactly what we're talking about!" The gallery roared with laughter. I was both horrified and impressed.
>
> "Andrew," I interrupted before we were totally off track, "That is actually an interesting question."
>
> He bowed his head with pride and acknowledgement in his usual cool and collected manner.
>
> "No, I'm serious," I continued, "Why wouldn't we all consume away if we could?" (AR, 6/07/07)

The next ten minutes were spent answering that question. We all understood where Andrew was coming from and we were all thinking on a higher plain.

What I have discovered is that my students can think, and many are beginning to effectively use metacognitive processes. As I continue to infuse thinking dialogues and model self-awareness and self-reflection I can impact their future success. Focusing on valuable processes like planning, monitoring, and evaluating has shown me that those who are developmentally ready to apply these skills will. Those who may not be as ready can, in fact, benefit as well. If for no other reason, they were there to observe what metacognitive strategies look like and sound like in a sixth grade classroom.

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Appendix A

March 10, 2007

Dear Parents,

I am currently working on my Master's Degree from The College of New Jersey. As part of my graduate work, I will be working on a comprehensive study that focuses on the way students think, developing student awareness of their own thinking, as well as methods to improve critical thinking skills. In the world of educational jargon, this study will question student use of metacognition, or "thinking about thinking".

I will be asking your children to assist me in this study. We will be taking some surveys that will identify individual learning styles, discussing what goes on in their minds as they think, and reflecting on their learning and thought processes. Some of this data will be collected on paper and some will be collected as audio recordings of lessons and conversations.

It is with this correspondence that I ask for your permission to include your child's responses, comments, and progress as I take this journey into the world of their thought processes. Your signature on this letter will allow me to use the data collected in my research. The name of our school or that of individual students will not be disclosed at any time in my work.

In order to give your consent, please sign this letter and have your child return it to me at your earliest convenience. I appreciate your consideration and look forward to learning more about how we can all learn to improve thinking skills in the classroom.

Sincerely,

Joyce Pennino-Harquail

Student name _____

Signature of parent/guardian _____

Appendix B

What's Your Learning Style

For these questions, choose the first answer that comes to mind and click on a, b, or c. Don't spend too much time thinking about any one question.

Question 1

When you study for a test, would you rather

- a) read notes, read headings in a book, and look at diagrams and illustrations.
- b) have someone ask you questions, or repeat facts silently to yourself.
- c) write things out on index cards and make models or diagrams.

Question 2

Which of these do you do when you listen to music?

- a) daydream (see things that go with the music)
- b) hum along
- c) move with the music, tap your foot, etc.

Question 3

When you work at solving a problem do you

- a) make a list, organize the steps, and check them off as they are done
- b) make a few phone calls and talk to friends or experts
- c) make a model of the problem or walk through all the steps in your mind

Question 4

When you read for fun, do you prefer

- a) a travel book with a lot of pictures in it
- b) a mystery book with a lot of conversation in it
- c) a book where you answer questions and solve problems

Question 5

To learn how a computer works, would you rather

- a) watch a movie about it
- b) listen to someone explain it
- c) take the computer apart and try to figure it out for yourself

Appendix B

Question 6

You have just entered a science museum, what will you do first?

- a) look around and find a map showing the locations of the various exhibits
- b) talk to a museum guide and ask about exhibits
- c) go into the first exhibit that looks interesting, and read directions later

Question 7

What kind of restaurant would you rather not go to?

- a) one with the lights too bright
- b) one with the music too loud
- c) one with uncomfortable chairs

Question 8

Would you rather go to

- a) an art class
- b) a music class
- c) an exercise class

Question 9

Which are you most likely to do when you are happy?

- a) grin
- b) shout with joy
- c) jump for joy

Question 10

If you were at a party, what would you be most likely to remember the next day?

- a) the faces of the people there, but not the names
- b) the names but not the faces
- c) the things you did and said while you were there

Question 11

When you see the word "d - o - g", what do you do first?

- a) think of a picture of a particular dog
- b) say the word "dog" to yourself silently
- c) sense the feeling of being with a dog (petting it, running with it, etc.)

Appendix B

Question 12

When you tell a story, would you rather

- a) write it
- b) tell it out loud
- c) act it out

Question 13

What is most distracting for you when you are trying to concentrate?

- a) visual distractions
- b) noises
- c) other sensations like, hunger, tight shoes, or worry

Question 14

What are you most likely to do when you are angry?

- a) scowl
- b) shout or "blow up"
- c) stomp off and slam doors

Question 15

When you aren't sure how to spell a word, which of these are you most likely to do?

- a) write it out to see if it looks right
- b) sound it out
- c) write it out to see if it feels right

Question 16

Which are you most likely to do when standing in a long line at the movies?

- a) look at posters advertising other movies
- b) talk to the person next to you
- c) tap your foot or move around in some other way

Total your a's, b's, and c's

Appendix B

Three Different Learning Styles

If you scored mostly a's you may have a visual learning style. You learn by seeing and looking.

Visual Learners

- take numerous detailed notes
- tend to sit in the front
- are usually neat and clean
- often close their eyes to visualize or remember something
- find something to watch if they are bored
- like to see what they are learning
- benefit from illustrations and presentations that use color
- are attracted to written or spoken language rich in imagery
- prefer stimuli to be isolated from auditory and kinesthetic distraction
- find passive surroundings ideal

If you scored mostly b's, you may have an auditory learning style. You learn by hearing and listening.

Auditory Learners

- sit where they can hear but needn't pay attention to what is happening in front
- may not coordinate colors or clothes, but can explain why they are wearing what they are wearing and why
- hum or talk to themselves or others when bored
- acquire knowledge by reading aloud
- remember by verbalizing lessons to themselves (if they don't they have difficulty reading maps or diagrams or handling conceptual assignments like mathematics).

If you had mostly c's, you may have a kinesthetic learning style. You learn by touching and doing.

Kinesthetic Learners

- need to be active and take frequent breaks
- speak with their hands and with gestures
- remember what was done, but have difficulty recalling what was said or seen
- find reasons to tinker or move when bored
- rely on what they can directly experience or perform
- activities such as cooking, construction, engineering and art help them perceive and learn
- enjoy field trips and tasks that involve manipulating materials
- sit near the door or someplace else where they can easily get up and move around
- are uncomfortable in classrooms where they lack opportunities for hands-on experience
- communicate by touching and appreciate physically expressed encouragement, such as a pat on the back

Appendix C

Elements of Civilization

Chapter # _____ Civilization _____

Geography
Government
Economics
Religion
Society and Culture
Science and Technology

Appendix D

Triptych Directions and Requirements

You and your group will be creating a triptych, a three-panel display, about one of the dynasties of ancient China. Each member of your group will conduct research to gather information about your dynasty. Each member will gather images, write articles, and arrange the information to create a visually attractive and informative product.

Project Requirements:
Your triptych must provide at least the following information:

- **Dynasty's name**
- **Dynasty's origin (country, people)**
- **Dynasty's ruler(s)**
- **Geographic area that dynasty covered**
- **Description, including major social, legal, moral, or religious principals and philosophies**
- **Roles of people in society**
- **Innovations and achievements**

✓ Each student will be responsible for their own triptych journal/rubric.

✓ Each student is expected to work cooperatively with group members toward a common goal.

Appendix D

Planning Table:

Each day we work on the Triptych, please enter the date, what you accomplished, and what is the next step.

Date	Accomplished	Next Step
Wed. 3/7		
Thurs. 3/8		
Fri. 3/9		
Mon. 3/12		
Tues. 3/13		
Wed. 3/14		
Thurs. 3/15		

Fri. 3/16		

Appendix D

This Document is an official declaration concerning **my personal contributions to the Dynasty Triptych Activity**. Listed here are all the things I have done help my group complete this project to the best of my ability.

I have also attached:

- notes I have taken
- writing drafts
- printed web pages used as resources

Student Signature: _____

⇩ **This is a list of what I have contributed to the Triptych**:

⇨

⇨

⇨

⇨

⇨

⇨

Appendix D

Appendix E

Islam: Text pages 362-367

1. What date marks the beginning of the Islamic religion?

   _____

2. Where and when was Muhammad born?

   _____

3. In AD 610, how did Muhammad's religious beliefs differ from those of the people of Mecca?

   _____

   _____

4. What is the Kaaba? _____

   _____

5. The Arabic word for God is _____.

6. Because Muhammad and his followers were persecuted in Mecca, they fled to _____.

7. The word ***Islam*** means _____.

8. Believers in Islam are called _____ which means

   _____.

9. The teachings of Muhammad are written in the _____, which is the Islamic holy book.

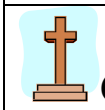
10. According to the Koran, Muhammad is the last in a line of prophets that includes
_____, _____, and _____.

11. What are the five pillars of Islam?

_____, _____, _____,
_____, _____.

Appendix F

Major World Religions Matrix

	Date of origin	Prophets	Major belief system	Holy Book	Place of worship
 Hinduism	1200 BC	Aryans	Monotheistic/ Polytheistic Has been debated Pantheonism	Rig Veda Mahabarata	Temple
 Buddhism	500's BC	Siddartha Guatama The Buddha	No gods Reincarnation Enlightenment Nirvana	8 Fold Path 4 Noble Truths	Temple Shrine Cave temple
 Judaism	2000-1500 BC	Abraham Moses	Monotheism One god	Torah Old Testament	Temple Synagogue
 Christianity	Around 30 AD/CD	Abraham Moses Jesus	Monotheism One god Jesus is the Messiah	Bible Old and New	Church Chapel Cathedral
 Islam	613 CE	Abraham Moses Jesus Muhammad	Monotheism One god Muhammad is his prophet	Koran Qur'an	Mosque

Would you say there are more similarities or differences between these world religions?

_____

_____

_____

_____