

PERSON CENTERED TEACHING IN THE CLASSROOM: USE OF JUNG'S ACTIVE
IMAGINATION BY HIGH SCHOOL MATHEMATICS TEACHERS

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Approval of the Dissertation

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Abstract

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Jung used creative expression or active imagination (AI) to connect with parts of ourselves, including the authentic Inner-Self often unknown to our conscious mind. AI can be powerful in education, but research related to AI in teaching mathematics is limited. Secondary-level American mathematics instruction is seldom engaging or successful. This 6-week case study applied AI to mathematics teachers using a closing segment of each class to discover if engagement and success could help answer, “Can the Inner Self be engaged for students and teachers to enhance teaching and learning? Two subordinate questions were, “Can AI in *closings* aid student performance and engagement, as assessed by teachers?” and “Can inner-professor (IP) dialogues between teachers and their own inner source of wisdom lead to better educational problem-solving through creativity and living symbolically?”

Five mathematics teachers from Georgia were participants, including the researcher, a homeschooling teacher, and three conventional classroom teachers. Participants were instructed in AI through a video and questions to the researcher. There was a week-preparation and week-wrap-up for teachers. The intervention involved 4 weeks of creative closings where students

wrote in a journal, self-chosen innovative ways, on the day's work. Teachers completed pre-mid-and-post-study questionnaires for teacher-participants who reported student experiences with story-telling, journal-writing, and IP-dialogues. Written data was incomplete for 2 participants.

Interpretive ethnography, using stories and perceptions as data, was employed. Teachers reported positive student comments regarding wrap-up and dialogue. Based on teacher reflections through bi-weekly questionnaires and personal dialogues, all gained from introspection and AI. Intervention effectiveness was also assessed for 4 participants from questionnaire comments rated "supportive/neutral/critical" at pre-mid-and-post-study. Positive or *supportive* comments increased throughout, totaling 149 supportive vs. 50 critical comments (ratio of 3:1.)

Instructors gained an assessment tool as well as creative and symbolic communication practices. This study involved initiation in connecting with inner wisdom and its relevance to mathematics education. Results support individualized, open-ended, and creative aspects of math learning can satisfy expected math goals while providing deeper introspection. Future study interventions need more flexibility with students unaware of their creativity that also helps students persist after an exercise has lost its novelty.

Dedication

I would like to dedicate this dissertation to all the people who led me to what in my mind was this seemingly improbable event. I dedicate it mostly to my family, especially my wife, for, without them, I never would have attempted such an undertaking. I dedicate it to all the teaching professionals who taught me how teaching and education should be. I dedicate this to all the students who taught me what teaching ought to be, and I thank them for being patient with me as I learned these things from these Little Buddhas, a name I have used to make reference to them. They have helped me learn the craft of teaching high school mathematics. I also dedicate this dissertation to the power learned from the phrase, “Be the person you needed when you were young.”

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conference on Chaos Theory. I will always remember his motivation by saying to me, “Just pretend it’s one of your classes except its full of really smart students.” He was right and I do.

Table of Contents

CHAPTER 1: INTRODUCTION.....	1
Purpose.....	4
Background.....	4
Rationale.....	5
Research Questions.....	9
Terminology.....	9
CHAPTER 2: REVIEW OF THE LITERATURE.....	11
Introduction.....	11
The Psychological Component: Active Imagination.....	11
Jung’s Active Imagination.....	11
Robert Johnson’s 4-Step Approach to Dream Interpretation.....	12
Associations.....	12
Dynamics.....	13
Interpretations.....	14
Rituals.....	15
The Educational Component.....	20
Person-centered education.....	20
Creativity + living symbolically = Effective problem solving.....	22
Genius of Ideas.....	24
Defining Creativity.....	26
Creativity’s Place in the Classroom.....	30
Defining Living Symbolically.....	33
Symbolic Living in Everyday Life and Education.....	34

Archetypes.....	34
Dreamwork.....	35
Faith or Spiritual-Based Symbols.....	38
Methodology	39
Science and Symbolism	40
Classroom Symbolism	40
Defining Effective Problem Solving.....	42
Conclusions	43
CHAPTER 3: METHODOLOGY	46
Introduction	46
Choice of Method	47
The Chosen Method Applied.....	48
Participants	48
Research Setting.....	50
Research Design.....	50
Instruments	53
Procedures.....	53
Step 1: Contact District.....	54
Step 2: Contact District.....	54
Step 3: Contact District.....	55
Step 4: Contact District.....	54
Step 5: Contact District.....	55
Step 6: Contact District.....	55

Data Analysis	55
Limitations and Research Issues	57
CHAPTER 4: RESULTS	60
Overview of Cases	60
Case #1	62
Overview	62
Pre-Study Questionnaire.....	62
Mid-Study Questionnaire	62
Post-Study Questionnaire	63
Dialogue.....	64
Summary.....	65
Case #2	67
Overview	67
Pre-Study Questionnaire.....	67
Mid-Study Questionnaire	68
Post-Study Questionnaire	69
Dialogue.....	70
Summary.....	70
Case #3	72
Overview	72
Pre-Study Questionnaire.....	72
Mid-Study Questionnaire	72
Post-Study Questionnaire	72

Dialogue.....	72
Summary.....	72
Case #4	73
Overview	73
Pre-Study Questionnaire.....	73
Mid-Study Questionnaire	73
Post-Study Questionnaire	74
Dialogue.....	74
Summary.....	74
Case #5	74
Overview	74
Pre-Study Questionnaire.....	75
Mid-Study Questionnaire	75
Post-Study Questionnaire	76
Dialogue.....	77
Summary.....	77
Comparison of the Teachers' Participation	78
Overall Summary.....	80
CHAPTER 5: DISCUSSION	82
Overarching Research Question	82
Research Sub Questions	84
Research Question #1	84
Research Question #.....	85

Future Use of Intervention	86
Delimitations and Limitations	87
Summary and Conclusions.....	93
Future Research and Further Directions of This Study.....	94
REFERENCES	97
APPENDICES	102
Appendix A: Questionnaire Protocols for the Study	102
Appendix B: Instructions for Brief Training About Active Imagination.....	104
Appendix C: Introduction Letter.....	105
Appendix D: Consent Form.....	107
Appendix E: Inner Professor Dialogue Instructions	110
Appendix F: Closing.....	112
Appendix G: Inner Professor Dialogue Example	113
Appendix H: Completed Questionnaires.....	118
Appendix I: Final Professor Dialogues	144

CHAPTER 1: INTRODUCTION

In recent years, United States' lawmakers have expressed the desire to reform secondary education through passing laws, rewriting standards, and offering more money for educational programs. The prevailing approach has been to treat secondary students very much like students in grade school, without consideration of their development and potential. The relevant literature (*ARRA*, 2014; Balf, 2014; Common Core State Standards Initiative, 2010; Friedman 2014; Mayes, 2007; Rogers, Lyons, & Tausch, 2014; Solomitz, 2001; U.S. Department of Education, 2011; Zakaria, 2015) suggests there needs to be a shift away from the failed method currently used—as evidenced in a multitude of test results indicating poor standing of US students in comparison to students from both advanced and less advanced nations—to a new human-centered method. In this dissertation, a new approach to teaching secondary mathematics is presented that has the student's growth and best interests in mind. Rather than treating each student as a cog in an economic machine, this new approach supports the student to realize his or her own inner human potential through such techniques as Jung's (1958, 1969d; See also Hannah 1981; Weaver 1973; Jacobi 1973) active imagination, which encourages the student to find inner purpose and motivation to lead to growth and achievement, as well as fulfilling the need to teach mathematics in a more effective way.

The current model in use for the structure of a classroom is Marzano's (2010) four-part lesson plan. This plan's four parts are the opening, instruction, practice, and closing. In my view, the middle parts, instruction and practice, are in a useful place because others have developed very clever ways to demonstrate and practice new mathematical concepts to students, without innovation. Therefore, these parts of the daily routine are left to others to innovate. It is also my view that the opening and closing are opportunities to develop kinship between students

and the instructor. In this way, instruction is vastly improved. As for the opening, a previous study I conducted (Guynn, 2015) introduced a new approach to class openings. As a result, the focus of this study was to introduce and test a new way of closings.

In current secondary classrooms, class closings are basically of two types; a quizzing of newly taught skills and journal writing. In either case, the instructor is looking for feedback whether the student has learned what she or he was taught. This study focused on closings as journal entries. Journals, in this case, were an open-ended exercise where the students wrote, drew, or expressed what happened in class that day. This study applied the practice of active imagination, as defined by Jung (1958, 1969d; See also Hannah 1981; Weaver 1973; Jacobi 1973) in creating journals that dug a little deeper into the students' psyches.

The purpose of this research was to explore and describe how class closings based on the approach of doing individual dream work and active imagination could be used as a more effective way to increase academic performance and connection between classmates and teachers. The participants were taught the practice of active imagination, and each teacher was guided by the principal researcher in how to apply this practice and philosophy into their class's daily classroom routine. The inclusion criteria for becoming participants in this project stipulated that they be mathematics teachers who were willing to use this approach in their classroom and were willing to report their (and their students') changes over a 4-week-period. Five people, including the researcher, were selected based upon their commitment to the protocol.

I was the principal researcher and partnered directly with each participant via one-to-one telephone or email consultation, which was scheduled prior to the beginning of the study. Educational materials, pre/post and incremental questionnaires, and a dialogue notebook were

used to collect data for the cross-case analysis that is included in the report. The researcher was also available for any questions or concerns during the study.

Interested participants received a consent form, which outlined the purpose of the study, procedures, benefits, and protections for confidentiality. There were no materials in the study that were more than a minimal financial commitment. Their contribution in this multiple case study informed researchers and practitioners within the field of education how to facilitate the design of realistic and meaningful applications that can be appropriately offered to teachers seeking to (a) improve student academic performance, creativity, and growth; (b) increase connection between teacher and students; (c) promote student involvement; (d) promote learning mathematics to a deeper level; and (e) improve student and teacher growth.

This dissertation did not intend to replace the use of journal writing but applied active imagination approaches to enhance the practice of journaling. In 2000, college teaching programs introduced many articles about the use of journals in secondary mathematics classrooms. The idea of using journals is a way of creating closure for a daily class. At the end of class, students are instructed to write down what they have learned or what they observed in class for that day. In this way, the student creates a retrieval system of looking up what was taught and their reaction to it on a given day. These ideas have been practiced in many secondary classrooms and have been the subject of some training sessions for working teachers (Coles & Banfield, 2012; Dündar, 2016). In the years since this introduction, many have refined what each teacher wants and needs from each of his or her students to be included in these journals. Applying the power and procedure of active imagination, this dissertation proposed to incorporate both the ideas of Jungian dream work and journal writing as a class closing.

Purpose

Active imagination is a cognitive methodology that uses the imagination as an organ of understanding. It uses modes of expression such as painting, sculpting, and writing to connect the unconscious mind to both the physical world and the conscious mind. Once the expression has been produced, the product can be analyzed for contents of the unconscious mind. Active imagination has been used for many years for psychotherapy clients to get in touch with their unconscious minds. This has led to better relationships with their inner Self and other people in their life. This study attempted to use this method to help teachers and students improve academically as well as enhance their personal relationships. In the process, it was hoped that this method would lead to other positive educational changes such as using more creativity and the increasing self-directed education that met the personal needs of each student.

Background

For many years, educators in the United States have been searching for ways to stop the downward slide in secondary education rankings in math and science when compared to other countries (Balf, 2014; Friedman, 2014). Many ideas such as grouping (Azmin, 2016), using more technology (Betkas, 2014) and tracking (Nürnberg, Nerb, Schmitz, Keller & Sütterlin, 2016) have been used. Once American public education was considered one of the best in the world: however, it is viewed as mediocre when compared to programs in industrialized countries. (Balf, 2014; Friedman, 2014; U. S. Department of Education, 2011). American legislative bodies have recognized these declines. Lately, the United States' lawmakers have expressed the desire to reform secondary education through laws. Legislation has been implemented that adds a curriculum requiring more material to be learned and a heavy leaning on standardized testing, such as the *No Child Left Behind Act*, (2008). Other laws imply that students are not working hard enough and deeper standards needed to be implemented

(*Common Core State Standards Initiative*, 2010). Still other laws implied that the solution is to throw more money at the problem (*ARRA*, 2009).

One can explore ways that today's world is so much different from the world when American education was far better than it is currently. (This, of course, depends upon one's educational goals as well, and education for creativity, change, and lifetime learning is becoming increasingly important.) Yet, there are some things that are still the same as well. It is true that technology has vastly sped up the world and essentially made our planet much smaller and much more available to everyone. However, we are still human. Human's bodies and minds have not changed very much; we still learn the same way we always did, it is just that the tools and toys have changed over the years. Therefore, it makes logical sense that all the technologies should be taken advantage but, at the same time, educators need to realize that principles of psychology, sociology, and physics are still at work in learning (Betkas, 2014).

Rationale

Most parents and teachers of adolescents have one goal in common, which is the growth and success of the adolescent under their care. In these pursuits, both parents and teachers have the need to fulfill their roles of parenting and teaching and in doing so, they must take on aspects of the role of psychologist (Mayes, 2007), especially in terms of understanding typical teenage behavior as the young person grows and changes. The use of psychology becomes more important as the parent needs to know whether behavioral changes are normal or present reasons for suspicion, such as signs of potential drug or alcohol use or depression. Mayes suggested the educator ought to use psychology when trying to determine the most effective way to teach the given subject matter and what to do when the teenager reacts negatively to this approach. Potentially, there are many perspectives that could be shared by psychologists and teachers, among these: (a) unconditional positive regard, as described by Rogers (1980/1991);

(b) the concern for the prevalence of teen suicide, low self-esteem, and healthy development of the Self as described by Webb (2012); (c) Wilber's (2006) contributions regarding building of the ego while increasing awareness; and (d) the ability to know students' trigger points, as explained by Langs, (1993) and Rogers (1980/1991).

With this being said, one needs to establish what type of approach would be most effective in a particular setting. Mayes (2007) believed that depth psychology contained one of the best approaches to secondary education. Mayes, professor of education at Brigham Young University in Utah, had the responsibility of training new teachers and advocated the use of Jungian ideas on every level of teacher education and application. Mayes defined by saying, "By 'depth psychology' I mean any view of the psyche that takes seriously the idea that *personal subconscious* processes and *collective unconscious* processes affect how one consciously experiences and intentionally acts in the world" (p. 11) Mayes further stated that depth psychologies offer powerful ways of framing and answering questions in the deeper domains of pedagogy. He further supported these views by quoting the writings of Proffoff and Salzberger-Wittenberg (pp. 11-12).

Coles and Banfield (2012) described using *learning journals* for the student to reflect on what was learned in class during exercises exploring a mathematical concept. This is probably the purest use of a journal in a mathematics classroom, as it was originally intended. It was this concept presented by Coles and Banfield, which caused me to introduce the use of journals in my classroom. However, over time, I made changes to this idea. I learned in my first year (1999) of using journals that students viewed this exercise as a chore. As a response to this and because I believed that learning should be fun, and not a chore, I decided to stretch the requirements of the assignment by allowing students to draw a picture in addition to, or instead

of, the written word journal. After learning about Jung's (1969d) views of the unconscious and active imagination, I decided that it was wise to add even more avenues of personal expression. As can be seen in Jacobi's (1973) map of the soul, the inner self is buried in the unconscious mind. In that inner self are unconscious intentions, or the soul's destiny (Webb, 2012). In addition, Jung believed, through active imagination, the unconscious can be explored through many forms of expression, such as dance, painting, and writing, and this alteration of journal use allows for this expression of the unconscious (Jung, 1969d).

This transformation led to an expanded idea of what a journal was required to contain. A good description of this expanded idea is that a journal is a way of telling the teacher, in the student's preferred expression, about what happened in class on that day. This can be about math content or any issues about how the class was taught. It can be in the form of a cartoon, a story, a picture, a joke, a letter or what they would write in a text to someone, an imagined dialogue with someone, or a concept that came to them. For example, one geometry student would write an angry letter to a concept that she was having trouble understanding, like proofs. In this way, she produced a marker of what was taught that day as well as made a passionate connection with that concept.

The students were told the journal would be graded using 50% for mathematical concepts and 50% creativity. Note that creativity, here, involves two criteria, originality and meaningfulness, as first proposed by eminent creativity researcher Barron (as cited in Richards, 2010a). There were two major goals for this exercise. The first thing was that it provided the teacher with feedback to the student's mindset about what was just presented to them. The goal of having students keep this kind of journal was that they write something so interesting to them that it would help them remember what was taught on that day. It also provided, in addition, a

way for the student to communicate with the teacher, without an exchange in front of classmates, which sometimes permits students to communicate understandings that might not be communicated otherwise.

A secondary goal of this exercise is to reinforce the power of active imagination. In particular, this secondary goal reinforces the power of engaging in dialogues or other forms of expression with parts of oneself. This could take the person into not yet conscious material. Sometimes, when I found the quality of the journals had become rather stale for me as the teacher and for the students, I offered more instruction about dialogue to the students and how active imagination could help in many ways in their personal lives, as well. When implementing this process, the teacher starts a dialogue on the board with the first statement and allows a student to come to the board and add the next line. (Note: This is not a blackboard or a whiteboard. It is an electronic board where typed messages can be added to what was written before and saved. This technology is essentially combining a word processing program with an overhead projector. When this line is finished, another student adds the next line on the same board where I had begun the exercise for them, a process that continues as other students add lines at the board. A good starting point might be, “Why do I need to do homework?” Quickly, in my experience, the pages fill up quickly. After class members have written a page or two, the teacher can point out how easy it was to write so much so fast. An intention, at this point, is that the intimidation about writing journals could be removed. As a result, it is hoped that the student sees that he or she can take an unsettling issue in his or her life and apply this same practice learned in class and find an effective way to solve whatever was the disturbing problem. It has been my experience that some students become a little more interested in mathematics as well as problem solving after this exercise.

Research Questions

In light of the joint introduction of active imagination and class journals, there was one overall research question that arose: Can the Jungian technique of active imagination be used to improve academic performance of teachers and students in American secondary mathematics classrooms? There were also two sub-questions under this main question: Can the Jungian technique of active imagination be used to improve academic performance of teachers, which the teacher-participants could observe in students in American secondary mathematics classrooms? And, can dialogues with one's *Inner Professor* lead to better problem solving through creativity and living symbolically? This third question was expressed in dialogues the teachers had with their own inner source of wisdom.

Terminology

Throughout this document, there is terminology that is familiar to those in Jungian psychology but might be unfamiliar to those outside this field. Additionally, there are some terms that mean one thing in American culture but have different meanings in a Jungian culture. Therefore, what follows are some key definitions used in this dissertation that come from a Jungian perspective as presented in the work of Sharp (1991):

- Active imagination- A method of assimilating unconscious contents (dreams, fantasies, etc.) through some form of self-expression.
- Inner self- This aspect of the self is the archetype of wholeness and the regulating center of the psyche; a transpersonal power that transcends the ego.
- Symbol- The best possible expression of something unknown.
- Image- A form or representation in consciousness.
- Archetypes- Primordial, structural elements of the human psyche.
- Unconscious- The totality of all psychic phenomenon that lack the quality of consciousness.

- Transcendent function- A psychic function that arises from the tension between consciousness and the unconscious and supports the union.
- Shadow- Hidden or unconscious aspects of oneself, both good and bad, which the ego has either repressed or never recognized.

CHAPTER 2: REVIEW OF THE LITERATURE

Introduction

This Chapter provides context and justification for the ideas related to this study in which, basically, there were two components: One was psychological and the other was educational. The psychological component was dominated by Jung's (1953, 1954a, 1954b, 1954c, 1968, 1969a, 1969b, 1969c, 1969d, 1970, 1974) ideas of a technique of unconscious exploration called active imagination, as explained in the previous chapter. The educational component was dominated by the work of Rogers (1995) and his work of person-centered therapy and person-centered education. Throughout his writings, Jung made many references to active imagination and the transcendent function in his vast writings, as well as in many lectures he gave on the subject.

The Psychological Component: Active Imagination

Jung's Active-Imagination

Sometime around 1912, Jung (as cited in Lilley, 2009) developed the idea of active imagination. He believed, at one time, that there were only two ways to access the deep personal unconscious, and those was through fantasies or dreams. One of the ways that the personal unconscious could be accessed was by taking dreams or fantasies and expressing them in an art form such as writing, sculpture, or painting (Jung, 1974). Jung gave two different names to this process: active imagination and the transcendent function. In an essay of the latter name, Jung (1958b) began with a few warnings on the use of active imagination, which included getting caught in the complexes, becoming attached to the results and being overwhelmed by the results. More about these concerns are presented on page 57 in the section on *Limitations*.

In *Mysterium Coniunctionis*, Jung (1970) made a connection between the ancient practice of alchemy and active imagination. Alchemy is connected to an ancient belief that with the right materials and conditions, one can transform lead into gold. Although alchemists believe this could be accomplished on the physical plane, Jung viewed this process symbolically. He stated that, if this were viewed literally, it would be a fantastic statement. However, from a symbolic perspective, this process clearly has the same principles as active imagination. Whereas alchemy uses processes of the basic elements of heat, water, earth, metal and wood, active imagination uses other elements of transformation, like consciousness, attention and a closed (safe) system. Therefore, by using these elements, one could symbolically transform a psyche that was dense, dull, and of little worth, like lead in the physical world, into something heavy, brilliant, and valuable within the self, parallel to gold in the everyday world.

Robert Johnson's 4-Step Approach to Dream Interpretation.

Johnson (1986) was a Jungian analyst who lived in San Diego, CA, and worked directly under Jung (1970) in Zurich. Johnson wrote *Inner Work: Using Dreams and Active Imagination for Personal Growth* in which he broke down all the various aspects of Jung's approach to dreams. His book is an easy-to-follow and provides a complete step-by-step protocol to use dreams to guide one's life, which includes use with active imagination.

Associations. The first step of this model is to make associations to all the items in the dream. That is, the dreamer picks out every image in a dream and makes all the associations about that image in a very personal way. Image associations differ from dreamer to dreamer. A good example would be if I were to dream about a deer. On some of my long and rural drives in Georgia, I have seen many deer. Some ran into the woods and others became road kill. To me, the deer represented athleticism and freedom. To a farmer, it could be seen as a pest that ruins

his or her crops. To a hunter, it could represent the thrill of the hunt and everything associated with hunting. To the hunter's family, it could represent a bountiful life.

One might also see how this approach to work with dreams might perhaps be extended. It has often been said by many involved in this form of dream work that the dreamer is the ultimate authority of what the images from his or her dreams mean (Ullman, 1994). When reading any literature in dream work from Jung (1953, 1954a, 1954b, 1954c, 1968, 1969a, 1969b, 1969c, 1969d, 1970, 1971, 1974) or any of his followers, it is quite clear that this concept is consistent with all their approaches (Hannah, 1981; Jacobi, 1973; Johnson, 1986; Jung, 1974).

According to Johnson (1986), the client should take the expression and identify any feelings and ask what comes to mind from the expression. That is, the images that are remembered in dreams are not what is actually in the unconscious but merely an expression and interpretation of what is there (Jung, 1974). This understanding also concerns material regarding anything that the dreamer spontaneously notices about the expression that can be transformed into another form. He also added that this practice might seem like it would require a great amount of effort to synthesize in the beginning but, once the dreamer realizes the power of these associations, he or she will very likely realize that it is well worth the effort. The discoveries the dreamer could make from this process often leads to transformation because it causes the dreamer to expel a large amount of psychic energy, which often is wrapped up in the unconscious. This expelling of energy often seem overwhelming in the beginning but the payoff of this work could occur on a grand scale over time (Johnson, 1986).

Dynamics. The second step in Johnson's (1986) model is called dynamics. This is the process of connecting these associations with things happening in the dreamer's inner life. Inner

life includes such things as any of the thoughts, feelings, and emotions that move upward from the deeper parts of the person and reach the surface of the dreamer's awareness, whether acted upon in waking life or not. At this point, the dreamer needs to go back to the beginning of the dream and deal with each image to consider what part of the expression is about the him or her. In a deep sense, everything in the expression is about the dreamer. However, much of the contents of a dream are residue from the dreamer's physical life (Jung, 1974). It follows to ask, where does this image exist in the person's psyche? What is it about this expression that seems so familiar? What inside the dreamer behaves like the expression? Once these projections have been made, the dreamer would then be instructed to record these impressions and how they connect in the client's life.

Interpretations. The third step of this process is interpretations. This is the part of the process where the dreamer takes all the work done up to this point (associations and dynamics) and applies it to his or her waking life. At this point, the original contents of the dream have been turned from symbols into meanings; then it has been applied to inner life and now they are further applied to the dreamer's waking life. In other words, the symbolic life of the dreamer is transformed, in part, as it relates to the physical life of the dreamer. For example, I have long been viewed as a very logical person with little sensitivity. Through dream work, my more sensitive side has been more expressed in my physical life. In this way, my inner life changes have led to my outer life changes. According to Johnson (1986), this occurs when the dreamer reflects on what the central and most important message is trying to be conveyed by the unconscious mind to the conscious mind. He or she also reflects how this message can be applied to his or her waking life.

Not doing this part is similar to learning mathematics and avoiding doing word problems or learning certain brushstrokes in art and never painting a picture. During this stage, the dreamer begins to do the challenging work. In all three cases, the previous steps are interesting, but the information is not really learned or the results of the learning accomplished at a deep level with any permanence until rituals are applied to the dreamer's life.

Rituals. The fourth and final stage of the dream-work process is creating rituals. In the study of many cultures, Jung (1969c) discovered that all cultures, ancient or modern, are driven by systems of rituals. However, this is not only present in religions, but also rituals have infiltrated all levels of performance, with pro athletes often leading the way with the most pre-performance rituals (Sheilds & Bredemeier, 2009) Before rituals, all this work is done in the mind. Rituals help the dreamer turn these thoughts into physical reality. It is the answer to the question, "What does the dreamer physically do with the dream?" The answer to this question can be varied. It may be as simple as making a habit of paying bills or cleaning the house on a more regular basis. According to some experts (Gino & Norton, 2013), rituals are generally performed when the person or persons performing them are preparing to do something that will lead to unknown and important outcomes. They have also discovered that there are physical connections between rituals and performance. In this way, the dreamer is given the opportunity to change these thought-forms of symbolisms into a different sort of waking reality.

A person who has a habit of drinking too much wine and after having and then interpreting a dream about his habit, might pour bottles of wine down the sink and deciding not to drink anymore might be a good example of someone transforming something symbolic into something concrete. It is possible to take the opportunity to use habits as a catalyst for healing. One person created a ritual of taking an empty wine bottle, getting a shovel, and then burying

the bottle in some nearby woods. This was followed by a solemn ceremony marking the death of her drinking habits. This helped to reduce her drinking habits.

Besides Jung (1953, 1954a, 1954b, 1954c, 1968, 1969a, 1969b, 1969c, 1969d, 1970, 1971, 1974) and Johnson (1986), there are several other authors (Hannah, 1981; Marjula, 1967; Weaver, 1973) who presented approaches to active imagination. In each case, the authors were protégés of Jung. However, none of them offered a step-by-step approach to active imagination. But, all made a positive contribution to the method. Since all of these writers' ideas about active imagination came from the same source, which was Jung's development of the method, their views are very similar. However, each writer differs in his or her approach in the explanation of the method.

A couple of additional colleagues of Jung, who wrote books on active imagination, were Hannah (1981) and Weaver (1973). They stated that the practice of the method is different for each client because it is dictated by where the client is in her or his individuation. As a result, these writers shared many case studies and commented on the approaches used in each case. In the end, they showed how unique each situation really is.

Hannah (1981) believed that dreams are messengers from our unconscious mind to our conscious mind to teach us who we really are. Weaver (1973) made the same point as Hannah when she said that active imagination is an extension of Freud's (1968) free association techniques. These are not just from common messengers but are from the greatest messengers for which we could ask. She then presented thoughts about dreams to directly state how much active imagination is *hard work* to unlock these inner secrets. She further pointed out the following:

- The method is sometimes ruined if the client opposes or ignores the things that are unpleasant and *uncongenial* to his or her conscious psyches.
- The method is related to his or her confrontation with the personal shadow.
- The practice presents the user with some inherent moral responsibility and eventually leads to one's realization that there is a resonance of the *will of God* and the effect of the Self on the environment.
- The images of active imagination place great responsibility on the creator of the document or media.
- The goal is not personal gain but a path towards wholeness. If misused, denying this could lead to disaster.

Hannah (1981) then offered a general step-by-step guide through the process, complete with every example supporting her opening to development of active imagination. Her descriptions are rather general, and they seem to be very close to the steps one might take to meditate. Once the basis of the general philosophies for active imagination is established, Hannah used many case studies of active imagination revealed in historical documents, showing that the process has been a part of human history for a very long time by including an example from ancient Egypt. Of course, she prefaced each attempt to analyze with the point that little is known about the user's life and certain assumptions must be made. She did this to reinforce the fact that this analysis cannot be properly carried out without knowledge of the user's current life situation (Hannah, 1981).

Weaver (1973) introduced many conceptual points about active imagination. She first stated that psychotherapy is *treatment of the soul*. In this regard, she noted that the psyche is a *projecting mechanism*. It is natural for anyone to take the aspects of their inner life and project

them onto the outer, physical world. Therefore, through active imagination, the client strives to amplify the concepts of the projected contents in order to lead to healing of the psyche. Weaver pointed out, much like Hannah (1981), that active imagination is not just idle fantasy. It is the responsibility of the client to be an active participant in the process. The deeper the client goes into his or her active imagination, the deeper and more permanent the psychological healing becomes. Similarly, she pointed out that active imagination is not merely *chatting with oneself*. Weaver emphasized that the client needs to go to a deeper psychological place to get the healing necessary for growth. She believed that this could be done if the client is more active than passive in the work. In other words, she felt that more progress is made if the client is totally committed to the practice of active imagination. Weaver believed that the client's growth is directly proportional to his or her deep participation. She added that this conscious participation occurs when the ego is taken beyond its usual boundaries and pulls contents out of the unconscious and applies them to the ego's life.

Weaver (1973) wrote about the personalization of figures from the source of the active imagination, whether they are dreams, paintings, or any other expressions. She explained that it is important to make them alive because this process leads them to inhabit another great concept, which involves the archetypes, which are "primordial, structural elements of the human psyche" (Sharp, 1991, p. 29). In this way, the figures become more powerful in one's growth and healing of the psyche. Weaver also pointed out that active imagination is quite demanding and cannot effectively be done by participating only part of the time. It requires the user to be 100% involved at all times. She explained the importance of the inclusion of the Shadow, which she defined as all the rejected parts of the psyche, whether positively or negatively viewed. The user of active imagination must be always aware of these contents when

doing this technique. Since the investigator is dealing with the unconscious contents, where the Shadow usually resides, it is wise to treat this aspect of the self with the utmost awareness and respect.

After giving an introduction to her methods and philosophies on active imagination, Weaver (1973) lists six points of assumptions to summarize the practice of active imagination. In general, the six assumptions are as follows:

1. One must pay attention to moods and autonomous fantasy fragments, as the first move in ego participation in the process.
2. One's involvement can take different forms, like the different forms of complete or partial fantasy: (a) Ego participation is in the work from the moment of objective interest. (b) Ego participation increases with the involvement in the drama. (c) All is not Active Imagination that includes the ego as part of the recorded activity, and where the ego selects too arbitrarily or ritualistically.
3. The active imagination is a projection of alchemical processes.
4. The most important criterion is that ego undergoes meaningful participation.
5. Ego participation differs in every individual.

Using the general idea used by Hannah (1981), Weaver (1973) connected several archetypal myths with the practice of active imagination. Of course, her approach, much like Hannah's (1981) approach, emphasizes that many assumptions have to be made about ancient records, since the author does not know the events of the myth taken from an ancient Egyptian document, and writer's waking life. In other words, each author (Weaver, 1973, and Hannah, 1981) believed, much like Jung (1974), that true analysis cannot be made without knowing specifics of the person performing the active imagination. As Weaver (1973) analyzed the historical document containing the active imagination, she was forced to make a few assumptions and projections about the life of author of the historical document in order to complete the analysis.

For this part of the work, these authors point out a very important point in practicing active imagination. That is that this technique is not free-standing by itself. It is all part of what they identified as a *holistic* approach. That is, conclusions cannot be made by looking at someone's work in active imagination, alone. In a psychotherapeutic setting, the therapist analyzing the active imagination of the client should also know the client's psychological location within the work. In more concrete terms, the active imagination should serve as a more precise roadmap to where the client's abstract and symbolic mind is headed and where it has been.

The Educational Component

For the education portion of this study, the psychotherapy of Rogers (1961, 1995) was emphasized. His views of person-centered psychotherapy were applied to similar concepts in education. This also led to ideas of creativity and problem solving in education, as emphasized by Richards (2010a, b) and other leaders in the field of creativity.

Person-Centered Education

What is meant by Person-Centered Education? Person-Centered Education comes from American psychologist Rogers (1980/1991), who is one of the founders of the Humanistic Psychology movement. He introduced the idea of person-centered psychotherapy (Haggblom, 2002). His writings on psychology spanned nearly 50 years, as well extended beyond his life by way of a book credited to him as a co-author, which was published almost 30 years after his death (Rogers, Lyon, & Tausch, 2014).

Much of these writings are about psychotherapy, but he also produced works about education, which are similar in approach to psychotherapy. In these educational writings, Rogers (as cited in Lyon & Tausch, 1995) expressed that the teacher-student relationship is very

much like the therapist client relationship in that the material discussed should center around the wants and needs of the student or client. With this system, the student is left to his or her own devices within the framework of the structure. The result of this freedom leads to using what Richards (2010a, b) called *everyday creativity*. A system where the student makes the decisions about what to learn and how to learn it leads to a sense of freedom and self-direction (Rogers, 1961). This kind of education, a person-centered system, can also lead to higher intrinsic motivation, which leads to higher student achievement and teacher involvement (Haydel & Roeser, 2002). The value of this connection among creativity, intrinsic motivation, and perceptions of self-direction have been made by several authors (Baer & Garrett, 2010; Coles & Banfield, 2012; Hennessey, 2010; Nickerson, 2012 Piirto, 2010; Richards, 2010a, b). This connective method could be a good framework or container for the specific model for mathematics education.

With these ideas as a backdrop, around 1970, Rogers (as cited in Lyon & Tausch, 1995) was contacted by the Louisville, Kentucky School Board (1971). Concerned with the deterioration of some of its inner-city schools, the Board hired Rogers, as well as others, as consultants on a restructuring plan for the inner-city schools. In the plan, decision-making powers would be handed over to primary stakeholders like students, teachers, and parents of students. With core groups, schools would set curriculums, policies, and philosophies of their schools. What resulted was greater involvement, higher achievement, lower vandalism, and fewer discipline issues. This had been accomplished by private school systems but was the first time it was accomplished in a public-school system. However, after a few years of success, the program was shut down due to a change in political climate of the era (Rogers, 1995).

Creativity + Living Symbolically = Effective Problem Solving

In my experience as an educator, there is a lot of opposition to learning mathematics. Parents (myriad private conversations, 2000-2015) know that it is a necessary part of a full education, but they have often told me, “I was never very good at math. I don’t expect my kid to do much better.” Some students question the relevance of mathematics in their daily lives. With this barrage of questions and negative attitudes, I was forced to answer these questions for myself. If someone were to ask me if I thought math was relevant in my life, I would answer with a resounding yes. I have loved mathematics from the first time it was introduced to me. I found it to be useful, exciting, and interesting, and I still find it to be all those things at various times. However, my love of mathematics does not convince some students that it is necessary and useful for them.

I have been collecting anecdotal evidence that the symbolic value and lessons from mathematics have provided a way in, for helping young people value these ways of thinking and knowing. As a result, I became committed to providing research data to see if the anecdotal evidence could be supported by research evidence, and this dissertation became the result. The formalism of what we have called the necessity of *Mathematics Education* came to me as an experienced educator who needed to look outside myself to understand why mathematics is so necessary for everyone. At the very least, I needed to find out what was important to the student, as it applied to the student later in their life.

The first and obvious argument is, “it is required to get into college programs” (Friedman, 2014, p. 11) How central are high scores on the SAT or ACT? And, at what level do students need to learn it? At one point in my life, I applied to get into pharmacy school. First-year calculus is a required prerequisite. When I asked my counselor about it, she told me that

calculus was not used in pharmacy, however, it was a way to weed out less dedicated students (personal communication, 1995). That is not a very convincing argument for people who are even a little afraid of math.

Another argument I have heard is that it is a great preparation for working in many occupations including the military or in industry. This is an argument used in federal programs' documents (*No Child left Behind of 2001, 2002*; Common Core State Standards Initiative, 2010; *American Recovery and Reinvestment Act of 2009, 2009*) If this is so, then what parts are central, and are we educating students in a way that will last?

This brings up other issues about secondary education in America. It used to be, when I was young, that secondary education was required to get an industrial job. Now, we are using colleges as training grounds for industrial workers and technicians in industries (Mayes, 2007; Zakaria, 2015). Consideration of such arguments and more—including increased student use of cell phones and technology for math applications once done *in one's head*—led me to think long and hard about why educators in America stress the learning of mathematics to all of its citizens, and at what level and form this should take. Quantitative reasoning is presumably important in general and in life. But, how do we frame this? All of this consideration led me to come up with the following type of speech for my students, which I said in essence:

Many math teachers will tell you that you need this for college or for a job. I'm not going take that route (various personal communications). First of all, a very small percentage of high school graduates pursue a degree that involves a higher degree of mathematics (U. S. Department of Education, 2011). Therefore, my job is not to turn you into mathematicians. However, mathematics, especially algebra, is about using and manipulating symbols (Lockhart, 2009). That is, to communicate symbolically. Therefore, it is apparent that a mathematics education is about learning to deal with abstract ideas and acting abstractly. Hence, my job is to teach you to master abstract thinking. Along those same lines, science is about learning how the world works, languages are about communicating clearly, and history is about learning from the mistakes and accomplishments of humanity. For example, we have many people in this school who have earned PhDs, and probably none of them in mathematics. However, if

we asked them to factor a polynomial, most of them probably could not do it. On the other hand, if we asked them to do something that dealt with thinking abstractly, they probably could do it because they do it every day. Therefore, my job is to help you think abstractly because you will use that skill the rest of your life.

Despite delivering this speech passionately and with full belief of what I had said, there seemed to be still something missing from my inner philosophy. I fully believed in many parts of it; however, it did not address how to implement such a plan. Besides, it did not involve anything about problem-solving as being one of the cornerstones of mathematical education. The theories of mathematics are great but, if someone cannot solve any problems with these theories, then it is almost useless in our everyday pursuit of our lives (Lockhart, 2009).

Genesis of idea. For a good number of years, I have been looking for ways to change the way mathematics is taught at the secondary level. Whenever people I meet find out I teach high school mathematics, they feel free to tell me about their horror stories regarding mathematics teaching. Most of the time, what they present are stories of one or many teachers with whom they had a bad experience. This is echoed in the literature. For example, Solmitz (2001) said:

When students misbehaved in my class, I felt as if I were the target of their frustrations. Standing in front of the classroom, I imagined that they saw me as their controlling father or some other authoritarian male figure with whom they had problems and toward whom they felt anger. I sensed a combined feeling of anger, guilt, and empathy. (p. 91)

Also see Mayes (2007) and Tsabary (2013) for the ineffectiveness of applying discipline to adolescents.

Then, one day, a person told me of an experience with his own second grade child, (personal communication, 2015). Until that point, I believed problems began because of something that went wrong between middle school and high school. This was the first time I became aware of problems at such an early grade. In any case, this parent told me of a system

that a teacher used to teach the class required the child to learn a complex system to learn a basic mathematical concept. (I believe that the concept was multiplication and the student was required to memorize a seemingly random system of symbols.) I was surprised by this approach. If a student is having trouble learning a basic concept like multiplication, how does it fix the difficulty by creating a more complex system?

This parent then asked me about what I thought of this system. I told him that the beauty of mathematics was that it is most powerful when it is seen at its most elemental level (Lockhart, 2009). That statement, and the parent's story, helped me realize that the answer was through making things simpler, not more complex (Lockhart, 2009). During this conversation, the parent pressed me for more details about this teaching philosophy. Under pressure, I stated that the goal was to help students to become better problem-solvers, mathematically or otherwise. I also was becoming aware, and then stated, that a most significant component of learning that was missing from secondary education, in general, was creativity. This was becoming clearer as well in the educational literature (Annarella, 1999; 2000, Balf, 2014; Beghetto, 2007; Beghetto & Kaufman, 2014; Friedman, 2014; Geist & Hohn, 2009; Gloving, 1993; Ketsman, 2013; Laskey & Yoon, 2013; Piggott, 2007; Richards 2007, 2018; Rogers, 1995; Rogers, Lyon, & Tausch, 2014; Shaughnessy, 1991; Shively, 2011; Zakaria, 2015). This is all the more remarkable considering the importance of creative thinking and living to survival, progress and, indeed, to hominid evolution itself; yet challenges to the status quo can often face resistance (Abraham, 2017; Arons, 2007; Love, 2007; Richards, 2017).

From this exchange, I remembered a book I had used in a college class. The title of the book was *Emotional Equations* by Conley (2012). In the book, Conley solved many emotional situations by placing them into mathematical equations, like $Anxiety = Uncertainty \times$

powerlessness. From this, I formulated in my head the equation introduced earlier, *Creativity + Living Symbolically = Effective Problem Solving*. I then announced to the group that was present about this revelation. The group, in turn, then challenged me with scenarios of educational situations where this could be tested. For example, one person asked about calculating percentages. Another asked about making a decision about buying a house or not. Another asked about making a decision about a disciplinary action. In each case, I was able to identify the creativity required and the symbolism required to make an effective solution. I remember that I seemed to pass all of these tests by formulating more precise definitions of the three components. As the conversations drifted to other subjects, I realized that this theory was starting to form a life of its own, and it really helped me pull together many previous approaches to teaching mathematics. Not only that, it also highlighted the one thing that was missing from secondary education, which was creativity.

Defining creativity. The first part of this proposed equation is creativity. Therefore, the next logical step is to define creativity. The creative product is perhaps most commonly identified using *Originality and Usefulness* (Richards 2010a) although the second criterion can be culture bound. Additionally, value sometimes does not emerge for years. Criteria of *Originality and Meaningfulness* (Richards, 2010a, 2018; Runco & Pritzker, *Encyclopedia of Creativity, 2011*) are concepts that have been avoided because of the possibility of its being judgmental, as long as there is novelty which is understandable. According to dictionary.reference.com (2015), creativity, as both product and process, involves:

the ability to transcend traditional ideas, rules, patterns, relationships, or the like, and to create meaningful new ideas, forms, methods, interpretations, etc.; originality, progressiveness, or imagination. (n.p.)

From a psychological perspective, the definitions do not vary greatly by field. According to Cropley (2011):

In a semantic sense, the term ‘creativity’ is used in three ways: it refers to a set of processes, a cluster of personal characteristics, and to results (e.g., a ‘creative’ product). Thus, creativity is treated as both a cause (creative processes give rise to products; peoples' creative personality causes them to behave in certain ways) and also as an effect (creative products are the result of special processes and personal properties). This is the ‘classic’ 3 Ps approach (person, process, and product), which was soon expanded to incorporate a fourth P – ‘press’ (i.e., the pressure of the environment, which can either facilitate or block creativity). (p. 358)

These are great definitions but the reader might ask, “How can a student use creativity in mathematics when the subject matter follows sets of rules and, by its nature, are not very flexible by the nature of its precision?” Rogers, Lyon, and Tausch (2014), speaking in *On Becoming an Effective Teacher* provided final thoughts on the education of the future:

Another goal would be to encourage creativity in every field. I think we are lacking in imagination on that, encouraging students to look to art, to writing, to expressive movement, to sculpture, to use of materials, to dance, to theater, and to drama, as ways of expressing their own uniqueness. There are all kinds of ways in which creativity can be expressed. But I don’t mean to limit it to art because I think that creativity can be exercised in mathematics or the learning of language. How can I solve this mathematics problem in a new way? How can we be creative in learning this foreign language? Some students have achieved some remarkably creative learning in thinking along these lines. (p. 187)

As I look at the state of mind of many of my high school students, this seems to be the biggest piece missing in their education as free thinkers. Some of the research I have read on revamping the quality of education in the United States has been focused on logic and following in lock-step with other schools and students. Others are critical of this mechanical approach. For example, Balf (2014) explained:

Students despised the SAT not just because of the intense anxiety it caused but also because they didn’t know what to expect from the exam and felt that it played clever tricks, asking the kinds of questions they rarely encountered in their high-school courses. Students were docked one-quarter point for every multiple-choice question they got wrong, requiring a time-consuming risk analysis to determine which questions to answer

and which to leave blank. Teachers, too, felt the test wasn't based on what they were doing in class, and yet the mean SAT scores of many high schools were published by state education departments, which meant that blame for poor performances was often directed at them (pp. 28-29.)

Golovin (1993) saw a traditional setting's effectiveness is short-run when she says, The Torrance Tests of Creative Thinking were administered immediately after the training sessions and again after 60 days. It appeared that in the short run the traditional classroom is a more effective classroom structure with which to hold such a training workshop for children, but, in the long run, results become less clear.

Other relevant sources include *The SAT is hated by...all of the above* (Balf, 2014); *How to get a job at Google* (Friedman, 2014); *Encouraging Creativity in the Face of Administrative Convenience: How Our Schools Discourage Divergent Thinking* (Geist & Hohn, 2009); *Developing High School Students' Creativity by Teaching Them To Take Risks and Defer Judgment* (Israel, 1995); *The Creative Process Entailed in the Co-Construction of Classroom Curriculum* (Ketsman, 2013); *Making Space for the Act of Making: Creativity in the Engineering Design Classroom* (Lasky & Yoon, 2011); *Inside education: Depth psychology in teaching and learning* (Mayes, 2007); *Cultivating Creativity* (Piggott, 2007); *It Does Matter How We Teach Math* (Rodriques, 2012); *Schooling for humanity: When big brother isn't watching* (Solmitz, 2001).

This focus is clearly witnessed by the emphasis American education has on standardized testing, despite its ineffectiveness. In my experience, I have had a handful of students whose state test scores were inconsistent with my observed assessment, both formal and informal, of the students' academic performance. Other education writers confirm these observations. Balf (2014) reported:

A growing number of colleges and universities, frustrated by the minimal change to the SAT when it was revised in 2005 and motivated by a report issued in 2008 by the National Association for College Admission Counseling (NACAC), began to eliminate the SAT and its competitor, the ACT as admission requirements, following the lead of several small, liberal-arts colleges that did so years before. The authors of the NACAC report cited a University of California study, which characterized the SAT as a “relatively poor predictor of student performance” and questioned the tendency of colleges to rely on the SAT as “one of the most important admission tools. (p. 29)

Many of the schools that dropped test requirements saw spikes in their applications, at least in the first year.) Balf (2014) went further in pointing out the discrepancies between grades and the SAT:

A report released last month by William C. Hiss, a former dean of admissions at Bates College, and Valerie W. Franks, a former Bates assistant dean of admissions, supports Wake Forest’s experience. They reviewed 33 colleges and universities that did not require SAT or ACT scores and found no significant difference in college GPA or graduation rates between those who had submitted tests and those who had not. Specifically, they saw that students with good high-school grades did well in college, even if they had weak SAT scores. But students with weaker high-school grades — even with strong SATs — did less well in college. Those who didn’t submit SATs were more likely to be minority students, women, Pell grant recipients or the first in their families to go to college. (pp. 29-30)

Not only are universities rethinking the effectiveness of the SAT and similar tests but Friedman (2014) reported on the lack of faith from one major employer:

In an interview with Adam Bryant of The Times, Laszlo Bock, the senior vice president of people operations for Google — i.e., the guy in charge of hiring for one of the world’s most successful companies — noted that Google had determined that “G.P.A.’s are worthless as criteria for hiring, and test scores are worthless. ... We found that they don’t predict anything. (11)

He also noted that the “proportion of people without any college education at Google has increased over time” (p. 11). — now as high as 14% on some teams:

Don’t get him wrong, Bock begins, “Good grades certainly don’t hurt.” Many jobs at Google require math, computing and coding skills, so if your good grades truly reflect skills in those areas that you can apply, it would be an advantage. But Google has its eyes on much more.

“There are five hiring attributes we have across the company,” explained Bock. If it’s a technical role, we assess your coding ability, and half the roles in the company

are technical roles. For every job, though, the No. 1 thing we look for is general cognitive ability, and it's not IQ. It's learning ability. It's the ability to process on the fly. It's the ability to pull together disparate bits of information. We assess that using structured behavioral interviews that we validate to make sure they're predictive. (p. 11)

Under the current state of education and college entrance, there is little room allowed for creativity (Beghetto & Kaufmann, 2014). The current system is prime for but gives little for the true innovators. Lyons (2014) supported this assertion in this quotation from *On Being an*

Effective Teacher:

I have one last thing I want to say, which is sensitive and delicate. Each time some child has his creativity killed off as a consequence of inhumane teaching, that destructive act is further evidence of the need for person-centered teaching. The students crying out in despair for more empathy in Reinhard Taunt's and Renate Hül's research is further moving evidence of the destructiveness of inhumane education. Disturbing as they are, these cries for empathy contribute to people-centered teaching becoming an idea whose time has come. The instant you, the reader, personally create a context for yourself to bring the end of inhumane behavior in your home, your classes, your offices, and on the planet — then such destruction resulting from inhumane behavior occurs within the context of its ending. Suddenly the same destruction that had been a manifestation of the persistence of the inhumanity of it contributes to the end of the problem. This opens the context of person-centered education to become an idea whose time has come, which, as Victor Hugo said, all the forces in the world cannot prevent. Are you willing to open to the miracle — the powerful context of person-centeredness in your life and work? (p. 192)

Creativity's place in the classroom. As can be seen by the previous quotation, the acceptance of creativity can be a very important aspect of the educational climate in America for an education of the future (Beghetto & Kaufmann, 2014; Richards, 2007). However, much like anything one puts energy into avoiding, there should be an equal amount of energy and effort into going beyond avoidance and going deeper into what should be done.

At this point, the reader might be asking, "What is anybody doing about developing creativity in the classrooms of our American youth?" The fact is that many people are developing ideas, writing books, and writing articles on the subject (Friedman, 2014; Geist &

Hohn, 2009; Golovin, 1993; Israel, 1995; Ketsman, 2013; Lasky & Yoon, 2011; Mayes, 2007; Piggott, 2007; Rodrigues, 2012; Solmitz, 2001).

To illustrate this point, in researching for this paper, among other sources, I used ERIC (an educational database for scholarly articles), among others, to access information in online research. I entered the words *creativity in the classroom* and the database linked me to over 600 articles on the subject. As I looked deeper into the articles, I noticed a widely-varied array of subject areas that were applying creativity. Of course, there was the fair share of the expected applications of art, writing, and literature. But, to my delight, there were various articles applying creativity to logic-based subjects like music, reading, and mathematics. There were three of these articles that pertained particularly to mathematics (Coles & Banfield, 2012; Piggott, 2007; Rodrigues, 2012). The one I found most interesting and useful for the purposes of this essay is *Cultivating Creativity* (Piggott, 2007). In this article, the author argued that a large part of solving mathematical problems is creativity. The variety caused by each student's unique approach, makes the learning of mathematics more interesting and, as a result, is learned at a deeper level.

That was encouraging but it got even better. There were articles about making creativity part of the curriculums of schools. There were others encouraging administrators to accept creativity as a way to encourage divergent thinking, even though it could make things *inconvenient* for administrators (Friedman, 2014; Geist & Hohn, 2009; Golovin, 1993; Israel, 1995; Ketsman, 2013; Lasky & Yoon, 2011; Mayes, 2007; Marzano, 2010; Piggott, 2007; Rodrigues, 2012; Solmitz, 2001). Torrance (1995) gave several examples of the old approach of promoting persons based strictly on past behaviors without any consideration for present or future perceptions or effort. He used examples of this through experiences of World War II

veterans, a program for high school dropouts and graduate admissions of educational psychology at the University of Georgia. In each case, Torrance showed that such a conservative approach leads to a sabotage of success of its members.

Perhaps the best arguments for my purposes for the importance of creativity in the classroom came from a newer book named *Nurturing Creativity in the Classroom* (Beghetto & Kaufman, 2010). The book includes 20 different sections stating different perspectives towards promoting creativity in different levels of educational venues.

One particular chapter that closely reflects my observations is a chapter written by Richards (2007) named *Everyday Creativity in the Classroom: A Trip Through Time with Seven Suggestions*. In the beginning of the chapter Richards (2007) observed the active act of squashing creativity as well as the squeals and excitement of educational discovery in the name of order and compliance. As these moments accumulate, the students get the unspoken message that learning is quiet, rational, logical, unemotional, and boring. With these sorts of beginnings of education, it is no wonder that many secondary students find secondary mathematics and science to be boring and intimidating. In this way, students' love of learning is replaced with learning as a chore that is required to be trained for a good-paying job. In this way, a very important part of a full education is killed.

While the Richards (2007) chapter illustrates how creativity could be used in a classroom, there were other chapters that also reflected some of this essay's views of creativity in the classroom. One of these chapters was authored by Baer and Garrett (2010), who related the many connections between teaching to standards and teaching that allowed the use of creativity. They also did an excellent job of removing many of the misperceptions that these two issues (standards and creativity) are polar opposites in education.

Another excellent chapter in the book is *How to Discourage Creative Thinking in the Classroom* (Nickerson, 2010). In the chapter, the author took a tongue-in-cheek approach to showing how injecting creativity into a classroom can lead to more critical thinking. He pointed out nine ways teachers can inhibit creative thinking often unconsciously most of the time.

Defining living symbolically. Many authors have agreed with the notion that living symbolically leads to previously untapped wisdom, which is the sense of the first part of the proposed mathematical equation. (Friedman, 2014; Geist & Hohn, 2009; Golovin, 1993; Israel, 1995; Ketsman, 2013; Lasky & Yoon, 2011; Mayes, 2007; Marzano, 2010; Piggott, 2007; Rodrigues, 2012; Solmitz, 2001).

A symbol is something that can be produced that represents an idea or a concept. (Whitmont, 1969). In most cases, it is much briefer than the concept that it represents. U.S. highways use these symbols in many different ways. For example, American drivers are trained that a red octagonal sign means “bring your vehicle to a complete stop in order to yield to intersecting traffic.” In that moment, the driver is living symbolically. To live symbolically, therefore, is to constantly interpret all phenomena that are observed in a way that gives the interpreter messages of how to live her or his life (Whitmont, 1969).

The physical practice of this sort of life is very difficult. At many moments, we must be involved in our physical lives. To compound this, our modern society gives a much higher value to our physical world than to our spiritual or metaphysical world. At least that is the story in our Western world (Whitmont, 1969). According to Beguin (2012), the Eastern culture of Tibetan Buddhism sees the exact opposite as we do in the Western world. In the West, dreams are seen as an alternative reality. Many times, dreams are seen as products of an active imagination and nothing more than wish fulfillment, according to Freud (1968). In Tibetan Buddhism, dreams

are seen as primary reality and our waking, physical lives are seen as an alternate and parallel universe (Beguin, 2012).

Many might not understand living symbolically. Yet, this is central to how we think abstractly, imagine, and create. According to Whitmont, (1969), this is shown in many ways. As a society, we live symbolically, at least in small parts, every single day of our lives. There are five general categories in which living symbolically can be applied for the purposes of this study; (a) Archetypes, (b) dream work, (c) Spiritual-based symbolism, (d) mythology and (e) science-based symbolism (Whitmont, 1969). These will be discussed in the section that follows.

Symbolic living in everyday life and education. Writers including Jung (1969a, b, c, d) used the idea of symbolic living as a way to improve lives by getting closer to one's inner path (Jung, 1969d). The first category of symbolic living included here is *archetypes*, a word coined by Jung (1969d).

Archetypes. In most research work, it is of great advantage that the researcher clearly defines unfamiliar terms. However, in the case of archetypes, definitions often vary. In *The Archetypes and the Collective Unconscious*, Jung (1969d) went to great lengths to show that the word archetype has been used for a very long time. He mentioned that Philo Judaeus, who lived during the lifetime of Jesus of Nazareth, used the term. After using a word in Greek to define it, Jung also uses the words of Levy-Bruhl when he wrote, referring to archetypes, "The term 'representations collectives' used by Levy-Bruhl to denote the symbolic figures in the primitive view of the world, could easily be applied to the unconscious contents as well, since it means practically the same thing (Jung, 1969d)" (p. 42).

With the idea of archetypes introduced to the academic world, many academic writers have built upon this idea, including Jung (1969d) himself. Stevens (1982) argued that Michael Fordham used this idea in his development of ethology and attachment theory. He also argued that Claude Levi-Strauss used archetypes in anthropology, Charles Darwin used them regarding social instincts, Noam Chomsky also applied them in psycholinguistics and Jean Piaget did so in psychology. He also argued that it was used in literary criticism and was groundwork in works by psychoanalysts Melanie Klein, Jacques Lacan, Wilfred Bion, Robert Langs, and even Sigmund Freud. In the years after the writing, Jung built many of his concepts upon this idea. This is illustrated by the development of ideas of the anima, the animus and the Mother Archetype. It also led to ideas that the contents of fairy tales, which are embedded in unconscious contents of the collective unconscious. All of these ideas led to Jung's approaches of individuation.

However, he was not alone in the extension and growth of these ideas. Among other writers were Whitmont (1969), Neumann (1963), Gebser (1986), Feinstein and Krippner (1997), and Pearson (1991, 1998). Whitmont (1969) wrote about Jung's archetypal approach through psychotherapy, Neumann (1963) and Gebser (1986) focused on expanding Jung's ideas about archetypes directly, while the others focused on the angle of self-help. As with the other categories, this is not an exhaustive list but is merely a small example of the works written on the subject.

Dreamwork. Another category of living the symbolic life is dreamwork. According to Jung (1974), "The dream is a fragment of involuntary psychic activity, just conscious enough to be reproducible in the waking state" (p. 3). Jung (1974) also added, "Of all psychic phenomena, the dream presents perhaps the largest number of 'irrational' factors" (p. 68), Dream work,

including various ways of processing dream information to the dreamer's waking life (Johnson, 1986; Jung, 1974) is a very powerful application of something that science tells us that happens to everyone several times per night, although most people do not remember the majority of these dreams (Domhoff, 2003). Freud (1968) originated the idea of a connection between dream analysis and psychological health. During his work with Freud, Jung (1963a) was a major contributor towards Freud's theories with dreams. However, after working together for many years, Jung concluded that his views of dreams did not coincide with Freud's views on the same subject. As a result, Jung (as cited in Jung, Von Franz, Henderson, Jacobi & Jaffe, 1964) split from Freud and developed his own theories of dreams and their meaning.

Similar to the previous categories, this category of symbolic life was advanced by other authors over time. Some of these authors were direct protégés of Jung, others were followers of Jung's ideas and still others have no connection to Jung's ideas at all and used dreams in a more literal sense. Jung's (1974) works produced a separate book referring to dreams named *Dreams*. As for the contributions of protégés of Jung, Jacoby and Henderson (1990) produced valuable works. Jacoby (1973) wrote a book detailing Jung's approach towards the unconscious and conscious mind while Henderson reproduced essays he wrote on the shadow aspect of the conscious and unconscious mind.

In the 1960s, Perls (1992) developed a theory that he coined as *Gestalt*. In this approach, he took the ideas of the symbolism of dreams and applied them to the way we talk using metaphor and other symbolic language. In this way, his method uncovered many unconscious contents near the surface of consciousness and waiting to be read and interpreted. This brought the symbolism of nocturnal dreaming literally into the light of day.

Another author also brought this symbolism to one's waking life. However, this author believed that dreams were only partially symbolic. The part that is not symbolic is the part that is literal premonitions of the dreamer's waking life. In *Conscious Dreaming*, author Moss (1996) took the perspective of shamanism, where a few gifted persons are chosen to see the future through dreams. While this may be true, it is only true for the rare few that are chosen as shamans. In my view, Moss approached the subject in a way that implied this capability exists in everyone, not just a chosen few. This is the opposite view of some cultures that put a high value on dreams and special people who interpret them. In some Tibetan cultures, it is believed that our physical lives are a dream and the lives we live at night are reality (Beguin, 2012).

Among other examples are two books on the application of dreams on aspects of lives. The first book is Bosnak's (1988) *a Little Course in Dreams*. In this book, the author provided a guide for how to look for patterns in dreams and look for symbolism to interpret the messages given to the dreamer in the dreams. He also provided many excellent examples, such as a dream of his own:

I am in a house under construction. There is a great Saint Bernard dog, called Angie, who is being attacked by a bulldog I have on a leash. The bulldog bites Angie's neck, holding her there, and they disappear together, engaged in a deadly fight. I am frightened. When Angie reappears, rather disheveled but apparently unharmed, I am very happy. The bulldog has disappeared. After this I am at the wedding of the son of my most ambitious and power-hungry uncle. (p. 1)

He, then, took the first chapter to tell a story of analyzing this dream as he drove to work. He used no formalities; he just described his thinking about the dream. He then described how these thoughts affected his thoughts and his work as a psychological therapist. In a story that used no special terminology or concepts, the author showed that almost anyone can look deeply into one's dreams, without getting too complex. That is, he asked himself where the name Angie came from, and whether he acts like a bulldog at times. He also asked himself

about the relationship he had with his power-hungry uncle. By relating how he said something inappropriate with a client, he also showed how it affected the dreamer's conscious and unconscious minds.

The other book is *Weaving Dreams into the Classroom*, edited by Hoffman and Lewis (2014) in which the editors presented several essays on how to insert dream work into a classroom setting at any level. As stated before, this is not a complete list but just an example of how this part of the symbolic life has been applied to different situations.

Faith or Spiritual-based symbolism. The next category is where people have lived a symbolic life through their spiritual or faith and/or religious understandings. There are many authors who have combined these two subject matters (Hillman, 1997; Johnson, 1986; Jung, 1974; Ronnberg & Martin, 2010; Whitmont, 1969). This comes as no surprise because nearly all, if not all, religious texts use symbolism to illustrate their beliefs to the common reader (Jung, 1958a). Therefore, it only makes sense that religious scholars would make natural connection between faith and symbolism (Aslan, 2011; Bonder, 1996; Kaufmann, 2009; Marion, 2000, 2004; Rinpoche, 1998).

The authors of this category vary in the affiliated religion and the period of their subject matter. A good place to start is a work by Wilhelm (1967), who translated many important books from Chinese into German and then into English. His most important work was his translation and commentaries in *I Ching or The Book of Changes* (1950). This is an important work because it is the forerunner in introducing Eastern philosophies to the Western world. This led many people to embrace some of these powerful philosophies (Jung, 1958a). Another great and important work is a book called *The Secret of the Golden Flower* (1967). This book continued the West's introduction into Eastern philosophies (Jung, 1958a) These, as a result,

became Taoist classics in the West. In the latter book, Wilhelm translated Chinese texts in order to reveal the original instructions for how to mediate and other religious practices of this ancient culture that have often been viewed as culture full of wisdom. Given that the ancient Chinese cultures are filled with illustrative stories, symbols, and meanings, it goes without saying that this project used a great deal of interpretation of symbols from this ancient Chinese culture. A good example is when Wilhelm's (1967) translation defines the Golden Flower; "The Golden flower is the light. What color is the light? One uses the Golden Flower as a symbol. It is the true energy of the transcendent great One. The phrase 'The lead of the water-region has but one taste' refers to it (p. 21)." Wilhelm further translated:

The Golden Flower is the Elixir of Life...All changes of spiritual consciousness depend upon the heart. There is a secret charm which, although it works very accurately, is yet so fluid that it needs extreme intelligence and clarity, and the most complete absorption and tranquility. People without the highest degree of intelligence and understanding do not find the way to apply the charm; people without this utmost capacity for absorption and tranquility cannot keep fast hold of it. (p. 23)

Some other writings of this category can apply across wisdom traditions. These writings tell a story with a moral message or infinite wisdom weaved into its story line. There are two good examples of this used in this argument, one in prose and one in poetry. A good example of prose in this category is *The Way of the Pilgrim* (Billy, 2000) and an example of poetry is Dante's (2003) classic narrative poem, *The Divine Comedy*. This and other works by Dante, as well as works of Goethe are referred to in many Jung's writings (1958a, b, 1959a, 1959b, 1964).

Within this category, there are several books where religious texts are translated in such a way that the reader can see the use of symbolism from the perspective of a particular faith like Judaism (Bonder, 1996; Kaufmann, 2009), Buddhism (Rinpoche, 1998) or Christianity (Marion, 2000, 2004). Other scholars from this category made their point from outside a certain faith but

used a particular faith tradition to illustrate many of their points (Spiegelman, 2003; Wilber, 2006).

Mythology. Our fourth category comes from a position of mythology. These scholars chose to look at general patterns of all societies from this lens of mythology. They all made the argument that the mythologies of all world cultures are similar and, therefore, the use of mythology of a culture is merely an expression of the act of being human (Fuller, 1959; Campbell, 1991).

Science and symbolism. The last category of living symbolically is probably the most surprising, as well as the most interesting. This category is one where science meets symbolism. While many believe that such marriage is nearly impossible, the amount of research involved is quite impressive. The most famous of this group is Chopra (2000a, 2000b). In the books used in this section, Chopra's work astutely combines medicine and Indian religion and culture to promote ideas of good health and happiness.

Another section of this category involves books that combine symbolic beliefs and ideas of Quantum Physics to make a convincing argument that there is more to health than the things that we directly measure. For many modern people, vibrational approaches are interesting and philosophical but not ready to be applied. However, many scientists, as witnessed by the book's extensive bibliography, have made some great connections and are ready to move forward with these brilliant ideas (Benson, 1996; Gerber, 2000a, 2000b; McTaggart, 2002).

Classroom symbolism. The mathematics classroom is a hotbed of the use of symbols. It is a rare moment that goes by that some kind of symbolism is not used. There are basically five categories of symbols in mathematics classroom: (a) elements, (b) operators, (c) descriptive symbols, (d) conceptual symbols, and (e) graphics and maps.

Elements are basically the groundwork of mathematics in that they are symbols of the things we are trying to apply to mathematics. That is, this group consists of numbers and other symbols to represent quantities. This group includes Arabic numerals, Roman numerals, Greek letters and the seemingly endless variables used in algebra and the sciences. These variables are often used when forming some sort of mathematical template and applying it to some natural behavior.

Operators are a group of symbols used to represent the operations that one does with the elements. For example, in arithmetic, some common symbols, like $+$, $-$, \times , and \div are used show when two elements are added, subtracted, multiplied or divided. As one goes up the mathematical hierarchy, other symbols are added to the list for square roots, exponents, logarithms and differentials.

A third category of symbols is one that contains descriptive symbols. These are symbols that represent the concept of something that can be seen in a physical sense. The best example of this type is in the discipline of geometry. There are symbols for angles, lines, rays, line segments, triangles, circles, parallelograms, squares, and more. This helps the mathematician to more quickly describe and calculate all things geometric.

The fourth type of symbol in the classroom represent ideas. These are used in calculus (integrals), set theory (brackets, empty set, domain, and range), probability (capital letter sigma for summation and lower-case sigma for standard deviation), logic (tautologies) and logarithms (natural log, e). All of these symbols are used to represent a concept that would require several steps to calculate, and numerous words to explain.

The last type is the map. These symbolic representations come in many forms. They can come in the most obvious; a map used to locate geographic locations. It can also mean a simple

diagram, which can be used to label the parts of an algebra problem or to show how to go from one step to another in a math equation. It can also be used to illustrate a line of logic (or many lines of logic as in a schematic drawing). However, symbols might not always be physically produced. A map can come in the form of a series of hand or body gestures. This is very much like a traffic policeman directing traffic in a busy city intersection. This can be used in the classroom in many ways; directing students where to sit in the classroom, a direction to be quiet, a direction to meet in the hallway and to direct the action of a static diagram written on a board or screen.

Defining Effective Problem Solving

I have experienced, first-hand, how much creativity is needed in the classroom and how much creativity has been squeezed out of public education. When I was a beginning teacher, I was guilty of killing creativity many times. The more I learned about teaching, the more I learned to let students be creative rather than just compliant. In an attempt to reinstate creativity in the classroom, I have trusted my teaching intuition to try various ideas in the classroom. For example, my daily classes are ended with students describing what happened in class the most creative way possible, such as each student telling a joke, drawing a cartoon, or writing a rhyme or a story. This study was intended to provide research for this idea. The work I have done also give students the opportunity to give classroom presentations to replace their lowest test grade.

I also have a created a different way of opening a class. Instead of using problems from the previous day, students are required to respond to a quote, a dream, a poem, video or a song. In this way, their mind gets warmed up to thinking in a logical way, thereby acting mathematically without actually doing a step-by-step calculation. It could be argued that the student could react in an emotional or associative way. However, since views are open to be

discussed in this format, the emotional response is usually required to be defended. It is important at this point that the teacher disallow any personal attacks or judgmental labeling. In this way, the student is forced to develop a logical argument in his or her defense. This idea was tested out in a study I did with high school teachers in a suburb of Atlanta, GA. The results of the study were very positive and confirms the power of using creativity in a high school classroom (Guynn, 2015).

On the other hand, as a math teacher for 14 years and a former surveyor for 20 years and a spiritual searcher by way of dream analysis for 9 years, I have a good amount of experience in applying symbolism to everyday life and life inside a high school classroom. Every day is a challenge to stay on the path of living symbolically.

With this being said, the path leads to problem solving. It could be easily argued that problem solving is used in every academic discipline (Lockhart, 2009). However, it seems to be more directly connected with mathematics and the *hard* sciences (Lockhart, 2009). In fact, most mathematics textbooks are geared to almost nothing but problem solving. If further proof is needed, one only needs to look as far as the current standardized tests like the SAT, ACT and GRE (Balf, 2014). In fact, even an innovative company like Google is creating its own tests to predict prospective employees' ability to perform innovative problem solving (Friedman, 2014).

Conclusions

Creativity and symbolism are two very important parts of education. Creativity has many writers offering suggestions on how to welcome creativity back into the classroom (Friedman, 2014; Geist & Hohn, 2009; Golovin, 1993; Israel, 1995; Ketsman, 2013; Lasky & Yoon, 2011; Mayes, 2007; Marzano, 2010; Piggott, 2007; Rodriques, 2012; Solmitz, 2001).

However, symbolism is used in all walks of life but there seems to be very little emphasis on applying it in a mathematics classroom. On the surface, this seems to be an amazing contradiction.

The bedrock of mathematics is algebra. Algebra is the application of numbers, symbols and rules to abstractly find a template to solve certain types of problems. However, the prevailing approach in modern classrooms is to make a connection among math, science and engineering (Lockhart, 2009). This kind of thinking has led to the development of Science Technology Engineering Mathematics (STEM) programs in many school systems. (Some are proposing STEAM so as to include art.) To sum up, educators are taking literal minds, applying the symbolism of algebra and then asking them to solve literal problems (Lockhart, 2009). Since most undergraduates do not graduate with math-heavy degrees (U.S. Department of Education, 2011), it does not make sense to drive all secondary students through a rigorous program of mathematics. This would be a great time to use these mathematics courses to help students to think symbolically, a skill that will serve them well the rest of their lives in many different aspects of their lives (Lockhart, 2009). Therefore, in a roundabout way, once an emphasis on symbolism increases in mathematics classes, it could be possible to see that creativity plus symbolically living equals effective problem solving.

This approach to teaching mathematics is quite unusual and is sometimes misunderstood. Most mathematics pedagogy is more direct than this approach. In this approach, it is important for the mathematics and its meanings to reach an unconscious level. The source of this method is to reach that unconscious level through dream work and active imagination. This approach is enhanced by using a person (student) centered approach, much like the relationship between a psychologist and client. With all of these conditions met, the teacher and

student have planted a seed to help understand the equation, *creativity + symbolic living = effective problem solving* grow to its full maturity.

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this study was to explore whether teachers using Jungian active imagination could access their own the Inner Self, as well as teach students of a mathematics high school class to access their own Inner Self by way of what I identified as the closing section of the day's teaching. This work used procedures of Jung's (1958, 1969d, See also Hannah 1981, Weaver, 1973; Jacobi, 1973) Active Imagination, in conjunction with a normal journaling exercise that I had developed that closes the class. Participants were teachers who reflected both on student experience as they saw it and their own teaching experience. The teacher-participants did an additional exercise themselves, using imagination to interact with their "Inner Professor" (see below for more details). Effects on teaching and learning were assessed through the experience of the participant teachers.

The method used for this investigation was a multiple case study as described by Yin (2009) that was qualitative in nature (Creswell, 2007), with some quantitative support. The participants were teachers who answered questionnaires on a biweekly basis (Kvale & Brinkman, 2009) over a 6-week period. As part of the questionnaire, respondents relayed any stories (Denzin, 1997) they heard that were relevant to the intervention of active imagination style closings in their classrooms at the end of their class-period. For example, if a student said, "This is stupid" and gave a story why he or she thought it was so, then this was included as a relevant story. Or if a student relayed how paying attention to his or her inner life led some powerful introspections, then this was considered to be a relevant story to be included, as well. The participant-teachers also kept a journal of conversations with the part of them identified as their *inner professor*. The Inner Professor is a part of our psyche, which holds all of the

teacher's pedagogical wisdom. By having a written and imagined conversation with this entity, the inner wisdom of the teacher was brought to light and could be used to improve instruction. The study also encouraged the use of student-dialogue journals, as well, but this was not be required as part of the data of the study.

Choice of Method

When I entered Saybrook University as a PhD student, I believed all studies had at least some level of mathematics applied to them. I felt, at the time, that no unbiased research could be done without the majority of the data being derived from measurement and statistics. This was, in part, a result of my lifetime of interest in mathematics and sports. However, soon after entering Saybrook, I learned that research could be done using one of several sophisticated qualitative methods with little or no statistics involved. I also learned that statistics cannot tell the entire story, especially when lived human experience is the issue. Although quantitative research could build a framework for a situation, they could not tell the complete story. To obtain the complete story, a researcher needs some qualitative data.

It occurred to me that, the more complete story that one desired, in human terms, the more the researcher needed to add qualitative methods. At this point, I was convinced that statistics-supported qualitative research was the way to obtain the complete results of a research project. That is, until I was introduced to Interpretive Ethnography (Denzin, 1997). This qualitative approach uses story-telling as a more direct source to tell the research story. The story, with its various depths and natural biases, could often yield the most accurate description of a situation. After reading this book, I realized I naturally used this method of reporting to make my most convincing arguments about a situation. To me, this method takes the listener/reader directly to the source of the point anyone would be trying to make. It makes a

second-hand report into a first-hand experience of the situation to be explained or conveyed. From this, I concluded that Interpretive Ethnography could provide the most complete picture for my research question and answers; these could provide the next questions. Therefore, it was my method of choice for teacher reports of experiences and the other methods were used in support of this method.

The Chosen Method Applied

Participants

The goal of this study was to use four selected volunteer teachers and four alternates. However, after trying many avenues for recruitment, my search resulted in very few potential participants. In response to this dilemma, Saybrook University agreed to allow me as the researcher to act as a participant. By the beginning of the study, I had only 5 volunteer-participants, including the researcher. When the study began, I decided to use all of the participants. This was a fortunate decision, given the fact that 2 participants finished only some of the work and did not complete the expected documents.

It was preferred that these teachers be selected from a school district other than the one where the researcher worked at the time. This goal was accomplished since at the time of the study the researcher taught in central Georgia (metro Atlanta), one participant worked in rural northwest Georgia and 3 others worked at the same rural high school in southeast Georgia. This was desired to minimize any potential bias on the part of the researcher and to avoid the chance of a relationship any of the participants. It was clear that 3 teacher-participants were at the same high school which might have been another source of bias. This was considered in the results of the study.

It was also desired that the participants be mathematics teachers at schools that have been deemed as innovative schools. As a result of the low number of volunteers, this was not an

option. However, at least 3 of the participants were in teaching situations that allowed a certain amount of method latitude. It also was not required that the school was a private school or a public school. Of the 5 participants, 4 were public school teachers and the other was a private school teacher. It was, however, required that the participants be secondary math teachers, since the goal is to measure this approach in secondary mathematics classrooms. All 4 were high school teachers. Contact was done via telephone and email.

After the IRB process was finished and approved from Saybrook University, the first planned step of the recruiting process was to contact the office of the potential school, by letter, and expand the search until 8 participant-volunteers could be found. This actual process was different from what was expected. The 4 participants, not including the researcher, were found via email and social media. The one private school volunteer was also a co-founder of the school. In addition, the other co-founder of the school was the one who referred the participant.

As for the other 3 participants, they were recruited through networking. About one year previous to the study, one of the eventual participants contacted me via email. However, this contact had nothing to do with the dissertation process. In an attempt to find ways to better teach her students, this participant started researching the internet for another mathematics teacher with better state test scores than her students. After doing her research, she contacted me. For the next several months, we exchanged emails about how to teach mathematics to get better test scores. After several months, I asked her to volunteer for this study. She not only agreed but provided two other colleagues as volunteers. I then asked her if there was any paperwork required. She told me, since this was a small rural county, she merely needed to ask her Assistant Superintendent. After she talked to him, he then contacted me via email and asked

me a few questions, such as whether students would be participants in the study. When I assured him that only the teachers would be participants, he gave me permission via email to proceed.

As for the researcher, this study was something that I, as the researcher, had already implemented with my classes for several years. Over this time, as part of his teaching evaluation, this practice had been observed and approved by about a dozen school administrators. Therefore, all documents from this participant were merely reflections of my teaching experiences.

Research Setting

The setting of the study was secondary math classes in the classrooms of the participating teachers. All participants were high school mathematics teachers in various parts of Georgia. All data were directly related to the activities and progress of these classes. Evidence of academic, personal and professional growth were the foci of this study.

Research Design

The intention of this study was to explore whether mathematics teachers could reach their Inner Self and could report whether the Inner Self of the student could be reached through active imagination to improve teaching and learning. Below, find the steps of this study:

1. After choosing participants, the first step was to contact participants and negotiate a date for the study to start for each participant. The start date was not necessarily the same for each participant.
2. The next step was to send a document to each participant explaining the overview and general instructions about the study. This also included a brief rationale about the study. (See Appendix C: Introductory Letter.)
3. Third, each participant was sent an Informed Consent form. Clearly communicated to each participant that study could not start until form was signed and returned.
4. Then, participants received a video link for active imagination instruction located at (<https://www.youtube.com/watch?v=v8TU5KAjV-Q>). Informed each participant that this needed to be viewed before start of study.

5. Fifth, the researcher offered to answer any questions about the study via phone call or email.
6. Sixth, participants were sent specific instructions on how to do the dialogue and general instructions how to assign this as class closing, which occurred in the last 10 minutes of class. They were also sent an example of a dialogue with an Inner Professor. The process of explanation to the students was left up to the participant. The directions stressed that the students' work could not directly be part of the study. However, the participants could include any stories they witnessed in their questionnaires. Also, the information given stressed that the Inner Professor dialogue should be written as close to the end of class as possible. Doing so at the end of school day was also acceptable but not preferred.
7. Each participant received a pre-study questionnaire with a notation that the questionnaire should be returned before starting the study. (See Appendix A: Questionnaire protocols for Study.)
8. On the first day of study, each teacher-participant explained and assigned dialogues to students as a class closing. (A class closing is an assignment given to students as a feedback to teachers as what was learned by the student. These are typically a problem to be solved by the student that includes the concepts taught that day.) The participant was given the option as to how often this assignment was assigned. The researcher recommended a minimum of two times per week. At the end of this day, the participant should have finished at least one page of dialogue with their Inner Professor.
9. On Friday of the second of week of the study, the mid-study questionnaire was sent to each participant. Along with the questionnaire, the researcher requested that the participant return the completed questionnaire before the Monday of the 3rd week of the study.
10. On Friday of the 4th of week of the study, the post-study questionnaire was sent to each participant. Along with the questionnaire, the researcher requested that the participant return the completed questionnaire before the Friday of the 5th week of the study.
11. On Friday of the 4th of week of the study, a request to collect the participants' Inner Dialogue was sent to each participant. Along with the request, the researcher requested that the participant return the completed dialogue before the Monday of the 5th week of the study.
12. The researcher collected all documents, marked questionnaires and statements as supportive, neutral or critical. Statistics from these forms were compiled and recorded.
13. Finally, the researcher analyzed data using interpretive ethnography. For more on interpretive ethnography, see the section titled *Data Analysis* on page 54.

Once the study began, each teacher had basically two assignments: The first involved keeping a daily dialogue with his or her Inner Professor and answering and the second was to

fill out a biweekly questionnaire, which included relating any stories, that they observed or heard, related to the study (Denzin, 1997). All statements, at the end of the study, were separated into supportive statements, critical statements, or neutral statements. From these statements, a ratio was calculated of supportive vs. critical statements in reference to the use of these closing exercises. This was reported and has been used to guide the researcher to what kind of stories were shared in the final report.

As for the Inner-Professor dialogues, these were merely tools to help the teacher-participant to get connected to his or her unconscious mind. They were used to understand any supportive, neutral or critical statements in reference to the closing exercises. They were also read to look for clues to the mindset of the participant, as to their approach and attitude regarding the research. For methodology purposes of explanation regarding attitude, there were two excellent examples of these mindsets being revealed in the dialogues. After reading North's dialogue, it was revealed that North was struggling with his relationship with his students. He mentioned to his Inner Professor that the silence of his students was becoming an issue with his students. East, on the hand, was more focused on her teaching ideas and techniques. She used her Inner Professor dialogues to have a conversation about how to teach the subject matter more effectively. In both cases, this information helps the researcher to gain perspective on the participants' perspectives towards teaching.

The design of this study was intended to be case studies. There were three main levels to the data; statistical data drawn out of questionnaires and qualitative data drawn out of an interpretive ethnographical approach. The implied statistics (supportive, neutral, and critical statements) were patterns noticed in the questionnaires. As for the interpretive ethnography,

highlights (and lowlights) of the stories (Denzin, 1997) have been presented as evidence of those attitudes.

Instruments

The instruments in this study were from three sources:

- Self-reporting questionnaire
- Inner-Dialogue notebook
- Video on AI (<https://www.youtube.com/watch?v=v8TU5KAjV-Q>)

A self-reporting questionnaire was distributed to all participants at the beginning of the study, at the end of 2 weeks and at the end of the study. The questions are found in the appendices. The same questionnaire was used for all increments, including the pre-study questionnaire with the adjustments noted in the questionnaire.

Another instrument used in the study was the Inner Professor dialogue structure. Each participant was expected to keep a record of their dialogues; the participant was asked to reflect on his or her daily educational practices and respond to these practices from an imagined Inner Professor, in a dialogue form. These dialogues were used to establish the mindset of the teacher and were used as tools for the participant communicating with the unconscious mind, much like Jungian active imagination (<https://www.youtube.com/watch?v=v8TU5KAjV-Q>).

The last instrument used in this study was a video on active imagination. In the video, a psychologist explains the uses of active imagination and how to use it for its many applications. (The internet link is included in the appendices.)

Procedures

The researcher used the following six steps to gather the data accurately and ethically for this study:

Step 1: Contact district. In the beginning, several school districts were chosen to participate in the study. The only requirement that was desired was that the participant was a certified secondary mathematics teacher who is teaching in the United States. It was preferred that the participant teach at a school that has a history of innovative practices. Once these were chosen, the superintendent's office of research would be contacted and the proper paperwork will be filled out in order to be gain permission to do research within the school district. This would be accompanied by a letter of introduction to the study (see attached in appendices). This step was proposed to be performed several weeks prior to start of the intended start date in order to give ample time for approval. However, this is not how this first step unfolded. Emails were sent out to districts all over the United States, based on an internet list of innovative schools. Also, many private schools in Metro Atlanta were contacted via email. None of these contacts responded. Despite my concerns related to potential bias, I contacted the school district where I worked. A few weeks later, my school district turned me down, citing that too much was required of the teacher. I pared the process down but did not reapply, given the apparent chaotic nature of the department of research of the school district. Later, through some online networking, I found my four other participants. Permission was granted through less formal avenues.

Step 2: Recruit teachers. Once approval was given, the researcher had proposed to immediately distribute an email (see attached) to all the districts' secondary mathematics teachers, recruiting as many teachers as possible. Once at least 4 participants and 4 alternates were discovered, according to the proposal, the final eight participants would be chosen. At this point, each potential candidate was to be interviewed to ascertain their commitment to the study. The volunteers would have been chosen on basis of their stated commitment and understanding

of what the study requires. If 8 volunteers were not discovered, the search was proposed to expand the number of school districts until the correct number of participants were found. As stated previously, participants were found through networking through electronic means. Therefore, no participants were rejected.

Step 3: Present active imagination process to participants. Each participant was sent a link (<https://www.youtube.com/watch?v=v8TU5KAjV-Q>) explaining the step by step procedure of Jungian active imagination. They were also sent samples of student responses and an example of an Inner Professor Dialogue. The researcher then offered himself as being available to answer any questions the participant had about the study via telephone.

Step 4: Teach participants to teach active imagination to their students to use as daily class closing. This process became the basis of the students' class closings over the next 4 weeks.

Step 5: Distribute and collect questionnaires every 2 weeks, at the end of the week. Instructed teachers to reflect on changes in classroom and teaching process and express these in the questionnaire and/or their Inner Professor dialogue. (Dialogue was collected after the end of the study.)

Step 6: Allow for a duration of study for 6 weeks. This included the collection of data for 1 week after the intervention ended; one week for active imagination instruction to the students and 4 weeks of active imagination closings.

Data Analysis

As for the questionnaires, all statements were categorized as *supportive*, *critical*, or *neutral*, in regards to the closing exercises provided in this study. A ratio was calculated reflecting supportive statements vs. critical statements. Similarly, all presented stories were

categorized the same way (Denzin, 1997). As a result, an attempt was similarly made to report the same percentage of stories in the final report. This report was, in turn, summarized to determine whether all the data supported or negated the processes presented in the research questions. In this way, the subjectivity bias of the researcher was minimized.

Geertz (1974) originated interpretive ethnography. According to Geertz:

The ethnographer does not, and, in my opinion, largely cannot, perceive what his informants perceive. What he perceives, and uncertainly enough, is what they perceive “with”-or “by means of” or “through” ... [This involves] searching out and analyzing the symbolic forms-word, images, institutions, behavior-in terms of which, in each place, people actually [represent] themselves to themselves and to one another. (p. 36)

Therefore, it follows that, in this study, an approach was used that removes the researcher from the process as much as possible but was formatted to allow the teacher-participant to go deep within him or herself. It follows, then, that a good way to achieve such a balance was to create an organized way in which the participant could reveal his or her perceptions without being influenced by the researcher. The act of telling stories achieved this balance (Denzin, 1997).

Denzin (1997) stated that the process of storytelling reveals the personal truths of the writer, whether the story is fact or fiction. The idea is that story could become much more revealing than any other data analysis that could have been employed. Therefore, the most telling data is the story itself. Therefore, in this study, the duty of the researcher was to find the best way to present this evidence. That is, what stories are reported and what stories are not reported. As a result, the researcher categorized each story as supportive, critical or neutral, as it pertained to the practice of class closings. Once they were categorized, a percentage of supportive, critical and neutral stories were calculated. This percentage drove the stories that were reported in this dissertation report.

Another issue of bias arose from the influence of the researcher on the participants, since this process included some interactions between the participants and the researcher. As a result, these relationships were considered in analyzing data. While this kind of relationship added to the richness of the data, it was be handled carefully to be aware of any biases created.

The major shortcoming of this approach was that it was open to the researcher's subjectivity and unconscious biases. However, this can be seen as the researcher's story. Denzin (1997) stated that these two perspectives are part of getting to the truth. Therefore, the categorizing reveals many truths about the researcher. As a result, the researcher has a great responsibility to the process of gathering and interpreting the data to be as transparent and self-revealing as possible. According to Denzen (1997), this vulnerability is necessary to get intimate with the truth.

Limitations and Research Issues

This study basically employed using the psychological method of active imagination to get to the contents of the unconscious mind. However, beyond the usual purpose of using it for psychological growth and awareness, it was used to help teachers become better teachers and students to become better students. Therefore, the warnings of Jung (1958a) and Hannah (1981) still apply.

Jung (1958a) gave two different names to this process: active imagination and the transcendent function. In an essay of the latter name, Jung began with a few warnings on the use of active imagination. He stated that the first two phenomena would be relatively harmless but the last one could be potentially quite dangerous. The first warning was that the process might lead to no positive result. When this happens, the process is very close to Freud's (1968) free association. According to Hannah (1981), active imagination results when combining dream

analysis and free association in a way that broadens the latter. The result of this lack of results is getting caught in one's complexes without any way to escape them.

The second warning Jung (1958a) gave, which is equally minor in intensity and harm, is that the client might become attracted to the results of the associations in an aesthetic way. It is at this point that the client becomes aware of the meaning and moral obligations of discovering such inner information about him or herself (Jung, 1958a), which removes the participant from being able to hide behind the old adage, "Ignorance is Bliss" potentially resulting in the participant recognizing moral obligations and responsibilities, but not wanting to take on those obligations and responsibilities,

The third warning involved the one Jung (1958a) found to be the most serious. This warning is about the high energy of the contents that can be explored and revealed. When these sorts of unconscious contents are experienced, they could open to very powerful energy. Jung stated that they are so strong that they sometimes have the potential to overtake the client's mind. This overwhelming energy could result in mental distress. At an extreme, there could be triggering of major psychopathology, such as bouts of schizophrenia or episodes of psychosis. While this justifies using great caution on the part of the practitioner, he also stated that it had the potential to be an invaluable auxiliary tool for the practitioner.

Regarding the research issues, this study made use of several assumptions. In today's atmosphere of secondary education, how to measure a teacher's effectiveness is quite unclear. Many in mainstream education want to believe that standardized tests are the most effective tool for teacher effectiveness. Some administrators believe that whatever teacher evaluations they are using is the most accurate measurement. However, I believe that there is no clear-cut measuring tool. Therefore, in this study, I have chosen to trust the instincts, perceptions and

training of classroom teachers. I believe they are on the front lines of education and, for the most part, their perceptions are educational realities in their classroom. These assumptions led to some holes in the research of this study. For example, this study proposed that grades and discipline measures could give the neutral observer one possible view that might provide a clear picture of the effectiveness of the teacher. However, it only tells the observer about consistencies, not effectiveness. These assumptions were negated, in my view, by the fact that a teacher has volunteered for the study and, therefore, did not feel overwhelmed by the teaching profession. In conclusion, if these assumptions had a strong basis, then the room for error in this study was minimized. However, if my logic was flawed in any way, then might have led to an unforeseen bias and a less accurate study.

CHAPTER 4: RESULTS

Overview of Cases.

The overarching question of this study was the following: Can the Jungian technique of active imagination be used to improve academic performance of teachers and students in American secondary mathematics classrooms? The proposed plan of this case study research was to have 4 teacher-participants and 4 alternate teacher-participants. Students were not participants in the study; however, teacher interpretations of student learning was a focus of the study. The plan also called for the desired participants to work in a different school district from the researcher. It was further desired that the participants come from schools or school districts that has a reputation for innovative teaching. After a couple of years of searching, the researcher realized that he must just work with what he was given.

The study began in October 2018. The study started and finished with 5 participants, including the researcher. All who asked to be in the study were accepted. As a result, the study was comprised of a homeschooling teacher, 3 public school teachers and the researcher, who, at the time of the study, was a public school teacher. Consequently, the study had no teachers with a reputation of innovation, besides, perhaps, the homeschooling teacher and the ideas introduced by the researcher. On the positive side, none of the participants worked remotely close to the researcher, which could have been seen as potential source of bias if there had been a previous relationship.

For each case, there were two sources of information. The first collective source of information were questionnaires. The participants were asked to answer these questionnaires before the study, at the mid-point of the study, and at the end of the study. The questionnaires asked about the progress of the study, any suggestions for improvement, and for any stories emerging from the study.

The second source of information in the study was from each of the participant's personal written dialogues with the participant's Inner Professor, which is the entity inside a teacher's psyche where teaching ideas and other teaching wisdoms reside. The dialogue was a way to retrieve this knowledge and wisdom.

The dialogues are meant only to reveal the participants' mindsets. The reason these dialogues are significant to this study is because this allowed the researcher to see the depth of acceptance of active imagination as tool of personal and educational growth. That is, this study was based on using a form of active imagination as a class closing. Its deepest intention was to help teachers, and thereby students, to reach inner contents of their psyches.

As I read the dialogues, I could see where the teacher's mind was as they thought about their classes and their teaching. It also revealed their depth of thought towards education. Each teacher was given a nickname for identification. North, the name for one teacher, was concerned with the lack of communication between himself and his students. East was concerned about the methods she used to teach mathematics courses and how her students were reacting to the new intervention. Home saw his professional growth and personal growth as constantly coinciding. These are viable uses of active imagination but at very different levels. It is likely that the students' depth of participation was no deeper than that of the teacher. Teacher's dialogues coupled with their reports regarding student involvement in the closing practices caused the researcher to conclude that most students' introspection was much shallower than the teacher, although exceptions were possible. The dialogues were not intended to be used to directly analyze results of the study.

Case #1

Overview. This participant was named North by the researcher. North is a male teacher at a small, private school for homeschoolers. He has over 20 experience years as an educator and he is retired from the science industry. The typical class size in this setting is less than 10 students. North teaches science and math to middle school-age homeschoolers for 2 days per week and teaches science and math to high school age homeschoolers 2 days a week. He also helps run the school, since the school only has two teachers. As a result, North is very busy as an educator at many levels.

Pre-Study Questionnaire. North's study started on a Monday and the pre-study questionnaire was delivered via email the Friday previous to the start of the study. North returned the questionnaire before class started on Monday. The answers on North's questionnaire consisted of 15 statements. Ten of these statements were supportive, five were neutral and none of them were critical of the study. Among the supportive statements were the following:

- In reference to the study's expected effectiveness, North stated, "I expect this practice to be similar, in its effectiveness, as other, similar, techniques I have used to focus students on the lesson's main ideas."
- On personal growth, North stated, "I will expect the students to grow in their ability to recall the lessons main ideas, and to be helped by learning to shift focus from conscious to subconscious and back again, without losing overall focus on the work at hand."
- On relationships, North stated, "I expect it will help our relationships as we will be discussing the study and its outcomes in a personal way."

Mid-Study Questionnaire. The mid-study questionnaire was delivered via email the Friday previous to the start of the third week of the study. North returned the questionnaire before class started on Monday. The questionnaire's answers consisted of 15 statements. Two of

these statements were supportive, 12 were neutral, and one was critical of the study. North explained these results with the following statement at the beginning of his questionnaire answers; “Note* We only have class twice a week and missed one class this past week due to weather concerns. We have only had 3 classes since the study began, so the data is inconclusive at this point. Expect more feedback as time progresses.” Among the non-neutral statements were the following:

- On effectiveness, North stated, “The students are struggling with it a little bit, but I find it calming and focusing.”
- On considering continuing the practice after the study, North stated, “If it works as expected, yes.”

There were no other non-neutral statements.

Post-Study Questionnaire. The post-study questionnaire was delivered via email the Friday at the end of the study. North returned the questionnaire 23 days later. The questionnaire’s answers consisted of 40 statements. Sixteen of these statements were supportive, 12 were neutral and 12 were critical of the study. Among the supportive statements were the following:

- “The practice creates an anticipated routine of backing away from the stressful nature of learning math and having to prove competency over various mathematical concepts. I found the students were more relaxed, and calmer as class wound down...This reduced the overall level of anxiety which tends to accompany a math class...Like meditation, they came out of this calmer and more relaxed.”

Among the critical comments were the following;

- “I’m not sure if the study was long enough to gauge the academic results of this practice.”
- “For my type of school, this loss of a few minutes may be more important as we only have two academic classes for math per week.
- “I also did not see any signs of personal growth.”

There were also some answers that contained more than one category of answers:

- “Summarization is always helpful, but students tend to resist forming neuro-connections to volumes of facts.”
- “I did not see any negative results. The loss of a few minutes from instruction, of course, but easily offset by the positives.”
- “They did not share their thought processes, but did explain, generally, that they felt relaxed and more ‘in control’, or ‘less stressed about math.’”

In North’s final self-analysis, he stated:

- Our time spent in the study was pretty uneventful, and there are really not any inciteful stories to relate. We had a relatively mundane experience as everyone, independently, went about their own approach to their time “free-thinking” and kept their experiences to themselves. We discussed our experiences to some degree, but as I said, my students are not the most open to sharing their thoughts and feelings.

Dialogue. North’s dialogue was requested via email the Friday, which ended the study.

North responded that he thought that the dialogue was only a mental exercise and that he did not write anything down. He promised, via email, that he would write down the dialogues as he remembered them. He sent the dialogues to me 24 days after the end of the study. I was expecting a page per class day. With North’s schedule, it worked out to about eight pages. I received just over two pages. After reading the dialogues, it quickly became apparent that all the dialogues were focused on how to motivate the students better. In my experiences, motivation is probably the most problematic area for math teachers. The dialogues ended unresolved. At the end, North stated, through his Inner Professor, “Wow. 70’s references and all.....You’re in a rut. You are currently in the 21st century, and need to learn to understand the younger generation; you have to think more like them and learn to relate.”

Summary. North started the study with a very supportive attitude toward the study. At the midpoint of the study, North felt as if there was not enough evidence to draw any conclusion about what he experienced. In the end, he had many opinions about the study and its effects.

Most of the opinions were very supportive of the study. However, the positive intensity of these opinions lost its edge as the study moved forward. That is, North's views of the potential of the practice was very high at the beginning of the study and seemed to diminish to almost nothing by the end of the study. At one point, North even described the experience that the study gave the students and him as "rather mundane." However, he repeatedly mentioned how the practice led to a relaxed atmosphere in the classroom, for the students and the teacher. He often mentioned evidence of a decrease of math anxiety of the students. He even compared the experience as being similar to the effect of meditation. I feel that these are pretty high praises of the practice, despite the view of it being a mundane experience.

On the surface, it seems that North started with high expectations and this enthusiasm diminished as time went on. However, as one looks deeper, there is more positive perspective. While the surface reaction was mundane, the deeper look reveals that the practice led to a relaxed atmosphere that was compared to a state of meditation. In the current mode of testing anxiety, an atmosphere that created a *meditative feel* to the classroom is a great change for a more effective classroom. In addition, this gives a positive light on the teacher's perceived issues of a quiet classroom environment.

North also had a few critical comments that were prominent in his review. His biggest repeated criticism was the length of the study. In his situation, he was in charge of the students, potentially, 2 days per week, which meant, over a 4-week study, he was with his students just 8 hours of interaction. I agree that is too little time to really gauge how much this practice affected the students in the various ways intended by the study. As a result, it would have been better to double the length of his part of the study, so as to gather more evidence and to give the students a chance to become more accustomed to the process.

As for the other critical comments, most centered on the performance and lack of motivation of the students. At one point, he mentioned that they were the quietest group he had ever taught. This makes the kinship of student and teacher very difficult. Therefore, this kind of relationship minimizes the effect of the closing exercise of the students. However, a quick look at the North's dialogue gives an indication that there might have been a tension in the classroom between students and teacher. At the end of the teacher's dialogue, there was a comment about the teacher being in an educational rut. This could have been the cause or the result of this strained relationship. However, there is too little information from the instruments to know whether it is a cause or a result.

The previously mentioned mindset of the teacher seems to have impacted the last instrument of the case study, as well, which was the Inner Professor dialogue. There were issues with this from the very start. In the beginning, the participant interpreted that the Inner Professor dialogue was meant to be a mental exercise. I concluded that the researcher was not clear enough on this point. Even though it was written in the documents at several points, it was the responsibility of the researcher to make this clear to all participants. This was something that the researcher failed to do. As a result, the participant did not realize the physical dialogue was necessary until the researcher asked the participant for this document. In response, the participant volunteered to put together what he could from memory.

This miscommunication was a key element that resulted in the teacher not having a better and more informed experience with this study. The participant seemed to see this exercise as an optional support of the study. The researcher saw the Inner Professor dialogue as a vital half of the study. The researcher believes, through his personal experiences and research, that a deep dialogue with North's Inner Professor would have, at the very least, alleviated some of the

angst North had with his current state of teaching. However, this is under the assumption that North would dialogue with the same depth the researcher had done in his past. This researcher also incorrectly assumed that active imagination would be equally effective for both the researcher and North. There is no clear way of knowing if these assumptions were true or false.

In the end, North's supportive statements to critical statements was 28:13. This means that the non-neutral comments were 68% supportive. He also believed that he would use the practice under "normal circumstances" but felt that his school's mode of operation did not lend itself to such a practice. However, he stated that he had a strong belief in the study's underlying theories. This led the researcher to conclude that North saw this practice as an effective teaching tool; although, the results were not dramatic in its changes.

Case #2

Overview. This participant was named East by the researcher. East was a female high school teacher in a small rural public school district. She also taught some science classes at her school. Public School teachers typically have 25-35 students per class. She seemed to be a valuable member of her staff because her school has asked her, on several occasions, to develop curriculum ideas for their science department. She was very open to classroom innovations, such as this one. East, looking for a way to improve her students' test scores, found the researcher on the internet by looking up his state-mandated test scores. She did other research on the teacher and then contacted him and asked for ideas. Through a series of emails between the two parties, the researcher asked if she would be willing to participate in the study. She agreed that she would. She also attended the same church as Beach and South.

Pre-Study Questionnaire. East's study started on a Monday and the pre-study questionnaire was delivered via email the Friday previous to the start of the study. East returned

the questionnaire 8 days later. The answers to the questionnaire consisted of 36 statements.

Sixteen of these statements were supportive, 10 were neutral and 10 were critical of the study.

Among the supportive statements were the following:

- “I am hoping the students will be able to recall the concepts that they have been taught.”
- “Perhaps I will be able connect to their thought process and maybe help them move forward and to a deeper understanding.”
- “I am hoping that this process does improve academic performance.”
- “I am concerned that my students may not grasp the concept of ‘active imagination.’”
- “I figure I will get some negative feedback about asking them to write.”

Mid-Study Questionnaire. The mid-study questionnaire was delivered via email the Friday previous to the start of the 3rd week of the study. East returned the questionnaire before class started on Monday. Her answers to the questionnaire consisted of 48 statements. Thirty-one of these statements were supportive, 17 were neutral and none was critical of the study.

Among the supportive statements were the following:

“Honestly, the things I was apprehensive about seem to have faded away.”

- “The students have really taken to the writing process. Some wanted to write letters, others emails and few even wrote raps! They actually were excited about talking/writing about the math concepts.”
- “I think that academic performance will certainly improve. They hear the concepts, they take notes on the math concepts, they do homework, take quizzes and tests over the math concepts. They are using math vocabulary in their writing and verbally when they share with each other. They are personifying these math concepts and almost giving them human-like characteristics. I think they will be able to recall the words and their meanings a lot better than just by hearing me say them all the time or simply repeating what I have asked them to repeat.”
- “I am hoping to continue my positive relationship with my students. It does make me smile when they think they have done something that I am going to be proud of, and they are eager to share their work with me!”

Post-Study Questionnaire. The post-study questionnaire was delivered via email the Friday at the end of the study. East returned the questionnaire 11 days later. The answers she provided to the questionnaire consisted of 54 statements. Thirty-two of these statements were supportive, 14 were neutral, and eight were critical of the study. Among the supportive statements were the following:

- “One of my students who is most interested in these writing activities has made an A on the last 2 tests (the two tests we have taken since we started journaling) and before that she had only made grades in the mid 70s and 80s.”
- “The kids still seem to be excited about what they are writing, they always want to know if I read them and what I thought. They always like it when I call them out by name and talk about examples from their writing.”
- “I think that this study has been another component in reaching some of the students that may have been reluctant to share in the past...I have a few students who rarely speak and this was a way for them to have a “voice” so to speak!”
- “I am eager to see how the students use of the vocabulary may come back around in their free responses on the final and then the milestones. (The “Milestones” are Georgia’s end-of-the-year standardized tests.) ...The kids are using the math vocabulary, restating properties of theorems, realizing what concepts they may be struggling with and even sharing with each other. It also gives them an opportunity to be creative, which is not very common in our school system.”

Among the critical statements was the following:

- “Can I keep doing this and keep the kids’ interests? Some seem to be falling off as far as interest...there are still a few who are reluctant to write. Again, I don’t have the “academic” kids and so writing and using their imagination may be hard for them.” (Note: I emailed this participant and shared some ideas I have used in my own teaching experience.)

East also had a suggestion that was worth considering:

- “My other thought is that I would like to have a way to let the kids mark their papers if they are willing to share. I could post some of them or maybe let them lead to other class discussions. Another thought that I had was maybe since I was using Google classroom, I could comment on them to maybe answer the questions that they seem to have. If they wrote a letter to “HL” (HL is the Hypotenuse Leg Triangle Congruency Theorem) because it just doesn’t make sense, maybe I could

be HL and write back with a little more explanation as to the characteristics of HL???" (I emailed this participant and told her how great an idea this was.)

Dialogue. The request for East's dialogues was delivered via email the Friday that was the last day of the study. East returned the dialogues 11 days later. I was expecting about 20 pages of dialogue but only received about 5 pages. The dialogue entries were mostly conversations about lesson plans and how her students reacted to the lesson plans and how she dealt with any negative behavior. This was a great use of the active imagination. This approach is probably the most likely scenario of a typical teacher. School systems load a lot on the back of classroom teachers, giving the teacher little time to do other activities.

However, I was hoping that the participant would have dialogues of greater depth. I believe that, had she produced more pages that represented taking the dialogue to greater depths within, it is almost impossible to not dig to at least a somewhat deeper level. As I read the lesson plan difficulties, I could not help but to think of some solutions that I have used to solve those problems in my own classroom.

Summary. East seemed to embrace the idea of these different kinds of class closings. She seemed to satisfied with "exit tickets", where students would perform a skill taught to them during that class period. However, East seemed more than ready to try a different approach, like open-ended dialogues. What really surprised the researcher was the enthusiasm with which East and her students embraced the new practice. East reported many students sharing their responses with each other and reflecting a great desire to share them with their teacher and for the teacher to share them with the entire class. To me, this is living proof that these students have little opportunity to use their creativity in a positive academic way at this school. (As a side note, I wonder how much non-compliant behavior in schools is about the lack of creative

avenues in classes, something to consider for future research.) It was refreshing to see a teacher, students, and a school get so excited about a teaching method.

The questionnaires revealed a very expressive nature of East towards the intervention. In total, East made 97 non-negative comments about the study. Of those 97 statements, 79 of them were supportive statements. This makes the ratio of supportive to critical statements about 4.5:1 or 81% supportive statements. Of the 18 critical statements, there were 10 in the pre-questionnaire and 8 in the post questionnaire. In the pre-study questionnaire, almost all of the critical comments were about her apprehension towards the study and these apprehensions were mostly about her students' possible rejection of the ideas. In the mid-study questionnaire, she stated that most of her apprehensions were either solved or unfounded. In the post-study questionnaire, all of her critical statements seemed to be focused on ways that the intervention could be improved. All of them were aligned with the general philosophy of the study.

After reading East's dialogues, it became apparent that East believed that this was just an extra exercise. I gather this from the fact that the dialogues were never mentioned in the 42 questions (14 from the pre-study, 14 from the mid-study and 14 from the post-study) of the questionnaires. This reveals the perceived importance of the dialogues to the participant but tells little about the effects of the dialogue on the participant. Why did this happen? It seems that the researcher did not put enough emphasis on this part of the study. Of the participants in the study who were not the researcher, there is no evidence that anyone, besides the researcher, believed that the dialogues were an important part of the study. Therefore, there is little on which to draw a conclusion about the effectiveness of Inner Professor dialogues.

Case #3

Overview. This participant has been named Beach by the researcher. Beach is a female high school teacher at a small rural public school district. As a public school teacher, she typically has 25-35 students in a class. She is a colleague of East and was recruited by her. She attends the same church as East and South.

Pre-Study Questionnaire. As of this writing, this document has not been received.

Mid-Study Questionnaire. As of this writing, this document has not been received.

Post-Study Questionnaire. As of this writing, this document has not been received.

Dialogue. As of this writing, this document has not been received.

Summary. The only documentation I received from Beach was the consent form. I received second-hand information from East that Beach and South had discussed their dialogues during lunch at school one day. They were overheard, by East, discussing their Inner Professor dialogues. She reported to me that they were rather excited about them. That is my only evidence that this participant did anything involved in the study. Therefore, I can make no conclusions because there were no collected data.

However, there are some inferences I can make about the rumored activity of the participants. The rumor shows that the participants were, at the very least, fascinated by the use of dialogues. Along with this fascination was a positive energy towards the practice. This also shows that these participants performed at least one day of dialogue and possibly more than one day. If this is the only data from these participants, although it was collected via rumor, it is enough to assume that it was seen as a positive energy for the atmosphere for learning, for the teacher as well as the students.

Case #4

Overview. This participant was named South by the researcher. South was a female high school teacher in a small rural public school district. As a public school teacher, she typically had 25-35 students in a class. She was a colleague of East and was recruited by her. She attended the same church as East and Beach.

Pre-Study Questionnaire. South's study started on a Monday and the pre-study questionnaire was delivered via email the Friday previous to the start of the study. South returned the questionnaire 15 days later. The answers consisted of 13 statements. Four of these statements were supportive, 14 were neutral and none was critical of the study. Among the supportive statements were the following:

- "I'm expecting to 'see' how students have linked topics and concepts."
- "Expecting to see lots of positive changes—improvements how thoughts are expressed, improvement in communication, improvement in vocabulary (academic and content), improvement in writing ability."
- "Students should be able to use academic and content vocabulary more effectively and efficiently."
- "I hope to be able to do this again next year and to extend this into my other class (different preps)."

Mid-Study Questionnaire. The mid-study questionnaire was delivered via email the Friday previous to the start of the 3rd week of the study. South returned the questionnaire before class started on Monday. The answers consisted of 12 statements. Seven of these statements were supportive, five were neutral and none was critical of the study. Among the supportive statements were the following:

- On the practice's effectiveness, South stated, "More effective...I'm discovering very easily and quickly how students have developed ideas/topics linked in their brains either correctly or incorrectly. I can have a conversation with the student that's

struggling about what they are doing wrong and how to fix it. Also, students are more willing to communicate with me through these journals. They aren't scared to talk for fear of ridicule."

- On examples of personal growth, South stated, "Personal growth---I'm more willing to assign these journals because these students are enjoying writing them because there is free reign as well as thought this would take up a lot of class time, but it isn't. I've also enjoyed reading the responses, and it isn't taking a lot of time doing so.
- "Most students think it's cool! They often read their responses to each other even though it's not a requirement of mine. They are taking ownership of it too!"

Post-Study Questionnaire. As of this writing, this document has not been received.

Dialogue. As of this writing, this document has not been received.

Summary. After reading South's first two questionnaires, I was very hopeful regarding the results in this case. In total, I received 11 supportive comments, 19 neutral comments and no critical comments. The supportive comments were very encouraging of the study. However, I have received none of the concluding documents. This made it a challenge to make conclusions about the South's reflections on the study. It could be that the requirements were too overwhelming for the participant. It could be that the teacher and/or the students just lost interest in the intervention. It could be that the intervention just lost its power in the 4 weeks. It could be that the profession of teaching forced South to put our project "on the back burner." I learned from East that Beach and South are involved in church activities on the weekend. At this point, I am unable to conclude anything without these important documents.

Case #5

Overview. This participant was the researcher and the present author. The participant's pseudonym was Home, for convenience and clarity. Home was a male teacher in a large school district. Home teaches at a charter high school. At the time of the study, he had been teaching high school mathematics for about 15 years. The typical class size was about 30 students. He

was a softball coach and sponsors a couple of clubs, including a dream club. He had been using forms of this opening for his entire teaching career.

As a side note, at the time of this writing, I am a school sponsor for a Dream Club, where the club discusses the dreams that members have had. We meet every 2 weeks in my classroom. It is an interesting fact that none of the club's members were current students in my classes. However, a few were students of mine from previous years.

Pre-Study Questionnaire. Home's study started on a Monday and the pre-study questionnaire was observed the Friday previous to the start of the study. Home completed the questionnaire before class started on Monday. The answers consisted of 16 statements. Eight of these statements were supportive, five were neutral and three were critical of the study. Among the supportive statements were the following:

- "I expect some deeper thinking and connection through this practice."
- I believe that this practice will lead to better academic performance, provided that they go deeply with the practice."
- "I am hoping motivation will increase as they learn more about their Inner Self."

Among the critical statements is the following:

- "Many students will reject the idea, and I need to find better ways to sell the idea."

Mid-Study Questionnaire. The mid-study questionnaire was viewed the Friday previous to the start of the 3rd week of the study. Home completed the questionnaire before class started on Monday. The answers consisted of 21 statements. Eight of these statements were supportive, seven were neutral and six were critical of the study. Among the supportive statements were the following:

- In reference to using this practice after the study is over, Home stated, "Absolutely. It gives the student the choice to give feedback to the teacher in a different way."

“The dialogues have given great perspective about who I am and what my life purpose is. It has also revealed some weaknesses in my teaching.”

Among the critical statements is the following:

- On practice improvement, Home stated, “There is something missing. I just can’t put my finger on it.”

There were also some statements that combined the supportive and the critical statements. For example:

- “A few of them embrace the opportunity to do something that is not so mainstream. Others find ways to completely avoid any mathematics.”
- “Many do not believe that they have any creativity. I responded that almost everything we do involves at least a little bit of creativity.”

Post-Study Questionnaire. The post-study questionnaire was observed the Friday at the end of the study. Home completed the questionnaire by the following Monday. The answers consisted of 35 statements. Fifteen of these statements were supportive, 10 were neutral and 10 were critical of the study. Among the supportive statements were the following:

- When it is practiced sincerely, it gives the student more self-power and, therefore, leads to deeper thinking and learning. As for me, doing the dialogue helps me to focus on things I would have otherwise ignored.”
- “It helps me to discuss the things that really scare me. I sometimes forget how valuable active imagination practices are.”
- “However, for me, I believe I have seen myself in a truer light. Some of it is disturbing and some of it is enlightening. It has led to some deep questions about my true self. Most of this introspection is about my professional self but there are also some aspects of my personal self.”

Among the critical statement were the following:

- “Many do not want to do it because they don’t feel very creative. It is my belief that the logic of modern “schooling” gets kids to believe that only logical responses are valuable. It is rather sad and frustrating to see.”
- “On how the practice can be improved, Home stated, “I am searching for these answers but have come up with none.”

Dialogue. Home's dialogue was completed the Friday, which ended the study. The collective dialogues were expected to be about 12 pages and Home completed 12.5 pages. The dialogues were meant to be reveal the mindset of the participant. In this case, the participant was researcher who is the author of this document. Therefore, the mindset is already known. During the time of the study, the participant was having a good deal of angst about his position in education. He had no doubt that he could still teach but he wondered, through the dialogues, what position he could hold that would give American education its best chance for improvement. By the end of the dialogues, this question was not answered, but it served as an opportunity to express his views and frustrations. It was a great help to his mental state while he personally went through some changes and his school deals with the chaotic state of the school administration. He also saw, as seen through the questionnaires, how important dialogues were to a strong mental state of a teacher.

Summary. The methods of this study were already familiar with this participant because he developed the proposal and practiced these methods for years in his teaching experience. As a result, this participant has seen these practices at their best and at their worst. At the start of the study, the participant was feeling that the practices had become stale and needed adjustments. He also perceived that the students felt the same way. He entered the study with *eyes wide open*, hoping that the other participants would show him something he had not previously imagined that could revive these practices. As of this writing, the participant feels hopeful that the dialogues are ready for some revamping and freshness. As for the Inner Professor dialogues, the participant saw the extreme importance of keeping such a dialogue. As of this writing, h continues to feel that they are absolutely vital to a healthy mindset as a teacher and as a human being. They reveal things that would be otherwise hidden.

When looking at the numbers produced by the questionnaires, there are some interesting trends. With the participant's experiences and mental state towards the exercises of the study, one would think that there would be more critical statements than supportive statements. However, this was not exactly true. The pre-study questionnaire produced eight supportive statements and only three critical statements. This means the statements were 73% supportive. The mid-study questionnaire produced eight productive statements and six critical statements. This means that the statements were 57% supportive. It was also interesting that the number of supportive statements remained the same, while critical statements doubled. Part of this can be attributed to the participant's mental state towards teaching, as can be seen in the dialogues, in that the researcher, himself, questioned his best role in American education. However, much of his critical statements were about the process of student dialogues being at a crossroads for improvement. Despite this more critical nature, the supportive comments to critical were 64% to 36% or roughly a ratio of 2:1. The post-study questionnaire seemed to continue this trend, although the number of comments almost doubled. These were evenly dispersed between supportive and critical for a ratio 6:4 with 60% supportive. This leads to a cumulative rate of 62% supportive. Considering the participant's angst and jaded attitude towards the practices, a 60%+ cumulative number says many positive things about the practice. A fresher and unbiased look would have certainly much more positive numbers. Whereas the student dialogues need tweaking, in the participant's view, the same cannot be said of the teacher dialogues. This researcher continues to believe that Inner Professor dialogues are good, and they are and quite powerful, as they are currently practiced.

Comparison of the teachers' participation. This study started with 5 participants. While none of the participants contacted me and reported that they were pulling out of the

study, I ended with results from 3 and a half cases, since one of the participants failed to turn in the final two documents and one participant only turned in her consent form. Of the three full cases, each had a major source of bias. For North, it was the uniqueness of his education facility. Since it is a school for homeschoolers, he interacted with his students half the amount of days than the other participants' situations.

For East, it was the relationship she had with the researcher. In her search for better ways to serve her students, she reached out to the researcher for help via email. This happened about a year previous to the start of the study. In these emails between these two teachers, she asked for advice about teaching mathematics. Through these emails, East became very interested in his methods and tried some of his ideas. After she volunteered to do the study, she asked a few of her colleagues to also take part in the study. They agreed. For these various reasons, I feel that there was a bias on her part (and possibly on her colleagues' part) to make the study a success. Of course, this is not to say that her colleagues fabricated any results. This is to say that her colleagues may have been more accepting of these methods through social agreement than on the merits of the study.

The last biased participant was the researcher, Home. Home had tried these methods on his classes, in many different forms, since September of 2000. He already had some firm opinions about these interventions and how and when they do not work and when they do work. He tried to be open-minded and unbiased as much as he could but this is impossible by the nature of the relationship. As a result, this led this participant to go into the first day of the study with a more critical eye and ear than the others.

This study was also unfairly influenced by the execution of the study. At times, the researcher did not carry out the project with the precision described in the proposal and other

supporting documents. For example, the proposal dictated that first contact of participants should be done via Skype or, at least, by phone call. Instead, all contacts and correspondence were made via email. There was one exception when East called for clarification at the beginning of the study. As a result, the researcher was denied the non-verbal cues which might have led to more emphasis on certain parts of the study, like the application of the dialogues of the Inner Professor. Of the over 200 questionnaire comments, not one was related to these dialogues. This was the most glaring flaw due to execution but there were others of less note.

Overall Summary

On the surface, this study was designed to gather evidence relating to two possibilities: whether active imagination by students can lead to deeper learning and if active imagination work by teachers can lead to deeper teaching. Below the surface, there is an implied objective: To help the researcher to become a better researcher and teacher.

As for the surface goals, one went a long way to achieving the stated goal and the other barely scratched the surface. The practice of active imagination by students led to another way for teachers to monitor students' progress in a mathematical subject area. As a bonus, the students seemed to enjoy the process of doing active imagination for a class closing. Students and teachers seemed to approve of the process as a monitoring tool. However, the brief study failed to lead the student into a deeper level of their consciousness, which was an unexpressed and underlying purpose of this study. Linear thinking would tell us that what is required is a longer study. However, in my experience and in the experience of at least one of the participants, after a few weeks these exercises start to run out of steam. Therefore, a longer study would not solve this dilemma. Taking a more holistic approach, one is led to believe that, in order for the student to go deeper, the teacher needs to go deeper and, in turn, the researcher

needs to go deeper. The question is “How?” This is an unanswered question at this point. Paradoxically, this is the goal that went a long way because, despite its lack of depth, the teacher gained a valuable tool for assessment of learned concepts.

As for the surface goal that was barely scratched, active imagination for the teacher was barely mentioned in the questionnaires. In my experience, it is an invaluable tool to come up with teaching ideas and as a monitor to the teacher whether she or he is teaching from a deep place in her or his psyche. The question of its usefulness was left unanswered. The researcher had already decided about its importance through his experience and education. However, this importance was not translated to the other participants. One was led to believe that it was a purely mental exercise and the other full participant used it very briefly to reflect on some outer experiences in the classroom. As a result, the use of active imagination as a tool of deeper introspection was inconclusive for a lack of evidence.

As for the underlying goal, some great progress was made. The design of this project was not flawless but it seemed quite solid. However, the execution of the project was severely lacking. This all started with the recruitment progress. The researcher took much advice about the recruitment process and many of the ideas produced little direct fruit. Little *direct* fruit because one of the participants was found through a search through social media. On the other hand, the other participants were found rather miraculously; one of the participants found me through an Internet search of my state test scores and my school website. From her contact, came the last two participants. The randomness of this unfolding of the project led the researcher to be less assertive in following the procedures of the proposal. From these flaws came great learning of how research should be done.

CHAPTER 5: DISCUSSION

Overarching Research Question

Can the Inner Self be reached in the student and the teacher using procedures based on Jung's (1958, 1969d; see also B. Hannah, 1981, R. Weaver, 1973, Jacobi, 1973) Active Imagination, in order to improve teaching and learning? Before discussing this question, it is worth reviewing some key terms defined earlier in this context.

To begin, the Inner Self is important to understand. Sharp (1991) defined the Inner Self as "The archetype of wholeness and the regulating center of the psyche; a transpersonal power than transcends the ego." That is, it is any person's psychological core.

As for teaching and learning, these terms can vary depending on pedagogical ideals. In general, in some models of education, it was believed that the teacher has information to share and the student is in a position to gain this knowledge. However, some mainstream educators see this information as knowledge of facts and skills. In the current age of the Internet, this is less true with most students. That is, they can find almost any facts they need from the Internet whether they are in their homes, schools or libraries. Therefore, teaching and learning is even more than ever about learning to think and problem solve, to learn how to approach information in an efficient manner. As a result, the teacher is most effective when he or she serves as a model for thinking and finding information as well as *using* resources.

In this study, participants were introduced to active imagination. Jung (1969d) once stated that active imagination was what has been called *the royal road to the unconscious*. Through the dialogues, the participants were introduced (or re-introduced) to a spokesperson of their unconscious mind as well as to a pathway to their unconscious minds.

With this being said, the real question is how did the participants use this new tool to the unconscious mind? As for the Inner Professor dialogue, the participants used this tool as a way to find out where their teaching mind was. North used it to examine his current desire for teaching and his connection with his students, or the lack thereof. East used it to examine her specific teaching practices and to look for ways to improve these techniques. As for Home, he used the practice as an avenue to personal and professional growth and to try to discover the next step for his relationship to American education. Although South and Beach did not reveal their dialogues, it seemed apparent that these dialogues helped them to gain insight and to enjoy their profession more.

These are very different depths but all seemed to help each teacher with her or his professional growth. In the end, this was a tool of growth for all participants. This tells me that this part of the study promoted teaching *and* learning on the part of the participants.

Even though they were not part of the study, there seemed to be some changes in learning, as reported in the students of the participants. As witnessed by the positive responses reported by the participants, the use of dialogues led to some joy of learning that did not exist before the study, even if it seem to be short-lived. Therefore, it can be concluded that this study led to some deeper learning, as defined previously.

In addition, there was a deeper level of teaching provided to the participant's students. In my experience, when I teach a class, I am not just teaching the students present. If my teaching is really effective, the word spreads. Students in the class tell their parents. They tell other students. They tell anyone who will listen. It is my impression, from the statements of students, that this method will be shared with others. With this, others are discovering a new tool for a model of learning.

Does this mean students were involved in this study? No, I don't believe that they were in the sense of supplying data or offering identifying personal information. I believe that they were influenced merely by being near the subject and discovering a great tool for learning and retrieval. To answer the research question, it can be clearly concluded that the Inner Self was used to improve teaching and learning, as was previously defined. However, I strongly believe that, with more time and depth, this teaching and learning improvement could be achieved at a much deeper level.

Research Sub-Questions

Research Sub-Question #1

Can the Jungian technique of active imagination be used to improve academic performance of teachers and students in American secondary mathematics classrooms? The answer to this question is inconclusive. There was success in using dialogues as a method of academic feedback of informal assessment. As expressed by most of the participants, the study was not long enough to determine any effect on academic improvement, although all expressed a belief and hope for this result. However, none of these dialogues could be really considered as active imagination, as intended by Jung (1958, 1969d; see also B. Hannah, 1981, R. Weaver, 1973, Jacobi, 1973). That is, most of the dialogues showed very little evidence of the practitioner going deep enough to say that the person was penetrating into the unconscious.

The study was designed in a way to introduce the participant to a simplified version of active imagination. It was then hoped that the participant would see the power of this method and would voluntarily go deeper into their unconscious and Inner Self. This deeper place would then promote some inner growth in the participant. It was further hoped that the participant would then, in turn, promote this growth in his or her students. I do not mean to imply that the

teacher would coerce his or her students to follow this practice. What I do see is a scenario where the teachers would see the immense power of active imagination in their teaching and would be inspired to influence students to do their own investigation into the practice. In no way do I expect, or condone, a teacher to practice psychology for which they have not been trained. This would be unethical and illegal.

This scenario never took place. Perhaps a longer study with more in-depth instruction would produce the desired results.

Research Sub-Question #2

Can dialogues with one's *Inner Professor* lead to better problem solving through creativity and living symbolically? Of the 5 participants, 3 produced their final Inner-Professor Dialogues. In each case of produced dialogues, there was ample evidence that these Inner professor dialogues led to more problem solving through creativity and living symbolically. However, two of the three dialogues were rather brief in length. As a result, they did require the researcher to go very deeply into his own unconscious mind to attempt to understand what was occurring for the other participants. It is the belief of the researcher, through his own experience and research, that longer dialogues would lead to a deeper exploration into their unconscious mind. This could lead to personal growth or professional growth as an educator or both, depending how much these two worlds are intertwined in the psyche of the educator. That is, the growth is dependent on the approach the participant took towards participating in the dialogue. A deep dialogue into teaching methods, for example, should help the participant to become a better teacher. A deep dialogue into personal motivations, for example, should lead to greater personal growth. Any combination of these approaches should lead to growth in both areas, proportionally. This deeper exploration would, in turn, lead to deeper problem solving

and creativity, whether personally or professionally. In this case, there would be little choice but to live more symbolically. However, this is purely a projection on the researcher's part. There is no evidence in this study to support this notion. Therefore, the answer to this question is inconclusive, due to a lack of extended evidence.

Future Use of Intervention

As a closing exercise in a mathematics class, this study serves as a great starting point. Some positive responses were observed, suggesting promise in this approach as utilized or with some modifications. As seen in a couple of the questionnaires, the energy of this type of closing runs out of energy after about 15 class days. At this point, this exercise needs tweaking in order to match the demands of the students and their learning. In my experience, the exercise needs more flexibility.

This issue brings up the question whether this practice was successful because of its novelty. There is some truth, I believe, to this argument. However, I also believe that, as this practice is used over time, there could be incentive to go a little deeper over increments of time. In that way, the practice stays fresh and interesting. It should also be said that, as the psychemining goes deeper, resistance will arise from students. At this point, the teacher might need to become more flexible in the forms accepted for this exercise. In this way, the teacher could choose a path of least resistance to keep students engaged in the exercise.

However, the intervention used as a classroom exercise was a secondary goal. The primary goal of this study was to give students and teachers an avenue to tap into their unconscious minds in order to promote deeper and longer-lasting education. In my experience, there is little retention of mathematical concepts from year-to-year among high school students. It is my conclusion that this is the result of not taking the mathematics very deeply by the

student. To put it another way, students have a desire to memorize step-by-step calculations in order to pass tests and complete assessments. In this way, they are quickly forgotten after these required tests are taken and assignments are completed.

However, if these concepts were taken deeper and taken in a personal way, I have concluded that the student would retain these concepts longer. This ownership should then lead to a deeper and longer-lasting education. In this way, this practice is more about personal ownership than about any sort of therapy.

This was not fully accomplished. Despite this failure, this researcher continues to believe that this can be accomplished more fully and in a more convincing fashion.

Delimitations and Limitations

Despite the successes of this study, there were numerous areas of limitation during this project. The list below is not an exhaustive list but is one that is a result of the researcher's introspection. Any limitations not listed are a result of the researcher's blind spots regarding his research practices.

- *Researcher's lack of experience.* As expected, the experience of this researcher is rather limited. As part of his degree, he ran a pilot study as preparation for this project. This was extent of the researcher's experience as a researcher. As a result, many beginner mistakes were made, like attention to precision of the project.
- *Limited understanding of active imagination by participants.* As part of his research and life experience, the researcher was very familiar with active imagination as a tool of psychological improvement. However, he was alone in this knowledge within this project. As a result, it was incumbent upon the researcher to translate the activity to the participants. This was not clearly communicated.
- *Limited to one form of active imagination.* Active imagination can be done through writing, painting, drawing, dancing or any other form of self-expression. However, the scope and timing of this project limited the practice of active imagination to only one form (dialogues). Therefore, this study only aligned with people whose best mode of expression is writing.

- *Brevity of study.* As commented by one of the participants, the duration of 4 weeks for the study was too short. It was mentioned several times, by the participants, that the study was not long enough to measure any change in academic grades. Also, as mentioned by North in his questionnaires, the study should not have been dictated by the number of academic weeks but by academic days or, maybe, hours. As a side note, one participant mentioned that students started to lose focus in the exercise after about 3 weeks. This is partially due to the limited nature, in many ways, of the study.
- *Limited pool of participants.* Given this unique approach to teaching mathematics, it was difficult to find mathematics teachers of *like mind* to do this study. Compounding the difficulty is the extra work asked of already over-worked teachers. These facts contributed to a very limited pool of possible participants.
- *No clear avenues to find teachers of like minds.* In addition to the limited pool of possible participants, there were no clear-cut ways to contact teachers of like minds. Many attempts were made to contact these people through social media. Obviously, there were very few direct fruits of these labors. To my mind, this is not to assume that there are no other educators of who would understand what are the core beliefs in this method, but to illustrate the difficulty in reaching these types of educators. If their experience is like my own, they try to keep a low profile because their methods are misunderstood and likely helps to put an administrative target on their back. Therefore, they are unlikely to respond to any mainstream call to action created by the low trust in mainstream outlets.
- *Built in biases.* There were various built-in biases held by the participants. Home had done the practices for many years previous to the study. East joined the study after being impressed with the researcher's students' state test results. This led to an unfounded belief in the researcher's teaching methods. This bias was likely second-hand bias of South and Beach, although there is little evidence of this bias, due to a lack of total participation.
- *Limited compliance by participants.* Many of the documents were either late or never returned to the researcher. Two pre-study questionnaires were a total of 23 days late and another was never returned. A mid-study was never returned. Two post-study questionnaires were returned after 34 days and two were never returned. Two Inner- Professor dialogues were 35 days late and two were never returned. As for the tardiness of the post-study documents, this might not have affected the responses. However, the tardiness of the earlier questionnaires had a negative effect on the results. The later the questionnaires were, the less authentic and accurate they were in their responses. The missing documents represented unanswered questions and, therefore, created missing evidence that might have allowed answering the research questions more completely.
- *Geography.* The participants lived about 275 miles apart and in excess of 100 miles from the researcher's home. While this prevents much social interaction by chance

of the participants (leading to additional bias), it also made it difficult for the researcher to support the other participants in a personal way.

- *Limited to one state.* Although the participants were not close geographically, they all resided in the same state (Georgia). This limited perspectives about education objectives and general attitudes and cultures about education.
- *Extra time of participants.* It should be remembered that all the participants were secondary mathematics teachers. As result, they were asked to spend extra time on activities that they probably did not have time for the work the research required.
- *Not at my home school.* This was by design but it is one of the many limitations that were considered when difficulty arose from searching for participants. I viewed this issue as one of the strongest potential sources of bias. The biases could potentially emerge from many levels. On one level, participants would be likely to report results that would be agreeable with the researcher or disagreeable, depending on their relationship with the researcher. At a deeper level, the unspoken part of the relationship was also a problem. That is, every interaction, or non-interaction, with the researcher comes into question. The researcher then wonders how much of the interaction is due to the pressure of doing the study. It is probably best to have participants who have little or no previous relationship with the researcher.
- *Researcher already tried these ideas.* When the study began, the researcher had been using the ideas of this paper in his classroom for several years. As with most new ideas, the life of the idea has its own ebbs and flows. Applying this to this idea, the researcher witnessed at times a great success and times where the idea seemed stale and had lost its power. Therefore, the researcher approached the practice of this technique, or intervention with great skepticism at times and great hope at other times. However, these views were not always matching with the results as they were happening. For example, when a participant was feeling great hope, the researcher occasionally thought about what it felt like when the technique *ran out of gas*. On the other hand, when a participant felt doubt about the technique, the researcher remembered times when the closings felt really great and hopeful. In the end, the researcher knew that this could be a good technique, through his own experience and experimentation. As a result, he was always looking for a way to improve an already positive intervention to mathematical education. The search for a better way was probably the source of this occasional *oppositional thinking* through past experience.
- *Researcher had strong opinions about process through experience and experimentation in his own classroom.* As pointed out in the previous point, the researcher had previous experience in using these types of openings. As a result, the researcher had some pretty strong opinions about this study. This confidence in the process does not only come from success in the classroom but also from a similar study that the researcher had taken on (Guynn, 2015) As a result of this confidence, the researcher felt that the study would eventually confirm his beliefs in the process. With this kept in mind, the researcher consciously worked on minimizing this bias.

- *Researcher had a more critical eye.* This point is a culmination of the previous two points, as well as, perhaps, a remedy for the biases. As a resulting consequence of seeing the ups and downs of the technique and knowing the biases of the researcher, this point was a help in minimizing the skewing of the study. By having a critical eye towards the technique, the researcher developed a skill for seeing anything that deterred from the purpose of the technique and had the ability to analyze the source of the detour. With this critical and analyzing eye, the researcher was able to recognize when his own biases were causing him to see the study from a view of biased lenses. In this way, skewing of results was minimized.
- *Few participants.* The study was intended to have four participants and four alternates. However, after many months of searching, 5 participants appeared seemingly from nowhere. At this point, I had to make a decision; I could try to find another 3 participants, choose an alternate and start with prescribed 4 participants or start with 5 participants and wait and see what happened. I decided on the last idea, and I am glad that I did, given that 2 of the participants never returned all of the agreed documents. When I first settled on 5 participants, I decided that the researcher as a participant would be the 5th participant. That is, if all participants exercised full participation, then I would exclude the data collected from the researcher's experiences. At this point, the practice of the researcher would be included as an exercise to understand how much extra work the study required of a teacher. As it turned out, the researcher-as-participant was deemed necessary. The few participants also amplified my inability to effectively recruit participants. Retrospectively, I realized that I, given two routes of recruitment, always chose the route that required the least of me. That is, if I was given a contact's phone number and email address and physical address, I would email first, text second, and then plan to write them a letter (which I never did.) I would never take the route of calling them on the phone, for fear of rejection. This revealed a weakness that needs a lot of work to resolve in my professional life.
- *Researcher as a participant.* This is a situation that I tried to avoid throughout the study. However, when I first recognized the weaknesses in recruiting, I realized that this might be a necessary route. After getting permission from my dissertation committee, I decided to fully embrace the idea. I viewed this step into another source of bias, it ended up being a plus to the study. By actively participating in the study, I understood more fully the work of the participants. It helped to realize how much extra work I was asking of the participants. The practice also helped me to focus on what kind of information could be expected from the results. In the end, the positive results of this point far outweighed the bias that such a position may have caused this study to be skewed.
- *Incomplete data.* At first, this was a very disappointing delimitation. After hearing, from East, that the participants who did not turn in the documents were heard discussing their dialogues with the Inner Professor, I found myself really looking forward to reading their results. However, this never happened. After getting over

this disappointment, I soon saw what was positive in this situation. First of all, I was very encouraged that teachers were so attracted to the practices that they openly discussed them made me feel as if those unwritten words would have been positive. Secondly, I realized that Interpretive Ethnography is not just the evidence one gathers but also the evidence that is not gathered. This forces the researcher to ask, “Why weren’t these items returned to the researcher?” Was it too much to ask? Did it bring forth undesirable issues about the participant? Did the practice lead to other things that made them forget about the researcher and focus on how to use this information in their teaching? Did the researcher’s lack of investment lead to this non-compliance? With every question, the researcher receives more insight about the study, and hence, no data is really data.

- *Three participants at the same school.* When the researcher first realized that 3 of the 5 participants were at the same school, he was concerned about one participant’s experience negatively influencing the experience of the other participants at the school. I pictured a weaker colleague *just following along* in the opinions of the other participant. Where that scenario was possible, deeper thought made me realize that this scenario was probably unlikely. I concluded this for several reasons. First of all, they chose to be teachers, which is not the most popular of careers. Secondly, they are math teachers, an even rarer career choice. Furthermore, they had just volunteered for a very unusual study that offered no financial rewards. For these reasons, it was very unlikely that they would do anything to make independent decisions. In summary, there was a chance these participants were being victims of *following the leader* but the chances were small enough to overlook.
- *Size of school districts.* This was a point where my impression did not change. From the beginning of the process of finding a project to pursue, I wanted to avoid large school districts. I currently work in a school district that is home to 18 high schools. From working here for 9 years, I have seen how inefficient things run in such a large and diverse place. It is full of templates and policies that are inappropriate for many of its schools, employees, and students. This understanding is consistent with a couple of other educational authors (Kytyle,2012, Solmitz,2001) Smaller school districts, on the other hand, have the ability to make changes through a more streamlined organization by merely being a smaller organization. In the way, smaller governing bodies were more apt to respond to the personal needs of individuals without sacrificing the greater good of the entire organization.
- *Study execution.* This was probably the biggest limitation of this study. It is my opinion that the structure of this study was solid if it had been executed properly. Unfortunately, the researcher was a bit sloppy in its execution. Once volunteers came to him in non-designed routes because he felt a fear of following the rules he set forth would scare away the few participants he had collected after a long wait. As a result, he tried not to add anything that seemed *extra*. As a result, in the execution of the research I avoided any personal contact, via Skype or phone calls and I lacked a personal touch. Ironically, this personal touch is one of this researcher’s top requirements of teaching a high school classroom effectively. In the end, two

participants dropped out prematurely and the remaining participants ended up submitting less than expected dialogues with their Inner Professor. In retrospect, all of these issues could have been avoided if the study was carried out with more discipline. There is no guarantee of such a solution but it certainly would have minimized or, at least, given reasons why this was not carried out.

- *Avoiding technology and/or personal contact with participants.* At the bottom of the last point is this point. For some unclear reason, the researcher avoided personal contact with the participants. His conscious voice told him that he was already taking up too much of their time. But this researcher feels that there was more to it than that. He feels that there something in his deep psychological profile that tried to sabotage the study by avoiding this very part of the study. Fortunately, there was something in him that helped to prevent this sabotage.
- *Lack of non-verbal cues.* This was a direct result of the previous point. This is what makes personal relationships in the classroom so powerful and important. By avoiding something like a session on Skype, other experiences are lost from this loss of available non-verbal cues. These non-verbal cues can lead to more trust between the researcher and the participant as well as provide opportunities to areas where there is confusion and miscommunication. This is one of the main skills developed by teachers. (This may also be true of therapists and clergy.) On top of all this, these non-verbal cues can also serve as an extra source of data to be followed up on and interpreted.
- *Lack of attention and focus on dialogues.* As concluded earlier, this lack of attention is possibly a result of not following the protocols outlined in the proposal for this study. However, this may not be entirely the case. As I look back, there are two scenarios among many others that might be possible. First, the researcher could have been unable to truly express the importance of this part of the study without overwhelming the participant. In the second scenario, I could assume that the participants got a clear understanding of the importance the researcher attached to accessing the Inner Professor and conducting dialogues. However, once the study started, the participant might have not agreed about the power and value of the dialogues. At this point, the participant had two choices; ignore his or her reservations about the exercise and attempt to produce a page a day, as prescribed by the researcher or be true to his or herself and ignore the requests of the researcher. However, without the communication earlier outlined, the researcher can only make vague conclusions about this outcome.
- *Relationship with quantitative research.* This point is a deeper issue with a personal history behind it. It has become apparent that this story needs to be shared so as to be transparent about this issue, as a possible source of bias in this study. When I entered my graduate program at Saybrook University, my career paths were a land surveyor and a mathematics teacher. Having this background in engineering and mathematics, I was a strong believer in quantitative methods as a way of proving things with no room for biases. At that point, I felt as if the only way to prove anything was through

mathematics and logic. Early in my graduate work at Saybrook, I learned the value of qualitative methods. Up to that point, I had only heard of the word with no concept about what it meant. As I learned more about it, I realized that it did not always tell the entire story. There was something missing. It felt as if I was building a brick building with no mortar or a steel ship with wooden pegs. At least that is how I felt about research on things that were alive, like the human mind. I was sure that this approach still worked for mechanics, as long as *all* factors were accounted for. This brings me back to laboratory, a high school classroom. I believe that this place is alive at it gets. It deserves the fullest picture one could paint and Interpretive Ethnography with support of some mathematics was the best route to do this. I do not believe that this is a rejection for one form for another but a blending of two forms for a fuller picture of reality, although a perceived reality. In addition, Quantum Physics has showed us that perhaps we have not considered all factors in the equation. It is my experience that this blending is the best we can hope for until we can clearly say that we have considered *all* factors.

Summary and Conclusions

This study started as an attempt to connect with teachers' and students' Inner Self. This researcher believes, that this is a pathway that leads to deeper teaching and deeper learning. In addition, he believes that this mode of learning leads to greater retention on the part of the student. This study's intention was to start the process at the surface and then help the student and the teacher to *mine* into each's unconscious mind and find the wisdom that makes each of us great in our own way. During the process of this study, this researcher learned that the surface is hard and this mining to the unconscious will take much more than just a few weeks. It also requires the researcher to communicate his views much more clearly to others.

This multiple-case cross-case study presented an activity as a starting point for stakeholders' personal introspections. It had 5 teachers serving as inside reporters for 6 weeks, including one week of preparation and a week-long wrap up. This was done by teaching participants AI, assigning dialogues as student assignments and keeping a journal of an IP-Dialogue. Student comments ranged from "This is cool!" to creating a math rap and a conversation with the hypotenuse. It asked participants to reflect through bi-weekly

questionnaires and personal dialogues, focused on improvement. Supportive comments increased throughout the study and totaled 149 supportive comments, opposed to the 50 critical comments which shows a supportive to critical ratio of 3 to 1. As a result, the participants received a tool for assessment and communication to personally develop. Greater creative and symbolic educational practices resulted. The conclusion is that assignments can be open-ended and give students more creative freedom but still be used as an accurate assessment tool.

As a result, this study has presented a class closing that should serve as a starting point for a conversation with a few teachers' and their students' unconscious mind and, as a result, each person's life purpose. This life's purpose is, in my mind, the real purpose of a deep education. The discovery of this life's purpose is a discovery that could reveal itself far into the future. For the moment, the participants have received an assessment and communication tool to develop for their own purposes. This tool for assessment and communication is the only conclusive part of this study. The conclusion is that class closings can be open-ended and give students more creative freedom but still be used as an accurate assessment tool. I believe all who were part of this study agree on that point.

Future Research and Further Directions of This Study.

Given the lack of conclusions and flaws in execution of this study, there are many directions that this study could go in a next step. If a researcher looks at the one conclusion that was established, dialogue as an assessment and communication tool, then a researcher could do a longer study to check the academics effects of such a closing. This would justify the beliefs of most of the participants of this study.

A researcher could also repeat this study and expand the level of knowledge of active imagination of each participant by giving a more in-depth training session of what active

imagination is. Of course, since the participants would be teachers, it would be most prudent to give this training during the teachers' summer breaks, just before school commences.

Another direction that could be taken is to repeat the same study but, instead of strictly using email as a mode of communication, a more personal approach could be taken. In this way, the researcher could give a more balanced approach in respect to student dialogues and teacher dialogues with the Inner Professor. These personal interactions could also be useful in guiding teachers, and, in turn, students to a deeper place within their psyches. In the way, the usefulness of active imagination could be more fully tested. Of course, this assumes that the researcher has solved the problem of find like-minded participants.

In this study, much energy was exerted in writing about the methods and power of the techniques used. However, very little effort has been used to address how to recruit and select participants in such a study. If this study is repeated in any form, a great amount of effort should be made into what an exemplar participant would look like and act like. The ideal group would cover many district and school sizes, would be represented by private and public schools in various regions of the country, include different teaching styles including mainstream idealists as well as innovative idealists, differ in ages and experiences, as well as many different personality types. In this way, a clearer picture can be made revealing the best circumstances in which this practice works and where it does not. To do otherwise, is to give educators a template, which is the last thing educators need, according to my experience as a teacher.

It should also be pointed out that this project does not have to be restricted to schools, teachers, and students. Teaching and learning mathematics is basically learning and practicing new skills. That is, the classroom is essentially a place of performance. Therefore, this kind of study could be altered to include almost any type of performance. It could include any athletic

or entertainment endeavor or any learned skill like surgery or yoga. There is no limit to the possibilities in using active imagination to improve performance and acquire new skills.

My advice to further research related to this project, would include the fact that I believe the best approach of methodology is the one I used, which is Interpretive Ethnography. However, the way I used it could be improved as well. In retrospect, it appears that I did not give quantitative approaches the respect it deserves. In the future, studies should make an effort to have better blending of quantitative and qualitative approaches. In this way, a fuller story of the intervention can be told. To give a sports analogy, it is like trying to describe a major sporting event without numbers or trying to get the full picture of a particular sporting event by just looking at the box-score. Neither approach gives the full picture of the beauty and passion of the event.

As previously mentioned, this study should serve as a starting point to the changes that need to be made in American education. I sincerely hope that it helps to move this conversation forward. During the writing of this dissertation, many other different ideas about mathematical education have come into my conscious awareness. I have ideas from discussion-oriented tests in math classrooms to a classroom without deadlines, except for the end of the semester or year, to giving students choices on assessments, as well as other innovative ideas. I expect that this study is a starting point for those ideas as well.

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APPENDICES

Appendix A: Questionnaire Protocols for Study

These questions will be distributed on Monday of the first and third weeks of the study. They are expected to be returned by the following Friday.

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

1. What are your further questions about the practice of these closing exercises?
2. What questions or concerns do you have about this study?
3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?
4. What are some examples of positive changes you have seen in your students or yourself during this study?
5. What are some examples of negative changes you have seen in your students or yourself during this study?
6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?
7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

10. What is the difference in motivation in the students and yourself since this project began?

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

12. Do you have any questions or concerns that you would like to discuss?

13. How can this practice be improved?

14. Are there any stories you would like to share that were a result of this intervention? These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

Appendix B: Instructions

Instructions for Brief Training About Jung's Active Imagination

1. Watch the following video: <https://www.youtube.com/watch?v=v8TU5KAjV-Q>
2. Ask for and read an example of an active imagination dialogue from the researcher.
3. Skype, Facetime or call researcher to discuss details of doing an active imagination dialogue.

Appendix C: Introductory Letter

FROM THE DESK OF
CLAUDIUS GUYNN

September 29, 2018

Claudius Guynn
Saybrook University
475 14th Street
9th Floor
Oakland, CA 94612

To whom it may concern;

My name is Claudius Guynn, and I am a doctoral student in the Psychology program at Saybrook University in Oakland, California. In an effort to fulfill my degree requirements, I have chosen to complete my dissertation by designing a multiple case study with four participants and four alternates who are secondary mathematics teachers. The purpose of this research is to explore and describe how class closings based on the approach of doing active imagination can be used as a more effective way to increase academic performance and connection between classmates and teachers. The participants will be watching a video on active imagination and each teacher will be guided, by the principal researcher, how to apply this practice and philosophy into their class's daily classroom routine. The inclusion criteria for this project will include mathematics teachers who are willing to use this approach in their classroom and are willing to report their (and their students) changes over 4-week period. Eight people will be selected based upon their commitment to the protocol.

I am the principal researcher and will partner directly with each participant via one one-to-one telephone or Skype consultation, which will be scheduled prior to the beginning of the study. Educational materials, pre/post and incremental questionnaires, and a dialogue notebook will be used to collect data for the cross-case analysis that will be included in the report. The initial phone call will be two hours in which we will review the objectives, consent form, educational materials, and assessment results. The researcher will also be available for any questions or concerns during the study.

Interested participants will receive a consent form, which will outline the purpose of the study, procedures, benefits, and protections for confidentiality. There will no materials in the study that require more than a minimal financial commitment. (The only potential cost is perhaps a notebook.) Your contribution in this multiple case study will inform researchers and practitioners within the field of education how to facilitate the design of realistic and meaningful applications that can be appropriately offered to teachers seeking to (1) improve

student academic performance, creativity, and growth, (2) increase connection between teacher and students, (3) promote student involvement, (4) promote learning mathematics to a deeper level, and (5) improve student and teacher growth.

If you wish to be considered as a participant in this study and have further questions please refer to the contact information below:

Claudius Guynn, M.A.

Certified secondary mathematics educator in Georgia and Virginia

Appendix D: Introduction

My name is Claudius Guynn. I am a doctoral student at Saybrook University in California. I am conducting a research study on using active imagination in secondary mathematics classes. I am completing this research as part of my doctoral degree. I invite you to participate.

Activities:

If you participate in this research, you will be asked to:

1. Learn about active imagination
2. Use active imagination dialogues as a daily closing exercise in a mathematics class(es) that you teach.
3. Keep an Inner Professor dialogue notebook. Each participating teacher is required to keep an Inner Professor dialogue. In a private notebook or a computer file (depending on the comfort level of the teacher), each teacher is to start a dialogue with their Inner Professor. As the name suggests, the Inner Professor is the part of the teacher's psyche where the teacher's teaching wisdom resides.
4. Answer bi-weekly questionnaires

Eligibility:

You are eligible to participate in this research if you:

Teach a secondary mathematics course in the United States

You are not eligible to participate in this research if you:

Do not teach a secondary mathematics course in the United States

I hope to include 4 active participants and 4 alternate participants in this research.

Risks:

There are minimal risks in this study. Some possible risks include: discovery of deep personal psychological issues.

To decrease the impact of these risks, you can: stop participation at any time and/or, refuse to answer any questionnaire question.

Benefits:

If you decide to participate, the direct benefits to you are awareness of new teaching ideas and discovery of some deep personal psychological resources.

The potential benefits to others are: more effective teaching modalities.

Confidentiality:

The information you provide will be kept confidential to the extent allowable by law. Some steps I will take to keep your identity confidential are: I will use a fake name or number to identify you, and/or, I will keep your name separate from your answers.)

The people who will have access to your information are: myself and my dissertation chair and my dissertation committee.)

I will secure your information with these steps: locking the computer file with a password and transporting it in a locked case.

I will keep your data for 7 years. Then, I will delete electronic data and destroy paper data.

Contact Information:

If you have questions for me, or any other related issues arise, you can contact me at: cguyenn@Saybrook.edu or (757)362-6944.

My dissertation chair's name is Robert Schmitt, PhD. He works at Saybrook University and is supervising me on the research. You can contact him at: rschmitt@Saybrook.edu or 707-328-4122

If you have questions about your rights in the research, or if a problem has occurred, or if you are injured during your participation, please contact the Institutional Review Board at: SIRB@Saybrook.edu or 510-593-2935.

Voluntary Participation:

Your participation is voluntary. If you decide not to participate, or if you stop participation after you start, there will be no penalty to you. You will not lose any benefit to which you are otherwise entitled.

Signature:

A signature indicates your understanding of this consent form. You will be given a copy of the form for your information.

Participant Signature	Printed Name	Date
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Researcher Signature	Printed Name	Date
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Additional Costs:

There are no anticipated financial costs to you.

New Findings:

Sometimes during a study, we learn new information. This information may come from our research or from other researchers. If new information might relate to your willingness to participate, I will give you that information as soon as possible.

Appendix E: Inner Professor Dialogue Instructions

Instructions for keeping Inner Professor Dialogue (teachers only)

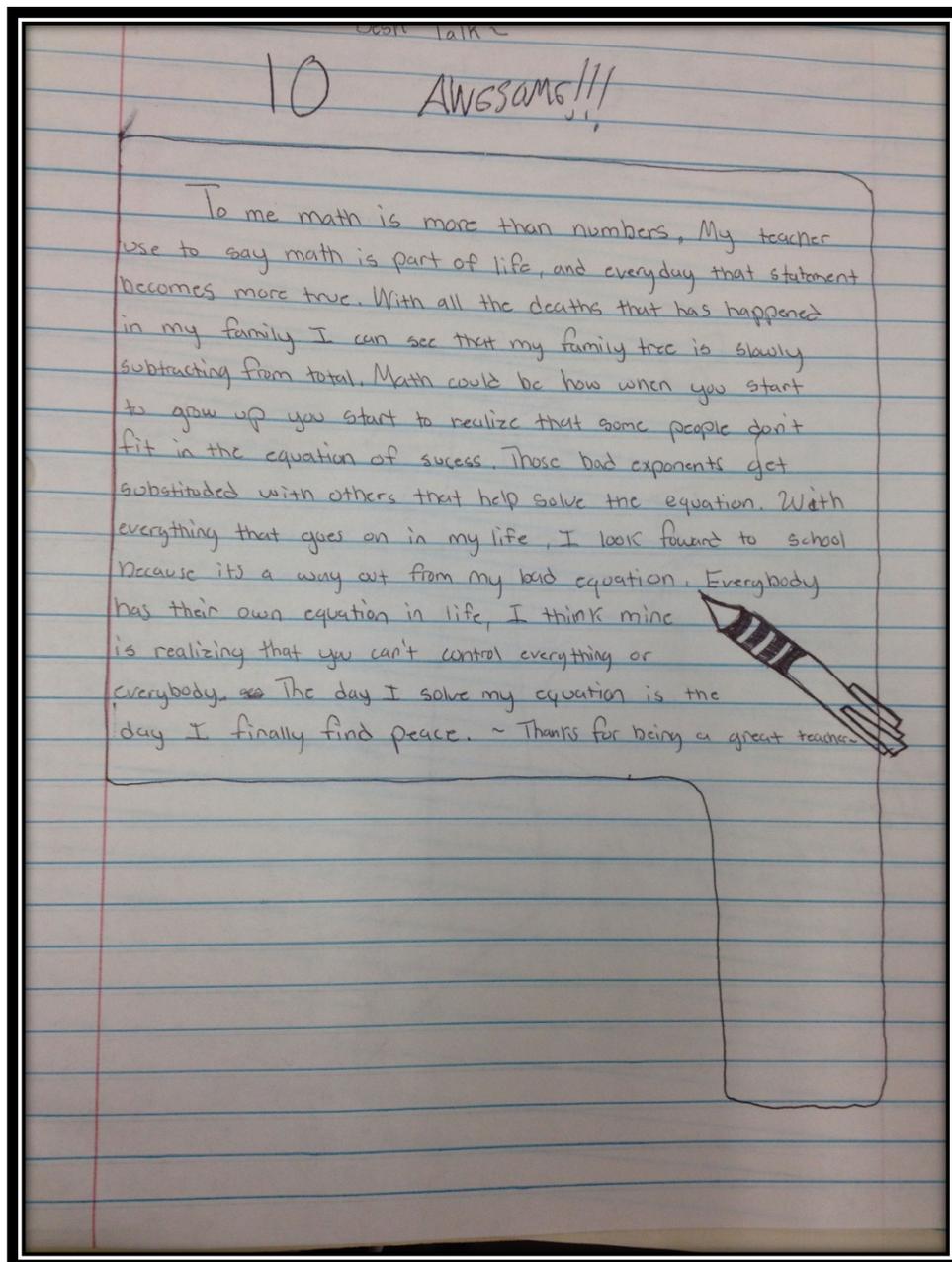
Each participating teacher is required to keep an Inner Professor dialogue. In a private notebook or a computer file (depending on the comfort level of the teacher), each teacher is to start a dialogue with their Inner Professor. As the name suggests, the Inner Professor is the part of the teacher's psyche where the teacher's teaching wisdom resides. There are only a few guidelines which are:

- All dialogues should be “free written.” That is, the writer should not think about what is being written but just write whatever comes to mind. There should be absolutely no editing. Any kind of language or subject matter is permissible. (Note: Writing from a perspective of anger is very powerful and is strongly encouraged.)
- Responses by the teacher should be in UPPER CASE and Inner Professor response should be typed in lower case. In the case of hand written dialogues, this same came be used or other methods of differentiating characters in the dialogue. For example, using different-colored pens.
- The subject of the dialogue should be driven by reflections about that current day's class(es).
- Each day's dialogue should be at least 250 words. This is not a requirement but a guideline.
- A dialogue should be done each day of class. It can be written either before or after class.
- Any questions can be directed to Claudius “Bo” Guynn at cguynn@Saybrook.edu.

- If any psychological distress occurs, participant will be referred to a mental health professional.
- At the end of the study, a copy will be sent to the researcher via email, if possible. If not possible, it will be sent to the researcher via a package delivery service.

Appendix F: Closings

Example of Student Closings



Appendix G: Inner Professor Dialogue Example

DR. LOG-RHYTHM?

Yes, that's me. How can I help you?

NICE TO MEET YOU, PROFESSOR. I RECENTLY TALKED TO OUR LOCAL ENERGY ENGINEER AND HE RECOMMENDED THAT I TALK TO YOU.

An engineer recommended a teacher? Seems odd. What is this about?

ITS KIND OF LONG, WINDING, AND MEANDERING STORY.

I love a good story. Go on!

OKAY. LET ME KNOW IF IT IS TOO MEANDERING OR BORING.

I doubt it will be but I'll keep that in mind. Proceed.

MY NAME IS BO GUYNN AND I AM A HIGH SCHOOL TEACHER AT LITHONIA HIGH SCHOOL. I TEACH MATHEMATICS. I LOVE MATHEMATICS BUT, MORE IMPORTANTLY, I LOVE TEACHING AND LOVE HELPING OLDER TEENAGERS AND YOUNG ADULTS.

Sounds like an excellent start.

I ALSO LOVE AND RESPECT THE OTHER TEACHERS I WORK WITH, ALTHOUGH I AM NOT IN TOTAL AGREEMENT OF THE EFFECTIVENESS OF THEIR METHODS. I TRY TO FOLLOW ADMINISTRATION'S WISHES BUT OUR PHILOSOPHIES ARE VERY DIFFERENT IN OUR APPROACHES TO SECONDARY EDUCATION. ANYWAY, I AM NOW IN A SITUATION WHERE I LOVE MY STUDENTS, I LOVE WHAT I AM TEACHING, AND I EVEN LOVE THE SCHEDULE THAT HAS BEEN GIVEN ME. I HAVE ALSO LEARNED TO LOVE AND APPRECIATE THE 70-MINUTE RIDE I TAKE TO WORK.

Sounds great. So, what is the problem?

THE PROBLEM IS THAT I COME HOME EVERY DAY WEARY AND TIRED. I TALKED TO THE ENERGY ENGINEER AND WE FIGURED OUT THAT THE LACK OF EFFORT OF THE STUDENTS WITH THEIR DAILY JOURNAL WAS RESULTING IN VERY BORING SUBMISSIONS. THIS, IN TURN WAS MAKING ME TIRED. SO, I HAD A LONG TALK WITH THE STUDENTS AND THEY RESPONDED VERY WELL. AS A RESULT, MY ENERGY HAS BEEN MUCH IMPROVED.

Is that everything?

NOT QUITE. I AM WORKING ON A PHD AND I STARTED OUT TRYING TO GET INTO SPORTS PSYCHOLOGY BY THE WAY OF DREAM WORK. I WAS DOING THIS TO REMOVE MYSELF FROM THE WORLD OF SECONDARY EDUCATION. AFTER A SERIES OF EVENTS, I AM REALIZING THAT I BELONG IN EDUCATION AND WANT TO HELP THE STATE OF PUBLIC EDUCATION BY USING THE IDEAS BEHIND DREAMWORK.

What would you like from me?

WELL, I HEAR THAT YOU ARE A MASTER TEACHER AND I WOULD LIKE TO LEARN FROM YOU AND SEE IF I CAN COMBINE YOUR EXPERIENCE, MY EXPERIENCE, AND JUNGIAN PSYCHOLOGY TO REHAB THE BROKEN AMERICAN SECONDARY EDUCATION SYSTEM. I PLAN ON BUILD THIS CONCEPT FROM THE GOOD AND BAD THINGS WE HAVE SEEN; THE MISTAKES *AND* VICTORIES. CAN YOU HELP ME?

Okay, Bo. What have you been doing lately, teaching-wise?

WELL, AS I WAS THINKING ABOUT TALKING TO YOU, I GOT TO THINKING ABOUT THE FATIGUE ISSUE THAT YOU AND I HAVE BEEN TALKING ABOUT. I DECIDED THAT I WAS DOING TOO MUCH OF THE WORK IN MY CLASS AND THAT WAS SAPPING MY ENERGY.

So, what did you do about it?

FIRST, I GAVE SOME THOUGHT ABOUT IT AS I DROVE TO WORK. I THEN DECIDED TO HAVE A DISCUSSION ABOUT WITH MY STUDENTS. I TOLD THEM HOW I WAS DOING ALL THE WORK AND THEY WERE WORKING VERY LITTLE.

How did they react?

WELL, I SAID IT IN A VERY NON-THREATENING WAY AND USE THE WORDS, "I'M NOT GETTING ON YOU. I AM JUST CONCERNED ABOUT YOU." I THEN EXPLAINED THAT, IF THEY DIDN'T DO WELL ON THE (STATE TEST), THEN THE SCHOOL WOULD FORCE ME TO CHANGE THINGS AND I BELIEVE MY SYSTEM WORKS VERY GOOD.

How did that work?

IT WAS ONLY THE FIRST DAY OF IT BUT I THINK THAT IT WENT VERY WELL. FOR THE MOST PART, THE KIDS WERE WORKING PRETTY HARD.

Okay. That's good. You worked on motivation and it seemed to work well. Is that a weak point of yours?

YES, IT IS. I FIND IT VERY HARD TO MOTIVATE STUDENTS ABOUT SO ABSTRACT AS MATHEMATICS.

Do you know of any other weak points?

I CERTAINLY DO. BESIDES MOTIVATION, THERE ARE TWO OTHERS; ASSESSMENT AND CONTACTING PARENTS.

Let's start with assessment. What makes you weak in this area?

WELL, TAKING TESTS IS SUCH A CHORE FOR STUDENTS. THEY HATE TAKING TESTS. WHEN THEY ARE FINISHED, I HATE GRADING THEM. IT'S NOT BAD IF THEY DID A GOOD JOB BUT IT'S ALMOST AS MUCH OF A CHORE AS IT IS FOR THEM TAKING THEM. THEY ARE JUST TOO SERIOUS AND BORING.

You got any ideas of how to fix this?

YEAH. I AM ALWAYS DOING THINGS TO GET THE STUDENTS TO USE THEIR CREATIVITY BUT I DO VERY LITTLE TO USE MY CREATIVITY WHEN I WRITE THE TESTS. AS A RESULT, I AM GOING TO TRY TO MAKE THE TESTS MORE INTERESTING BY GIVING QUESTIONS THAT INVOLVE USING THE NEW MATH SKILLS TO SOLVE FANTASY DILEMMAS.

Sounds interesting. Give me an example.

OKAY..." A FRIEND COMES UP TO YOU AND SAYS, 'THIS DUDE GAVE ME A MAGIC FORMULA THAT HE SAYS WILL HELP ME GET A DATE WITH ANY GIRL I WANT. THE ONLY THING IS THAT IT ONLY WORKS IF I CAN SAY THE ZEROS OF A POLYNOMIAL FUNCTION! THE PROBLEM IS THAT I DON'T KNOW HOW TO FIND THE ZEROS OF A POLYNOMIAL! PLEASE HELP ME OUT. THEN WE CAN BOTH USE THE MAGIC FORMULA!'

That sounds great! You ought to give it a try! I might add that it may work better if you use proper names of some of your students.

GOOD IDEA!

What about contacting parents? What's the problem there?

I JUST THAT I FEEL LIKE THESE KIDS ARE ALMOST ADULTS AND I WANT TO TREAT THEM THAT WAY. THAT MEANS WE SHOULD BE ABLE TO WORK IT OUT BETWEEN ME AND THE STUDENT.

You know that a great theory but it is a bit impractical.

YEAH, I KNOW. I DO CONTACT PARENTS BUT I HATE DOING IT SO I PUT IT OFF A LOT. I DO MAKE CONTACT VIA EMAIL AND TEXTING. THAT EASES SOME OF THE PRESSURE BUT IT IS A WORK IN PROGRESS.

That's understandable.

DO YOU HAVE ANY SUGGESTIONS?

Yeah. As with anything, you gotta love before you do it. If you dread calling parents, then you have to turn it around so you love making contact. You might want to focus on the differences that happen after making contact.

I HAVE THOUGHT ABOUT THAT BUT I USUALLY FEEL GUILTY ABOUT "RATTING THEM OUT."

I hope

DR. LOGRITHM? ARE YOU IN THERE?

I'm right here, Bo. What's the matter?

IT FEELS LIKE I AM FAILING AT THIS. THIS TEACHING.

What?! You?! It cannot be so! What is going on?

WELL, I'M TEACHING AND ALMOST NO ONE IS LISTENING. IS IT ME OR IS IT THEM?

I hate to tell you this but it is always you. The key is figure what part of you that is not working. Also, remember not to be Jesus Christ; you cannot save everyone.

IT IS TRUE THAT I HAVE A TENDENCY TO DO THAT. BUT IT FEELS LIKE I AM NOT SAVING ANYONE.

You know that that is not true, don't you?

YES, I GUESS I DO. I JUST FEEL FRUSTRATED. EVEN IN MY SLEEP, I FEEL LIKE CRYING ABOUT IT. I FEEL LIKE I AM FAILING AS A TEACHER. HOWEVER, KIDS STILL COME TO ME FOR HELP AND SAY THINGS LIKE, "WHY CAN'T YOU BE MY TEACHER?" SO, I KNOW I AM EFFECTIVE, JUST NOT RIGHT NOW!

I understand. So where is the disconnect between good teaching Bo and bad teaching Bo?

WELL, I AM REALLY CONFIDENT ABOUT MY OPENINGS AND CLOSINGS BUT THE MIDDLE IS RATHER BLURRY AND INEFFECTIVE.

Okay. Think of the student that comes to you for help and the ones in your classroom. What is the difference? How do you teach them differently?

THERE ARE SEVERAL. THE SINGLE STUDENT KNOWS WHAT SHE DOESN'T KNOW AND MY DAILY STUDENTS DOESN'T KNOW WHAT'S MISSING. THE SINGLE STUDENT IS MOTIVATED, MY STUDENTS ARE NOT.

None of them are motivated?

WELL, NO. THERE ARE SOME MOTIVATED.

I know you think that you are failing at motivation but *someone* is motivated. So, motivation is not really your problem. You need to apply what you do one on one to the larger classroom. What is it you do?

WELL, I TELL THE STUDENT TO PICK A PROBLEM THAT THEY ARE HAVING DIFFICULTY WITH. THEN I TELL THEM TO WRITE IT ON THE BOARD. I THEN GUIDE THEM THROUGH THE PROBLEM.

Does it work well?

I'D HAVE TO SAY THAT IT WORKS VERY WELL.

Well, why can't you apply that to the classroom?

HEY! THAT'S A HELLEVA AN IDEA! I'M GONNA TRY THAT! IT'S BASICALLY DOING THINGS BACKWARDS FROM I USED TO DO! I GIVE THEM THE PROBLEM AND ASK WHERE THEY ARE FINDING DIFFICULTIES. THEN I JUST "FILL IN THE CRACKS"! THAT'S BRILLIANT!

Well, that's my Bo the teacher!

THANK YOU VERY MUCH FOR YOUR GUIDANCE!

It's okay. You did all the work.

Appendix H: Completed Questionnaires

10/20/18 - East Pre-study Questions

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

1. What are your further questions about the practice of these closing exercises?

I have no questions that have not been answered.

2. What questions or concerns do you have about this study?

I am concerned that my students may not grasp the concept of “active imagination”. I’m hoping that they will not act like this is just another writing assignment that we are asking them to do. I want them to be creative!

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

In the past, my closing practices are generally to have students work together on their HW assignment. Sometimes, I have them do a “ticket out the door” to check for understanding. I have never asked my students to use their imagination, so this will be new ground! I am hoping that this process encourages them to make real connections to the material that I am teaching and will help them recall the concepts that I have taught!

4. What are some examples of positive changes you have seen in your students or yourself during this study?

I am hoping that students will be able to recall the concepts that have been taught. I hope that I am able to “see” math through their eyes. Maybe I will be able to see where they have misconceptions about things that I have said.

5. What are some examples of negative changes you have seen in your students or yourself during this study?

I figure that I will get some negative feedback about asking them to write. They are not used to writing anything other than notes in math class, so this will certainly be a change!

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

Perhaps I will be able to connect to their thought process and maybe help them move forward and to a deeper understanding. Maybe I will be able to change or add to my current teaching to help them understand a concept better.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

N/A

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

I am hoping that this process does improve academic performance. I don't see where it could hurt. I am hoping that my students will grow during this process. I think writing to concepts may help the concepts become "real" to them. Our students don't have a lot of ways to be creative. We took away the art program and photography, and honestly the creative writing that they do has a rubric so it really doesn't allow them to be all that creative!

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

I would like to see how receptive the students are to this process. I honestly think they may be hesitant to write at first, but I think that by doing it over and over, they will loosen up and begin to let their creativity flow! If I get good feedback and feel like it is useful, I would certainly use it again! I am a little nervous about using google classroom to push out and collect these journal entries. I am not much on technology . . . only form of technology until this year was my overhead projector!

10. What is the difference in motivation in the students and yourself since this project began?

Just beginning the project . . . I am hoping that this process is easy and the kids are receptive and that they look forward to doing their journaling each day!

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

I am not sure that my relationship can get much better with my students. I have a few students who don't talk a lot, but for the most part, I would say that I have a great relationship with ALL of my students. We work together and learn together . . . sometimes they teach me new things!

12. Do you have any questions or concerns that you would like to discuss?

Not at this time.

13. How can this practice be improved?

N/A

14. Are there any stories you would like to share that were a result of this intervention?

These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

N/A

10/28/18 - East Mid-Study Questions

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

1. What are your further questions about the practice of these closing exercises?

My only real question is for myself . . . I've got to change my timing to make sure that I have time to do this closing activity. Generally, my students use the last bit of class to start on their homework, so I have to make sure to allow a little more time after the lesson for both the journaling and the homework!

2. What questions or concerns do you have about this study?

Honestly, the things that I was apprehensive about seem to have faded away. I think I was a little nervous about the kids using their imaginations, but I think that is because I don't have much of an imagination myself! Most of my students seemed to jump right on board. They wanted to share what they had written with each other and it was neat to hear them sharing their ideas.

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

Usually my students work together on their homework at the end of class. The closer to the end of the period, the more I have to redirect their discussions to be "math talk", during this activity, I don't think I had to redirect them a single time. They were talking with each other and it was ALL about math!

4. What are some examples of positive changes you have seen in your students or yourself during this study?

The students have really taken to the writing process. Some wanted to write letters, others emails and a few even wrote raps! They were actually excited about talking/writing about the math concepts. Several of them even said "I'm proud of myself!" or "You are going to be proud of me for this!".

5. What are some examples of negative changes you have seen in your students or yourself during this study?

I was expecting to get some negative feed about the writing process, but none of them have really had anything negative to say!

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

Surprisingly, they really seem to enjoy writing to the concepts that we are studying.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

They were very excited about what they wrote. They all wanted me to open up the documents and read them all right then. I was very excited about the ones who said they

were proud of themselves . . . a lot of the kids that I teach don't see much success in academics so that is a big accomplishment if they are proud of themselves!

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

I think that academic performance will certainly improve. They hear the math concepts, they take notes on the math concepts, they do homework, take quizzes and tests over the math concepts I ask them to "speak math" and now they are writing to the concepts. They are using the math vocabulary in their writing and verbally when they share with each other. They are personifying these math concepts and almost giving them human-like characteristics. I think they will be able to recall the words and their meaning a lot better than just by hearing me say them all the time or simply repeating what I have asked them to repeat!

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

I think I will! Currently, I am doing this with the 10th grade geometry students. If we are able to continue to have the current level of enthusiasm throughout the year, I certainly see us continuing the practice. Maybe next year we would be able to branch out to the other grades.

10. What is the difference in motivation in the students and yourself since this project began?

They are wanting to share with each other. I hope this continues.

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

I am hoping to continue my positive relationship with my students. It does make me smile when they think they have done something that I am going to be proud of and they are eager to share their work with me!

12. Do you have any questions or concerns that you would like to discuss?

Not at this time.

13. How can this practice be improved?

I do feel like showing the students an example of "active imagination" really helped. I think if I start this process with another group in the future, I would certainly show them an example!

14. Are there any stories you would like to share that were a result of this intervention?

These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

I did have one student who insisted on proof-reading and correcting her cousin's paper. I thought it was interesting that she was concerned about what he was turning in. She was getting on to him for his commas and punctuation. It was quite funny and the class got a

good laugh out of it. I explained that they did not need to be proofread or corrected but she insisted that he could not turn it in like it was!

I am going to be very interested to see how much improvement we see on questions that are vocab based. Our students tend to not read very carefully and often miss these questions because of the little details. I'm hoping that by journaling and using these words throughout their writing, they will pay more attention to these little details. We have a test coming up this week and will be repeating some questions that the students saw on a previous benchmark before the journaling started. We are interested to see if through the journaling they are able to pick better answers! I will keep you posted!

11/20/18 - East Post-Study Questions

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

1. What are your further questions about the practice of these closing exercises?
 Again, a question for me . . . can I keep doing this and keep the kids interest?? Some seem to be falling off as far as interest and some have really flourished. I really feel like I have connected with some students using this exercise, but there are still a few who are reluctant to write. Again, I don't have the "academic" kids and so writing and using their imagination may be hard for them. Honestly, writing to a "concept" is a pretty deep thought!
2. What questions or concerns do you have about this study?
3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?
 I think this is a pretty effective closing technique. I can not do it everyday, but it is a nice change for when new concepts are presented. In my class, we do a lot of review and I have mainly reserved this activity for either the day I teach a concept or the following day when we review the concept depending on what time allows. I think next year, I would like to start this activity at the beginning of the school year as part of our daily routine. Once the kids got accustomed to getting started on their homework at the end of class, it has been hard to instill a new habit!
4. What are some examples of positive changes you have seen in your students or yourself during this study?
 Honestly, I have been encouraged by how they respond to each other. They will read part of their writing and the other kids will comment, usually in a positive way. Every now and then, they will correct each other, which is fun to listen to. I love it when they work together and help each other out. It is nice for them not to be 100% dependent on me!

5. What are some examples of negative changes you have seen in your students or yourself during this study?

Recently, I have had a few complain about having to write, but I think it was because they were doing a lot of writing in their English class to prepare for the write-score. I don't think any really negative changes occurred. All of their grades have either remained the same or improved.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

One of my students who is most interested in these writing activities has made an A on the last 2 tests (the 2 tests that we have taken since we started journaling) and before that she had only made grades in the mid 70s and 80s.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

The kids still seem to be excited about what they are writing, they always want to know if I read them and what I thought. They always like it when I call them out by name and talk about examples from their writing. ***

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

I think that over time and with continued use, this practice could help with academic performance. I saw no negative consequences of the study. I can honestly say this was a new way to think about these concepts for my students. In the past, I have had them raise their hands and give me a 5, 4, 3, 2, or 1 based on how well they think they understood a concept. This journaling really made them embrace the material and they couldn't get by with just a 1, 2, 3, 4, 5 answer, they had to give me more than that!

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

I will continue to use this activity. I think it is very thought provoking and had I started it as part of my classroom routine at the beginning of the year my kids would be more used to it!

10. What is the difference in motivation in the students and yourself since this project began?

Some of my students have asked about the journaling prompts. "Are we going to journal today??" and that really surprised me! I didn't really expect them to be excited about journaling, but some were!

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

I have a positive relationship with my students. I set expectations for them on day one and they know that they have to work hard to meet my expectations. I think that this study has been another component in reaching some of the students that may have been reluctant to

share in the past. They are really only sharing with me unless they want to share with other students. I have a few students who rarely speak and this was a way for them to have a “voice” so to speak!

12. Do you have any questions or concerns that you would like to discuss?
None that I can think of!

13. How can this practice be improved?

My only thought is way back to the first time, when I needed an example to show the kids. I wish I would have done this upfront and started them on the right path the first time! My other thought is that I would like to have a way to let the kids mark their papers if they are willing to share. I could post some of them or maybe let them lead to other class discussions. Another thought that I had was maybe since I was using google classroom, I could comment on them to maybe answer the questions that they seem to have. If they wrote a letter to “HL” because it just doesn’t make sense, maybe I could be HL and write back with a little more explanation as to the characteristics of HL??

14. Are there any stories you would like to share that were a result of this intervention?

These can be stories from your students’ experience or your own experiences. (Feel free to give as many details as possible.)

I am eager to see how the students use of the vocabulary may come back around in their free responses on the final and then the milestone. I don’t think there could be any negative that comes from journaling. The kids are using the math vocabulary, restating properties of theorems, realizing what concepts they may be struggling with and even sharing with each other. It also gives them an opportunity to be creative which is not very common in our school system. We have no art or chorus so the kids have limited opportunities to really express their thoughts in my opinion. Although I guided them in what topics they were writing to/about, they were able to express themselves in whatever form of writing they wanted to. They really enjoyed being allowed to write raps! 😊

Home Pre-Study Questions

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

- 1 What are your further questions about the practice of these closing exercises? None.
- 2 What questions or concerns do you have about this study? None

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class? Many students will reject the idea and I need to find better ways to sell the idea.

4. What are some examples of positive changes you have seen in your students or yourself during this study? I expect some deeper thinking and connection through this practice

5. What are some examples of negative changes you have seen in your students or yourself during this study? Hopefully, few or none.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study? Hopefully, few or none of regression and many of growth. I am hoping that each student learns more about their Inner Self.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share? I am hoping to see some changes that are signs of personal growth.

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers? I believe that this practice will lead to better academic performance, provided that they go deeply with the practice. For many students, that may be a big "if."

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again? I believe the results will speak for themselves. If it works, I will definitely use it daily. If not, I will reject it and try to improve the idea.

10. What is the difference in motivation in the students and yourself since this project began? I am hoping motivation will increase as they learn more about their Inner Self.

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study? I hope that this will increase connection, whether it is academically effective or not.

12. Do you have any questions or concerns that you would like to discuss? No

13. How can this practice be improved? Students probably need a choice between something creative (this or similar ideas) and something logical and direct.

14. Are there any stories you would like to share that were a result of this intervention? These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.) Not yet.

Home Mid-Study Questions

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

1. What are your further questions about the practice of these closing exercises? None
2. What questions or concerns do you have about this study? None
3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class? I like these ideas but sometimes a closing problem is appropriate

4. What are some examples of positive changes you have seen in your students or yourself during this study? No changes because this has always been their routine. For many, it is a hard adjustment to do something creative instead of something logical.

5. What are some examples of negative changes you have seen in your students or yourself during this study? After a while, students just don't want to do them.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study? A few of them embrace the opportunity to do something that is not so mainstream. Others find ways to completely avoid any mathematics.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share? Many do not believe that they have any creativity. I responded that almost everything we do involves at least a little bit of creativity.

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers? My gut says that it helps academically but I have no proof because this is what my classes have always done for a closing.

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again? Absolutely. It gives students a choice to give feedback to the teacher in a different way.

10. What is the difference in motivation in the students and yourself since this project began? None

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study? None

12. Do you have any questions or concerns that you would like to discuss? No

13. How can this practice be improved? There is something missing, I just can't put my finger on it.

14. Are there any stories you would like to share that were a result of this intervention? These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.) The dialogues have given great perspective about who I am and what my life purpose is. It has also revealed some real weaknesses in my teaching.

Teacher Questionnaire #3 (Post Study) Home

(Note: If answering pre-study questions, respond how you expect this study to proceed.) What are your further questions about the practice of these closing exercises? How can this exercise be designed in a way that generates more interest by the student to continue the practice? Maybe an answer will come from other participants.

1. What questions or concerns do you have about this study? Same as question #1
2. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class? When I can motivate students to do it, I believe they learn the subject in a deeper way.
3. What are some examples of positive changes you have seen in your students or yourself during this study? None. The practice may be stale at this point.

4. What are some examples of negative changes you have seen in your students or yourself during this study? None, as well.
5. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study? Nothing recently.
6. What kind of feedback did you get from the students about this practice? Many do not want to do it because they don't feel very creative. It is my belief that the logic of modern "schooling" gets kids to believe that only logical responses are valuable. It is rather sad and frustrating to see. How did you feel about this feedback and how did you react? I am at loss of how to change this in an immediate way. Can you sum up this feedback? See previous response. Are there any special cases that you would like to share? No.
7. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?
When it is practiced sincerely, it gives the student more self-power and, therefore, leads to deeper thinking and learning. As for me, do the dialogue helps me to focus on things I would have otherwise ignored. It has brought up long-standing fears I have had about myself. It helps me to discuss the things that really scare me. I sometimes forget how valuable active imagination practices are. My responses were rather sporadic and I need to work on that. This is something that should be a daily practice, whether personally or professionally. There is no hard evidence of these changes except the way I feel when I do them and the deep ideas that come up in the dialogues.

8. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again? I definitely need to keep the dialogues up, as mentioned in the previous response. Once again, this practice needs to be tweaked. Hopefully, the other participants will give me some ideas.
9. What is the difference in motivation in the students and yourself since this project began? Hard to say because the students are not doing anything very different from what we usually do. However, for me, I believe I have seen myself in a truer light. Some of it is disturbing and some of it is enlightening. It has led to some deep questions about my true self. Most of this
10. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study? None and none.
11. Do you have any questions or concerns that you would like to discuss? No
12. How can this practice be improved? I am searching for these answers but have come up with none. Maybe some reflection will help.
13. Are there any stories you would like to share that were a result of this intervention? These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.) Not really, other the inner effect of my dialogues.

North's Pre-study questionnaire

1. What are your further questions about the practice of these closing exercises?

I do not have any questions at this time.

2. What questions or concerns do you have about this study?

I do not have any specific concerns or questions regarding the study.

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

I expect this practice to be similar, in its effectiveness, as other, similar, techniques I have used to focus students on the lesson's main ideas.

4. What are some examples of positive changes you have seen in your students or yourself during this study?

I expect to see positive outcomes as they relate to lesson comprehension and recall of main ideas and concepts.

5. What are some examples of negative changes you have seen in your students or yourself during this study?

I do not expect to experience any negative effect due to the study, with the possible exception of side-tracking some students from the lesson initially.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

I will expect the students to grow in their ability to recall the lessons main ideas, and to be helped by learning to shift focus from conscious to subconscious and back again, without losing overall focus on the work at hand.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

I expect a fair amount of positive feedback from participants, as well as, some neutral responses as to how they felt about its effectiveness.

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

I would expect positive feedback regarding personal growth at a minimum to the degree they learn discipline in their approach to learning and positive relaxation techniques.

North's Pre-Study: Page 2

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

If the outcome is as anticipated, I will definitely use this practice again.

10. What is the difference in motivation in the students and yourself since this project began?

I expect it to motivate both myself and my students at least in the focus it provides and the goal of increased production we all seek.

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

I expect it will help our relationships as we will be discussing the study and its outcomes in a personal way.

12. Do you have any questions or concerns that you would like to discuss?.

None at this time

13. How can this practice be improved?

As with any new practice; fine tuning for desired outcomes.

14. Are there any stories you would like to share that were a result of this intervention? These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible)

There will be many as the study proceeds.

North's Mid-Study Questionnaire

Note* We only have class twice a week and missed one class this past week due to weather concerns. We have only had 3 classes since the study began, so data is inconclusive at this point. Expect more feedback as time progresses.

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

3. What are your further questions about the practice of these closing exercises?

None at this time

2. What questions or concerns do you have about this study?

None at this time

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

The students are still struggling with it a little bit, but I find it calming and focusing.

4. What are some examples of positive changes you have seen in your students or yourself during this study?

Nothing substantial at this point.

5. What are some examples of negative changes you have seen in your students or yourself during this study?

Again, too early to cite any changes.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

Too early to cite examples.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

Nothing to share yet. Students are not giving much feedback as they are still adjusting.

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

Too early to tell.

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

If it works as expected, yes.

10. What is the difference in motivation in the students and yourself since this project began?

None I have noticed yet.

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

None at this time.

12. Do you have any questions or concerns that you would like to discuss?

No.

13. How can this practice be improved?

Too early to tell.

14. Are there any stories you would like to share that were a result of this intervention?

These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

None yet.

North's Post-Study Questionnaire

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

1. What are your further questions about the practice of these closing exercises?

I don't have any questions about the practice. It went well, once the students (and teacher) got the hang of it!

2. What questions or concerns do you have about this study?

No concerns. Any new techniques, which may improve the ability of students to learn, comprehend, and recall new information, is worth trying.

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

I have tried many different methods for closing a learning session. All have been worthwhile to varying degrees, and most include summarizing what was taught during that session. I happen to prefer techniques such as this one, where students can allow their subconscious to connect with the conscious lesson to form a recallable bond. Summarization is always helpful, but students tend to resist forming neuro-connections to volumes of facts. However, if the subconscious is allowed to interact, and recognize this information as important, it can be processed and stored for future retrieval. This technique appears to do just that, and, therefore, is more effective than many others I have tried.

4. What are some examples of positive changes you have seen in your students or yourself during this study?

The practice creates an anticipated routine of backing away from the stressful nature of learning math and having to prove competency over various mathematical concepts. I found the students were more relaxed, and calmer as class wound down. Instead of anticipating a rush to finish, get their assignments, and hurry to another class, they looked forward to some “down” time to reflect. This reduced the overall level of anxiety which tends to accompany a math class. Instead, they anticipated a moment of peace, where they could “zone out” (their words) and escape the school reality for just a few minutes. Like meditation, they came out of this calmer and more relaxed. I’m not sure the study was long enough to gauge the academic results of this practice. However, the mental positives were obvious.

5. What are some examples of negative changes you have seen in your students or yourself during this study?

I did not see any negative results. The loss of a few minutes from instruction, of course, but easily offset by the positives. For my type of school, this loss of a few minutes may be more important as we only have

two academic classes for math each week. As a result, I need to fit a lot of learning into my limited time. However, I still feel the subconscious connections made, and the reduction in overall anxiety, to be worth the minimal loss of time.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

I cannot honestly say that I have seen any specific examples of personal growth throughout the study. I have certainly not seen any examples of regressive behaviors however. What I have seen, are more relaxed students, less anxiety over math (always an issue), and what I would anticipate to be an increase in retention and comprehension. I believe, that with additional time for an extended study, I would see examples of this in the actual test results of the students.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

I have to say that my students are among the least vocal I have ever had. They tend to be fairly focused, and have come to understand that they need to be, to understand the concepts I teach in just two sessions per week. I have drilled this into them, as they need to work from a firm foundation as they continue to learn during their “Independent Study Time”. I say this to explain that they don’t offer much feedback, even when asked, about their “feelings”. The general feedback I received was that they enjoyed the down time to think and reflect. They did not share their thought processes, but did explain, generally, that they felt relaxed and more “in control”, or “less stressed about math”. One student stated that he, “feared math less because I look forward to the quiet time at the end”. None of them said anything about comprehending their lesson better, but everyone seemed “happier” about math.

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

I didn't see any evidence of improved academic results, but I think this was more likely due to the short nature of the study, rather than having any relation to the study itself. I also did not see any signs of personal growth, although I believe there would have been evidence of this given more time. I believe this to be true based on the simple fact that the practice left both students, and teacher, more relaxed and calmer. My experience has been that the ability to achieve this following rigorous academic study, often helps with comprehension.

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

In a traditional classroom environment, I would definitely try this again. In my non-traditional school, again, the time constraints make this more difficult. That being said, I may still experiment with this more because I think the underlying theory behind this activity is valid; relaxing, and connecting to the subconscious will aid in fixing the recent lesson to a memory pathway. If nothing else, it seems to make math more "palatable" for my students!

10. What is the difference in motivation in the students and yourself since this project began?

I'm not sure that I have seen any difference in motivation for myself, or my students. There was an effort on my part to power through the lesson, and make sure we had time to "reflect". There was also an anticipation, by the students, of finishing early and quickly, so they could "free think". However, I did not see any noticeable change in the student's actual motivation to do math.

- 11 How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

I have spent more time talking about philosophy, psychology, and other subjects with my students, instead of talking only math. This has contributed to a more relaxed atmosphere and made the classroom a bit less math-stressful. This is the only way I have seen our interactions change, but it is definitely the result of the study.

12. Do you have any questions or concerns that you would like to discuss?

I have no real questions or concerns to discuss.

13. How can this practice be improved?

I like the rather open-ended, non-structured approach to how the students use this time to free-think. The only way I think it could be improved is to extend the length of time for incorporating this practice into the classroom. I think that a longer study would allow for a better evaluation of how it may improve performance.

14. Are there any stories you would like to share that were a result of this intervention?

These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

Our time spent in the study was pretty uneventful, and there are really not any inciteful stories to relate. We had a relatively mundane experience as everyone, independently, went about their own approach to their time "free-thinking" and kept their experiences to themselves. We discussed our experiences to some degree, but as I said, my students are not the most open to sharing their thoughts and feelings.

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

South Pre-Study

1. What are your further questions about the practice of these closing exercises?

None.

2. What questions or concerns do you have about this study?

None thus far.

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

More effective... I'm discovering very easily and quickly how students have ideas/topics linked in their brains either correctly or incorrectly. I can then have a conversation with the student that's struggling about what they are doing wrong and how to fix it. Also, students are more willing to communicate with me through these journals. They aren't scared to talk for fear of ridicule.

4. What are some examples of positive changes you have seen in your students or yourself during this study?

Positive changes in the two journal entries that I've assigned -- improvement in writing ability and ability to express their thoughts

5. What are some examples of negative changes you have seen in your students or yourself during this study?

Haven't seen any negative changes.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

Personal growth—I'm more willing to assign these journals because students are enjoying writing them because there is free reign as well as I thought this would take up a lot of class time, but it isn't. I've also enjoyed reading the responses and it isn't taking a lot of time doing so. I've assigned the journal on Google Classroom so it's easy to transition for journal-to-journal.

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

They've really enjoyed doing this. We've only completed 2 so far, but I hope to see them continue to enjoy this activity.

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

YES! Their writing abilities are improving and they are starting to efficiently communicate the concepts.

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

I hope to be able to do this again next year and to extend this into my other class (different preps).

10. What is the difference in motivation in the students and yourself since this project began?

Most students think it's cool! They often read their responses to each other even though it's not a requirement of mine. They are taking ownership of it too!

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

My relationship hasn't changed.

12. Do you have any questions or concerns that you would like to discuss?
Can I leave students feedback about their responses to the topics?

13. How can this practice be improved?

14. Are there any stories you would like to share that were a result of this intervention? These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

Teacher Questionnaire (Note: If answering pre-study questions, respond how you expect this study to proceed.)

South Mid-Study

1. What are your further questions about the practice of these closing exercises?
None

2. What questions or concerns do you have about this study?

Should I teach students how to respond to the questions? Provide them with samples or exemplars?

3. How is this practice less effective or more effective when compared to other closing practices you have experienced at the end of class?

I have not gathered any student responses yet. ... I'm expecting to "see" how students have linked topics and concepts.

4. What are some examples of positive changes you have seen in your students or yourself during this study?

Expecting to see lots of positive changes—improvement in how thoughts are expressed, improvement in communication, improvement in vocabulary (academic and content), improvement in writing ability

5. What are some examples of negative changes you have seen in your students or yourself during this study?

I don't think I'll see any negative outcomes from this study.

6. What are some examples of personal growth (or regressive behaviors) you have seen in your students or yourself during this study?

7. What kind of feedback did you get from the students about this practice? How did you feel about this feedback and how did you react? Can you sum up this feedback? Are there any special cases that you would like to share?

Should I comment on the student responses? Or just watch the progression of the resources without giving student's feedback?

8. Do you feel this practice improves academic performance? What about personal growth of yourself or your students? What evidence do you have to support these answers?

Students should be able to use academic and content vocabulary more effectively and efficiently.

9. Would you consider using this practice after this study is over? Why or why not? How likely are you to use it again?

I hope to be able to do this again next year and to extend this into my other class (different preps).

10. What is the difference in motivation in the students and yourself since this project began?

I'm not sure if my students will think this idea is "crazy" or "cool". I'm excited to see their responses.

11. How much has your relationship changed with your students since the beginning of this study? How much can you attribute this to the study?

I know my students very well. 13 of the 21 in this class I taught in the prerequisite class last year. I also had them for 2 class periods last year and currently have them again for 2 class periods this year. I spend a lot of time with them. 2 hours a day!

12. Do you have any questions or concerns that you would like to discuss?
13. Can I leave students feedback about their responses to the topics?
14. How can this practice be improved?
15. Are there any stories you would like to share that were a result of this intervention?
These can be stories from your students' experience or your own experiences. (Feel free to give as many details as possible.)

Appendix I: Final Professor Dialogues

East

10-16

Starting Unit 3 today . . . pretty laid-back day – other than ALL of the vocab! I will start today enforcing these vocabulary words. We will use them every day until the end of the semester and then at least twice a week through bell-ringers starting second semester.

WHY IS THE VOCAB SO IMPORTANT?

These are not everyday words for anyone, especially my students. Interior and exterior, I can usually relate to a car and they “get that”, and consecutive we can talk about homeruns, but they always have a hard time with corresponding and alternate for some reason. I feel like we have talked about corresponding several times throughout the semester, but they still just don’t seem to understand. They can define it – but they can’t see relationship when we go from one picture to another. Triangles are fine, but show them a pentagon and they don’t seem to be able to apply the property . . . not sure about the disconnect. And parallel lines cut by a transversal is WAY out there for recognizing them . . .

OH – I KNOW – I KNOW – A COLORING ACTIVITY OR A PAGE TITLED CORRESPONDING ANGLES WITH LOTS OF DIFFERENT SHAPES ON IT – THEY NEED TO KNOW THAT THEY CAN APPLY THE PROPERTY TO ALL SHAPES AND NOT JUST A TRIANGLE!

I’ll try – maybe as a review activity before the final??

10-17

The “math” part of the lesson is fairly smooth – took me a few years, but I came up with a pretty simple fool proof method a few years ago – the abba pattern trick is amazing and gives the kids 3 rules to remember instead of trying to remember whether each relationship is congruent or supplementary!

HIGH FIVE ON THAT ONE! THAT WAS ONE OF THOSE AH-HA MOMENTS OF TEACHING!

Recalling the vocab today seemed to go a little better than in past years- Yesterday I had them draw each in their notes before I had them look at them all together – maybe that helped. In the past, we have quickly moved into a worksheet on Day 1 – but I am going to wait for that until closer to the test as a way to review the vocab!

10-18

Coloring – that’s always fun! Trying to throw in one of those “fool proof” lessons to allow all of the vocab of the last few days to sink in!

WHAT DO YOU MEAN BY COLORING?

When I first starting teaching Math II several years ago, kids had the hardest time with the exterior angle theorem. Probably again because of the vocab! They didn’t really pay attention to which angles were interior and which was the exterior –

YOU ARE ASKING THEM TO PAY ATTENTION TO SOMETHING AGAIN – YOU KNOW THEY DON’T LIKE TO DO THAT!!

True – So, I made it less for them to have to pay attention to! Color the exterior angle purple and the two remote interior angles red and blue because red and blue make purple! I wasn't sure if this would work the first year, but we had the best results after a little coloring!

DO THE KIDS GET MARKERS EVERYDAY? DO YOU LET THEM USE THEM ON THE TEST?

I struggled with this at first, but honestly, they can just “see” where the colors go and don't need the markers usually after the first day or two.

10-19

Isosceles and Equilateral – ughhhhhh. Why do the kids make this concept so hard??

BECAUSE THERE ARE RULES AND TEENAGERS DON'T ALWAYS FOLLOW THE RULES!

I'm not sure – but this lesson seemed to be the hardest lesson of the year! I had kids trying to add the 3 sides of a triangle to make them equal 180. I don't know where their brains were! One of my brightest students actually said that she “dreads coming to my class” today – really hurt my feelings. I hope that she was just having a bad day – but I did go ahead and call home. Her negative attitude really hurt my other students today. This child is one of my eager workers most of the time, but today she got a little behind the others and she just couldn't deal! Mom was very receptive of my call and promised I would see a different child tomorrow – I surely hope so because today was not a good day!

10-22

Phone call worked – kid had a MUCH different attitude today! Class was totally different. Back to asking good questions and working together. I hate to make negative calls home – but sometimes it is a MUST and we couldn't afford another day like yesterday!

We had a good thought on the difference in rules for sides and angles of triangles today . . .

DID YOU MAKE SURE TO EXPLAIN THAT THE PERIMETER OF EVERY TRIANGLE ISN'T 180??

Of course, I did. We talked about it today as part of the bell-ringer . . . I had them get the perimeter of 3 different triangles just to remind them that adding up the sides does not equal 180! Several of the kids confessed to not really paying attention to whether they were looking at angles or sides –

WHEN DID YOU START TAKING CONFESSIONS?

Whatever it takes to figure out their thought process! It's hard to figure out where they come up with some of these ideas!

10-24

We used IXL as a review for these different concepts that we have been studying – we were really able to clear up some BIG misconceptions! I really hate computers and would prefer not using them – but today was a success because each student was able to work on the concept that they felt like they needed the most help on!

WHY DO YOU HATE COMPUTERS SO MUCH??

Honestly, prolly because the kids know more about them than I do! I've never felt like I needed a computer to be a successful teacher – this is actually the first year that I haven't used an overhead projector as my main – everyday teaching tool! I've only upgraded to a document camera which honestly is just a glorified overhead, but it is progress I guess!

COMPUTERS SHOULD HELP YOU . . . SERIOUSLY – NO COMPUTERS?

None – other than taking attendance and basic email! Really stepping out on a limb here learning how to use google classroom for journaling.

10-25

Expecting to hear moaning and groaning today – reflections, rotations and translations and let's add in dilations! The kids are usually “shut down” as soon as the learning target is posted.

WHY . . . THIS IS A LESSON THAT THEY LEARNED LAST YEAR RIGHT?

Exactly – or not exactly. They were taught this lesson last year – but they didn't really “learn” it! The students always have a poor attitude about concepts that they didn't do well with in Algebra – but it is my job to convince them that they can understand this concept and that I am not actually making them reflect, rotate or translate anything!

BE POSITIVE – BE POSITIVE – BE POSITIVE – USE YOUR UGLY VOICE IF YOU HAVE TO – BUT THEN BE POSITIVE!

Decided to actually jump into the lesson today and preview reflection and rotation during the bell-ringer – just having them identify whether something was a reflection or rotation and stating whether it was congruent or similar. This was great!

I KNEW YOU WOULD FIGURE IT OUT – CONVINCED THEM THAT THEY ALREADY KNOW HOW TO DO IT AND THEY WILL BE MORE RECEPTIVE!

I have decided to not revisit the actual reflection, rotation and translation process because in past years it has eaten up a lot of time and we haven't actually had time to focus on the actual similar versus congruent talk.

WHICH IS MORE IMPORTANT? IS IT OK TO SKIP OVER THE ACTUAL PROCESS OF ROTATIONS, REFLECTIONS AND TRANSLATIONS??

We are going to try it this year and see how it goes! Part of our lowest sections on the milestone last year were in similarity and congruence so I think it is more important to focus primarily on those than the actual reflections, rotations and translations themselves . . . we will see!

10-30

Oh, where do I begin??

TODAY'S LESSON OF COURSE . . .

No exactly, where do I begin today's lesson. The kids always seem to struggle with triangle congruence theorems. Today I will be teaching them separately – making sure to focus on each theorem and its specific properties. They always struggle with AAS and ASA because they do not pay attention to where the S in comparison to the 2 A's.

BE CALM – STAY FOCUSED AND MAKE SURE TO HAVE THE STUDENTS CHECK WITH YOU! IT IS OK TO MAKE THEM SLOW DOWN AND STAY WITH YOU ON THIS ACTIVITY - THEY NEED TO LEARN THE PATTERNS BEFORE TRYING THESE ON THEIR OWN!

I know, I know . . . I just get excited when they work ahead of me and actually seem to enjoy figuring something out! You are right though – most important lesson for the day is to learn the theorems so they can be applied throughout the next few weeks!

REMEMBER – IF YOU KNOW AAS AND ASA ARE TRICKY POINTS, POINT THEM OUT EVERY TIME THEY COME UP! REALLY FOCUS ON THEM!

Oh yea – and AAA also! I was to make sure to have them write similar by AAA every single time they see it! I know its repetitive, but it will stick in their brains! I'm going to make sure to revisit the definition of similar today during the bell-ringer to help with the AAA similarity theorem when we get there!

11-1

So excited about today's lesson!

WHAT MAKES TODAY'S LESSON ANY DIFFERENT THAN OTHER LESSONS?

Today's lesson is on midsegments and I can actually "show" the kids a midsegment and we will build one in the notes today. We will draw a 6-8-10 right triangle and then mark the midpoints to build a 3-4-5 right mid-triangle on the inside.

COOL IDEA, WHERE DID YOU SEE THAT?

I actually thought of it a few years ago and it totally changed the way that I teach this lesson each year. I'll let you know how it goes!

11-2

The lesson was perfect . . . actually more than perfect. We were able to tie back in the Pythagorean theorem, parallel lines, the terms midpoint and equidistant and someone in BOTH of my classes mentioned dilation which led to a discussion of similarity! So excited! These kids are making connections that even my best class from last year didn't mention!

THAT'S GREAT! HOW DID THE HW GO?

Looked good! Most students got about half of the HW done before they left and it looked good! I am expecting them to struggle on finding x and remembering to plug it back in to find the missing side.

THEY DON'T KNOW HOW TO PLUG x INTO AN EQUATION?

No, they do . . . they just don't remember to actually do it. I have them circle the segment, some put a star beside it, but prolly half of them still forget! It makes me mad because there are always several questions on the test where they lose points because they forget to actually answer the question that is being asked!

I'LL BE THINKING ON A WAY TO HELP THEM REMEMBER!

11-8

Getting ready for proofs.

ANY THOUGHTS?? ANY IDEAS??

In the past actually marking the triangle with the given information has been a big problem. The kids seem to put the cart before the horse and start answering the proof part before they actually put the given information on the picture.

HAVE YOU GIVEN THEM ANY PRACTICE ON JUST MARKING THE PICTURE??

We think so much alike! Today I have created some basic statements with pictures to just get them in the habit of using vocab like midpoint and perpendicular bisector actually mark a picture.

LET ME KNOW HOW IT GOES!

11-9

Not bad – worked on some more of the pictures today to begin the lesson – they seem to be getting it . . . fingers crossed they will slow down and do this step first on the proofs.

KEEP ME POSTED

11-12

Proofs . . . proofs . . . proofs . . . can they even compete with cell phones?? How do I make them more interesting??

I KNOW I KNOW . . . STATE TODAY OF LIKE YOU ARE IN A COURTROOM!

Not sure if that will work, these kids probably know more about the courtroom and court system than I do – 75% of them have prolly been to court at least once in their life!

MAKE A FUNNY EXAMPLE – MR SCOTT STOLE A CANDY BAR FROM MRS BRAGGS DESK – WHAT KIND OF EVIDENCE WOULD YOU NEED TO PROVE IT?? LET THE KIDS COME UP WITH FORMS OF PROOF, OR WHERE WE WOULD LOOK FOR EVIDENCE.

I'll try – we'll see how it goes!

Not bad – not bad! They really liked trying to proof that Mr. Scott was in trouble! It led to a nice discussion of statements and reasons to support the statement!

TOLD YOU!

11-13

I had kids try some proofs on their own today . . . some are still working on the proof before marking the picture, but when I reminded them that they had to mark the picture first, they were at least able to . . .

SO MAYBE THAT LITTLE ACTIVITY THE OTHER DAY HELPED?

I think it did. Still not sure how to keep them from moving on to trying to fill in the proof other than constant reminders, but that's why they pay me the big bucks 😊!

I'LL KEEP THINKING ON THAT ONE . . . MAYBE HAVE THEM SHOW A NEIGHBOR AND CHECK THEIR PICTURE WITH A NEIGHBOR BEFORE MOVING ON TO THE ACTUALY PROOF WRITING PHASE??

Honestly, I've thought about giving them just the picture and not handing them the actual proof part until after I've checked their picture! Might could use some class leaders to check on their neighbors after I've checked their papers . . . they could always tape the picture to the proof after the picture has been filled in . . .

OH, THE MEASURES YOU HAVE TO GO THROUGH TO MAKE THEM FOLLOW SIMPLE RULES . . .

Just have to force them to follow a pattern of reasoning.

Inner Professor Dialogue Compilation

North

This is an after-the-fact summary of my general IP dialogues as I recall them. They all seemed to be along the same lines of “how can I make this “math-thing” work with kids who are not motivated.

I'VE STARTED THIS NEW CLOSING THAT BO GOT ME STARTED ON, AND IT HAS ME THINKING ABOUT WHAT MOTIVATES THESE KIDS. I'VE TRIED EVERYTHING, AND ANYTHING, TO GET THEM INTERESTED IN, AND EXCITED ABOUT, MATH. THEY JUST DON'T SEEM TO CARE.

Why don't you try to make it more accessible to their way of thinking?

I HAVE TRIED SHORTER CHUNKS OF LEARNING TIME, BUT I HAVE SUCH LIMITED TIME AS IT IS..... I NEED EVERY MINUTE. I HAVE TRIED TO MAKE LESSONS RELEVANT BY RELATING THEM TO ISSUES THEY CARE ABOUT. DOESN'T SEEM TO MAKE ANY DIFFERENCE. I HAVE BROKEN THE LESSONS UP AND INTERSPERSED VIDEOS AND DEMONSTRATIONS BETWEEN TO KEEP THEIR INTEREST.

What is their response?

YAWNS, ROLLING OF THE EYES, DISGUSTED SOUNDS, COMPLAINTS.

So now what?

I DON'T REALLY KNOW. THIS IS AN ISSUE I'VE DEALT WITH AND THOUGHT ABOUT FOR YEARS NOW. JUST REVISITING IT AGAIN RIGHT NOW.

Could this new closing help?

I'M HOPEFUL IT WILL HELP WITH RETENTION OF THE IDEAS THEY LEARNED IN CLASS. I'M LESS HOPEFUL THAT IT WILL DO MUCH FOR THEIR ENTHUSIASM FOR MATH, OR THEIR OVERALL MOTIVATION.

Why can't this help with their motivation? And, is motivation the only problem?

I GUESS I'M JUST NOT VERY OPTOMISTIC THAT ANYTHING CAN HELP TODAY'S STUDENTS LIKE MATH. AND, NO, THAT ISN'T THE ONLY PROBLEM. THEY DON'T RETAIN WHAT THEY LEARNED AND I FIND MYSELF RETEACHING EVERYTHING OVER-AND-OVER AGAIN. THEIR NATURAL ATTITUDE IS NEGATIVE WHEN IT COMES TO MATH AND THEY JUST SHUT THEIR MINDS OFF TO IT.

Maybe it's your attitude! Ever think about that?

CONSTANTLY. I WORK VERY HARD AT MAINTAINING A DEGREE OF POSITIVE ENERGY WHEN TEACHING. I AM VERY COGNIZANT OF HOW I COME ACROSS TO THEM, AND TRY TO KEEP THE ENERGY HIGH. I ALSO KEEP A POSITIVE ATTITUDE ABOUT SCHOOL AND CLASS.

Are you always a positive influence?

IF I'M GOING TO BE HONEST, PROBABLY NOT. THEY WEAR ME DOWN SOMETIMES, AND I CAN BECOME A BIT SARCASTIC AND SHORT WITH THEM.

Who is the real issue then? You don't seem to know.

I DON'T. I GUESS IT'S A LITTLE OF BOTH. THE STUDENTS DON'T SEEM TO CARE AND I GET CAUGHT UP IN THEIR ATTITUDE AND TURN IT BACK ON THEM.

Then back to the same question. How do you fix it?

I WISH I KNEW. I SEE KIDS DROPPING OUT OF SCHOOL, BOYS NOT GOING TO COLLEGE, AND MATH SCORES PLUMMETING. I'D LIKE TO MAKE A DIFFERENCE, BUT CAN'T SEEM TO BREAK THROUGH. I KEEP LOOKING FOR SOME MAGICAL FORMULA. I TRIED BRACKETING MY LESSONS AROUND SHORT VIDEOS (SHOUT OUT TO BO) BUT GAVE UP DO TO TIME CONSTRAINTS. THEY FOUGHT ME ON WRITING THEIR THOUGHTS ABOUT THEM ANYWAYS. IF THIS PRACTICE HELPS THEIR RETENTION, AND EASES THEIR ANXIETY ABOUT MATH, AS IT APPEARS TO BE DOING, THEN THIS WILL HELP A GREAT DEAL. HOWEVER, THERE IS STILL THE ISSUE OF THEM NOT OPENING THEIR MINDS UP TO MATH. THEY DON'T SEE THE NEED FOR IT.

How can you make them see the "need" for math?

I TALK ABOUT IT EVERY DAY. WE DISCUSS CAREERS IN MATH, SCIENCE AND TECHNOLOGY. I'VE HAD THEM RESEARCH NEW TECHNOLOGIES, IN AREAS THEY SEEM TO CARE ABOUT, FOR EXTRA CREDIT. WE THEN SHARE THESE STORIES...SEE-THOUGH PHONES, IMPLANTABLE COMPUTER TECH, GOOGLE GLASSES, SOUND ROOM ENGINEERING...AND THE MATH NECESSARY TO MAKE IT ALL WORK. HOW MATH AND SCIENCE HOLD THE ANSWERS TO ALL OUR PROBLEMS. THEY STILL DON'T SEE IT, OR CARE.

What's the next step?

KEEP TRYING. STAY ENTHUSIASTIC. KEEP FOCUSING ON THE NEED AND THE POTENTIAL. TRY NEW THINGS...NEW CLOSES, NEW WAYS TO REVIEW, NEW WAYS TO GET THEM TO ENGAGE. PRACTICAL APPLICATION INSTEAD OF THEORY. THREATEN. WHATEVER IT TAKES. PROVE TO THEM THAT MATH IS ANOTHER LANGUAGE THEY CAN MASTER, AND THAT THEY CAN UNLOCK QUESTIONS WITH. JUST KEEP ON...KEEPING ON.

Wow. 70's and all...you're in a rut. You are currently in the 21st century, and need to learn to understand the younger generation. You have to think more like them and learn to relate. This is pretty much the "self-talk" I go through continually, and it mirrors what I did during the study. Sorry I botched this part, but my "inner dialogue" is always centered on these frustrations and questions. I can never seem to get away from the question of how to reach them and get them to see what I see in math. If you ever figure it out...let me know!

Inner Professor Dialogue (Home)

October 1, 2018

HEY, DOC. WHERE ARE YOU?

I'm right here, Bo. What's the matter?

I GOT AN ISSUE I NEED TO TALK ABOUT.

What's on your mind?

WELL, I CAME IN TODAY, READY TO TEACH AND, WELL, EVERYTHING SEED HIJACKED.

What do you mean by hijacked?

THE KIDS SEEMED ALL JACKED UP. I COULDN'T SEEM TO GET THEM TO CALM DOWN AND FOCUS.

What seemed to be the problem?

NOT SURE BUT I THINK IT MAY BE THE 5 DAY WEEKEND COMING UP.

Good analysis. You know what the big question here is, right?

YEAH; WHO IS EXCITED AND UNABLE TO FOCUS, YOU OR THEM...I MEAN, ME OR THEM.

Well...the answer is...

IT COULD BE ME. I CAN'T WAIT FOR A BREAK, ESPECIALLY AFTER LAST WEEK'S ANGST. I CAN FEEL MYSELF RESISTING ALL THE THINGS THE DISTRICT REQUIRES OF ME.

So...

I NEED TO BE SENSITIVE TO THEIR WILD BEHAVIOR. IT IS NOT THEM BUT ME WHO IS EXCITED AND UNABLE TO FOCUS. I NEED TO CALM MYSELF IN ORDER TO CALM THEM.

Couldn't have said it better myself.

THANKS FOR LISTENING AND TEACHING ME.

That's what I'm here for. Let's talk tomorrow so we can discuss how it went.

WILLDO. THANKS AGAIN.

October 2, 2018

HEY DOC! THANKS FOR THE GREAT HELP YESTERDAY. IT REALLY HELPED TODAY.

How's that? I just listened and asked questions.

YEAH, YOU JUST ASKED ALL THE RIGHT QUESTIONS. YOU'RE SO GOOD AT THAT. THE BEST PART IS THAT YOU DO IT WITH ABSOLUTELY NO JUDGEMENT.

Thank you. I just try to help the best I can...What's going on today?

NOT MUCH. JUST SOME MORE OF THE SAME. THE KIDS CAN'T WAIT FOR VACATION AND ARE TRYING TO GET ME TO DO AS LITTLE AS THEY WANT TO DO.

What are you doing with that?

WELL....THEY SLEEP AND I URGE THEM TO PARTICIPATE IN THEIR EDUCATION. THEY GET RILED UP, AND I URGE THEM TO REFOCUS. ITS A CONSTANT TUG AND ROLL; EXCEPT THE ROLLING SEEMS LIKE IM PUSHING A BOULDER UPHILL. ONCE URGED THEM PARTICIPATE, THINGS WENT A LOT SMOOTHER. AS IT TURNS OUT, ONE STUDENT WAS PUSHED AND IT WENT REALLY WELL.

What do you mean? Tell me about it.

I HAVE THIS ONE GIRL WHO ONLY SHOWS UP WHEN SHE HAS SOME GOSSIP. TODAY SHE WAS THERE, GOSSIPING. I CALLED ON HER TO ANSWER A QUESTION. SHE JUST SHRUGGED. I PRESSED HER AND TOLD HER THAT IT WAS

PRETTY EASY. AFTER A COUPLE OF GUESSES, SHE GAVE THE CORRECT ANSWER. I WAS HAPPY BUT IT GOT BETTER. AT THE END OF CLASS, SHE ASKED WHEN I OFFERED TUTORING. I WAS PLEASANTLY SHOCKED. I WONDERED WHAT HAPPENED.

Good news! Of course, you know why that happened, right? Deep down you know.

YOU'RE RIGHT, I REALLY DO KNOW. BY SHOWING I CARE, SHE WANTED TO BE PART OF THE SHOW. I AM READY TO WELCOME HER, IF SHE IS SERIOUS ABOUT IT.

Nice work! It's all about connecting, ain't it?

IT CERTAINLY IS!

How about your excitement; did it get in the way?

NOT REALLY. SURE, IM LOOKING FORWARD TO VACATION, BUT I ALSO ENJOY MY JOB. I BELIEVE THAT I JUST BALANCED THOSE OPPOSING FORCES. WHEN I'M AWARE OF THAT, THINGS CAN RUN RATHER SMOOTHLY.

Good thing to know.

October 6, 2018

HEY PROFESSOR....

What is it, Bo?

I NEED TO TALK. I DONT NEED ANSWERS. I JUST NEED TO TALK, TO TELL YOU SOMETHING. I JUST NEED TO RELEASE IT.

Ok. Go ahead.

ITS ABOUT MY ENERGY AND ABILITY TO GET THINGS DONE.

Go on.

WELL I WAS STARTING TO GET OVERWHELMED SO I JOTTED DOWN A LIST OF THINGS I NEEDED TO DO.

Always a good start....

YEAH...AS I WENT TO GET STARTED WEDNESDAY MORNING, MORE THINGS HAD TO BE ADDED TO THE LIST. NORMALLY THIS WOULD STRESS ME OUT, BUT I ADDED THEM AND KEPT GOING.

A good sign....

ON THE SAME DAY, I GAVE MY CLASSES SOME WORK TO DO. THAT GAVE ME A DAY LONG OPPORTUNITY TO GET THE LIST DONE. NOT ONLY THAT BUT IT WAS THE DAY BEFORE A FIVE DAY WEEKEND. I SAY THAT BECAUSE I ANTICIPATED THAT THE STUDENTS WOULDN'T WANT TO DO A DAMNED THING. SO, I GAVE THEM THE OPTION OF WORKING IN CLASS OR HAVING WEEKEND HOMEWORK. THE POINT IS THAT I DID NOT FORCE THEM TO WORK. SOMETIMES IT LED TO CHAOS AND OTHER TIMES IT LED TO INTERESTING CONVERSATIONS WITH SOME STUDENTS.

Good sign of letting go of control....

HERE IS THE BEST PART; BY THE END OF THE DAY, I HAD COMPLETED 17 OF THE 18 ITEMS AND, THE LAST ITEM, IS TWO THIRDS COMPLETED!

Very nice! What do you think of all this?

I THINK IT WAS A RATHER GOOD DAY. I CAUGHT UP ALL MY WORK AND I LEARNED MORE ABOUT MY STUDENTS. ON TOP OF THAT, I CULTIVATED A RELAXED LEARNING ENVIRONMENT.

You know what my next question is, right? Did the students advance their mathematical knowledge and/or skills?

SOME DID BUT NOT EVERYBODY. TWO THIRDS ASKED QUESTIONS AND DID THEIR WORK. THE OTHER THIRD RELAXED AND SAVED IT FOR LATER. FOR THAT THIRD, A RELAXED LEARNING ENVIRONMENT WAS CULTIVATED.

Are you happy with these results?

YES, FOR 90% OF THESE STUDENTS. THE REST ARE NOW SPOTLIGHTED, AND I WILL NOTICE THEM MORE OFTEN. OF COURSE, WE BOTH UNDERSTAND THAT IT IS UNLIKELY TO REACH MORE 95% OF THE STUDENTS. HOPEFULLY, THESE PEOPLE WILL REMEMBER MY APPROACHES WHEN IT IS THEIR TIME TO LEARN WHAT I AM TEACHING.

I guess only time will tell.

ARE YOU HAVING DOUBTS ABOUT THIS APPROACH?

No more than anyone else. It's just that there are some unknowns in this plan. I think it's great that you are all caught up. However, I think you need to have a plan for all those students who did not work on that day. Do you have a plan for that?

I THINK SO. WE WILL GRADE THE WORK ON TUESDAY WITH A HEIGHTENED AWARENESS ABOUT WHAT HAPPENED THAT DAY. SINCE I WILL BE CAUGHT UP, I CAN APPLY MORE ENERGY TO ANALYZE THE RESULTS, QUANTITATIVE AND OTHERWISE. TSOON TO COME TESTS WILL HELP JUSTIFY THESE APPROACHES.

Sounds like a good plan. We'll talk when those results come in. I am sincerely glad you are caught up. It will help you to concentrate on the in the moment moments.

THANKS. WE'LL TALK WHEN I GET THAT STUFF.

October 9, 2018

HEY, DOC. WE NEED TO TALK. IM NOT ONE FOR HYPERBOLE BUT TODAY WAS RATHER DISTRESSING.

What's the matter? What happened?

NOT MUCH ON THE OUTSIDE. BUT ON THE INSIDE, I FELT OUT OF SORTS. I REALLY DIDN'T WANT TO BE THERE. AT ITS BEST, I LOVE TEACHING. BUT TODAY, I JUST DIDN'T WANT TO BE THERE.

So what was different today?

THERE WAS A LOT OF THINGS. AFTER SEVERAL DAYS IN CHARLESTON, I HAD GOTTEN OUT OF MY TEACHING RHYTHM. I HAD TO GET UP AND GO TO WORK. I'M ALSO A LITTLE TIRED AND GROGGY. ADDED TO THIS, THE KIDS DIDN'T DO THEIR WORK AND LIED ABOUT THEIR GRADES. I GET A STRONG FEELING THAT I NEED TO CHANGE SOMETHING IN THE CLASSROOM; WHAT I AM DOING TO TEACH IS LOSING ITS EFFECTIVENESS.

This sounds like a lot more than a change in routine. There is a lot more going on here. This feels a lot bigger.

I KNOW. I FEEL LIKE THIS IS A LOT BIGGER THAN I CAN SEE.

You know that that is okay, right?

WHAT IS OKAY?

That you can't see what's coming up.

SORT OF. I NEED TO SEE WHERE I AM GOING SO I CAN MAKE THE RIGHT DECISION.

You are absolutely correct. But we are not talking about the immediate future here. We are talking about the big picture. You need to see the moment to moment future. But you have to just accept the long term future.

AGREED. BUT THIS SEEMS TO BE HALFWAY BETWEEN THE LONG TERM AND THE IMMEDIATE. DON'T I NEED TO BE PAYING ATTENTION TO THAT?

You do. But here is the interesting part; When these happened before, you either ignored them or you didn't recognize them. That has apparently changed.

WHAT DO YOU THINK HAPPENED?

I believe, thanks to your inner work, you are feeling more and recognizing these feelings. I believe that your work with Guneeta and Keren are coming to fruition.

THAT'S GOOD TO KNOW. HOWEVER, I WONDER WHAT THAT SOMETHING IS. AND SHOULD I DO SOMETHING TO PREPARE FOR IT. ANY THOUGHTS?

I have thoughts but I don't really believe they are any predictor of what is going to happen. All we can do is guess.

I'M NOT GONNA HOLD YOU TO IT BUT WHAT IS YOUR GUESS?

I really have two thoughts; one is smaller and more immediate and the other is bigger and more long term.

GO ON....

The smaller and more immediate one is that a great teaching idea is about to take root and emerge. Something that will solve your problem of how the classes have become stagnant and boring and ineffective.

OKAY THAT IS POSSIBLE. I'LL STAY ALERT TO THAT ONE. WHAT IS THE OTHER ONE?

Right now, you are running your dissertation project and you will soon receive your PhD. That means opportunities to use that PhD are growing and taking root. Perhaps you are feeling that change and rooting.

THAT SOUNDS PRETTY AWESOME, ON BOTH COUNTS.

It is pretty exciting but, with these developments, comes a great responsibility. You have to be ready for that.

OK. GOT IT!

October 13, 2018

GOOD MORNING, PROFESSOR!

Good morning, Bo. Where have you been? I thought we were going to talk every day because of this study. What happened?

THE TRUTH IS, A LOT HAS HAPPENED.

Why haven't you told me about it?

I APOLOGIZE. I GOT CAUGHT UP WITH GETTING THINGS DONE AND THEN I WAS TIRED AFTER ALL OF THAT. I ADMIT THAT I NEED TO BE MORE PROACTIVE WITH THINGS.

I understand. Don't beat yourself up over this. I just wanted to know. So, tell me, in a nutshell, what has been going on.

AS BRIEF AS I CAN, THIS HAS BEEN WHAT HAS HAPPENED; GUNEETA HAS INSPIRED ME TO START LOOKING AT DOING A TED TALK AGAIN. WE HAD AN INTRUDER DRILL AT SCHOOL THAT HAS HAD SOME INTERESTING CONSEQUENCES. WE HAD A MATH MEETING THAT HAS INSPIRED ME WITH A STRONG DESIRE TO LEAVE PUBLIC SCHOOLS. I HAD LONG TALKS WITH MY CLASSES ABOUT LYING TO ME AND NOT ASKING QUESTIONS AND GENERALLY NOT SHOWING UP MENTALLY TO CLASS. I ALSO ADMITTED THAT I HAVE DONE THE SAME WITH MY TEACHING LATELY.

You are right; a lot has been going on with you. I feel an urge to chastise you about this but I believe it's better that I don't.

I AGREE...

Ok. Let's start at the beginning. Not the first things that happened but the first things that you said. So, let's talk about what you Guneeta talked about. Tell me everything you can remember.

AS USUAL, WE TALKED ABOUT THE THINGS GOING ON IN MY LIFE. LATELY, THERE HAS BEEN THESE FEELINGS OF NOT WANTING TO TEACH IN A PUBLIC HIGH SCHOOL. MY WIFE FELT AS IF THIS WAS A SIGN OF A TOUGH CHANGE IN MY LIFE. I AGREE AND GUNEETA TOOK IT A LITTLE DEEPER. WE NOTICED A FEELING OF AN EMERGENCE OF AN OLDER GROWTH; THE DESIRE TO PUBLICLY SPEAK ABOUT SCHOOL REFORM. A LITTLE BIT LIKE WHAT SIR KEN ROBINSON SPEAKS ABOUT.

An old idea? How old is this idea?

A COUPLE OF YEARS. I TRIED TO HAVE THIS UP IN VERMONT A COUPLE OF SUMMERS AGO. IT ENDED UP AS A MEETING WITH SOME EDUCATIONAL MENTORS WHO LIVED IN VERMONT AND NEW YORK.

And you want to try this again. What's different this time?

I AM NOT SURE IF MUCH HAS CHANGED EXCEPT ME, THROUGH MY WORK WITH GUNEETA AND KEREN. MAYBE THAT'S ENOUGH.

Could be...So what is your plan at this point?

IT SEEMS THAT IT IS TWO-TIERED. ON ONE HAND, I NEED TO LOOK INTO DOING SEMINARS FOR TEACHERS AROUND ATLANTA. THESE SEMINARS WOULD BE ABOUT HOW THESE TEACHERS CAN DO THINGS DIFFERENTLY FOR THE BETTERMENT OF THEIR STUDENTS. ALL OF THESE IDEAS ARE BASED AROUND IDEAS OF JUNGIAN PSYCHOLOGY. IT SEEMS TO BE THE RIGHT TIME BECAUSE I SHOULD BE FINISHING MY PHD SOON.

And the other tier?

THE OTHER TIER IS DOING A LOCAL TED TALK AND CREATING A YOU TUBE CHANNEL. AFTER MENTIONING THIS TO IRV LAST NIGHT, HE SAYS HE HAS A FRIEND WHO CAN HELP ME OUT WITH THIS. IT IS SCARY AND EXCITING AT THE SAME TIME.

I completely understand both emotions. Just remember, scary almost always means big. You may stumble and feel silly at times but just keep moving forward. Move forward because you are heading towards something really great.

THERE MUST BE SOME MAGIC IN THOSE LAST FEW WORDS; THEY ARE MAKING ME PHYSICALLY DIZZY.

That's a good thing. That means you are emerging to a higher level. Try to stay there....It's my opinion at this moment that your focus should be on the TED Talk project first. Once that has started to move practically on its own, it can be used as a promotional tool for the other project. You need practice and to work on some glitches in your style. Don't worry; we have glitches in our style. The newer you are to public speaking, the bigger the glitches. Nobody is a perfect speaker and nobody is great the first time in front of an audience. The plus for you is that you have been a teacher for many years.

October 18, 2018

GOOD AFTERNOON, PROFESSOR.

Hello, Bo. How are things in your teaching world?

NOT AS GOOD AS I WOULD LIKE.

Really?! What is wrong?

I HAVE TWO SITUATIONS, OR MORE, THAT SEEM TO BE RELATED. THINGS THAT ARE NOT NORMALLY THOUGHT OF AS GOING HAND IN HAND.

Go on....

FIRST OF ALL, I HAVEN'T BEEN VERY WELL PHYSICALLY THE PAST WEEK OR SO. I PASSED ON SEEING SOME LIVE MUSIC ON SATURDAY WITH A FRIEND AND I HAVE MISSED THE LAST TWO DAYS OF WORK. WHEN I WAS AT WORK, I WAS TIRED OF THE KIDS BULLSHITTING THEIR WAY THROUGH CLASS. I FELT VERY ANGRY AT THEM. I AM WORKING MY ASS OFF AND THEY ARE JUST SITTING THERE, DOING OTHER STUFF. THEY THINK ITS FUNNY TO FAIL.

You know what you sound like, right?

I KNOW; A MAINSTREAM TEACHER. THAT'S WHAT PROBABLY WORRIES ME THE MOST. IS IT BECAUSE I AM TIRED AND SICK. OR IS IT BECAUSE I AM SICK AND TIRED OF SYSTEMS LIKE THIS?

That's a good question, Bo. What do you think?

I THINK MAYBE I AM GETTING TIRED OF ALL OF THE POLITICS OF PUBLIC SCHOOL EDUCATION. I MEAN REALLY TIRED. TIRED TO THE POINT OF MAKING ME PHYSICALLY SICK. I HAVE A SORE AND TIRED THROAT, LIKE I AM TALKING TO THE POINT OF EXHAUSTION. NOW MY BODY IS BREAKING DOWN FROM THAT FRUSTRATION.

How do you feel about classroom teaching at this point?

I AM NOT HAPPY WITH IT. MY ENTIRE TEACHING CAREER HAS BEEN INTERESTING AND CHALLENGING AND SOMETHING I ENJOYED. BUT THAT SEEMS TO BE GOING AWAY. I DON'T REALLY ENJOY IT THAT MUCH ANYMORE. I'M KINDA BORED. AND IF I'M BORED, THEN THE KIDS ARE PROBABLY BORED TOO. I KNOW THE MATHEMATICS BUT IT DOESN'T THRILL ME LIKE IT ONCE DID. I CAN DO A CAPABLE JOB, BETTER THAN MOST, BUT I AM NOT SURE IF I AM MUCH OF A MASTER AT IT. I FEEL LIKE I AM MORE OF A BIG IDEA GUY. I MEAN, I AM BETTER AT DEVELOPING EDUCATIONAL PHILOSOPHIES THAN TEACHING TECHNIQUES. I AM AN EDUCATION ENGINEER, NOT A TEACHING TECHNICIAN.

It's always good to know who and what you are...and aren't. If not teaching in the classroom, what feels right to you?

WHAT FEELS RIGHT IS THE EMERGING THINGS OF THE PAST FEW WEEKS; WRITING BOOKS AND GIVING TEACHING SEMINARS. I'M NOT SURE IF I'M READY FOR THAT OR THAT TEACHING IS READY FOR ME, BUT THAT FEELS RIGHT FOR ME RIGHT NOW.

Well, here's my advice; keep teaching and be kind and keep it simple. With that extra time, write your book and develop your seminar ideas. Start making contact that will help you in those pursuits. Trust the Universe and go for it. Trust your instinct. Follow the chaos of the boys. Feel the freedom of those same boys. That's where the magic and money is.

LET ME MEDIATE AND FEEL INTO THAT. THANKS.

October 21, 2018

Hey, Bo. How are you feeling?

FAIR TO MIDDLING.

What's the matter?!

I FEEL RATHER SAPPED OF ENERGY. I HAVE A DRY COUGH AND IT KEEPS ME FROM SLEEPING DEEPLY AT NIGHT.

I'm sorry to hear that. How is it affecting your teaching?

IT'S HARD TO TEACH WHEN YOU ARE TIRED. IT KEEP S YOU A LITTLE IMPATIENT; WITH YOURSELF AND YOUR STUDENTS. IT'S A PRETTY BAD COMBINATION.

I'll say! How are you recovering? Do you feel there is an end in sight?

NOT REALLY. I COUGH AND I HAVE TO WORK ON SLEEPING. ON TOP OF THAT, WHEN I AM AWAKE, I FEEL TOTALLY UNMOTIVATED. I FEEL LITTLE DESIRE FOR ANYTHING. I JUST FEEL NUMB, LIKE I AM JUST EXISTING.

I get it; You are sick which makes you tired which makes you too tired to feel anything. Seems like the sickness is the catalyst for this negative string of events.

SEEMS LIKE? YOU MAKE IT SOUND AS IF THAT IS NOT THE SOURCE OF THIS DILEMMA. WHAT IS BEYOND THE SICKNESS?

Oh, you heard that. I'm proud of you for noticing.

DON'T DIVERT WITH CONGRATS. THERE'S SOMETHING BEYOND THE SICKNESS, ISN'T THERE?

Sounds like you agree...

WELL...I AGREE AND I DON'T. I GET HOW OUR INNER THOUGHTS LEAD TO OUR OUTER ACTIONS. I BELIEVE IN THE CHAKRA CENTERS. HOWEVER, I GOT SICK LIKE THIS LAST YEAR AND MAYBE THE YEAR BEFORE THAT. I TRIED TO THINK THROUGH THESE TERMS IN ORDER TO GET A SOLUTION. GUESS WHAT HAPPENED? I GOT SICKER. I ENDED UP TAKING SOME ANTIBIOTICS BECAUSE I COULDN'T FUCKING BREATHE. I NEVER CAME UP WITH A CHAKRA SOLUTION. I NEVER FOUND A CAUSE BENEATH JUST PICKING UP GERMS. I'M NOT SURE WHAT I AM SUPPOSED TO WITH THIS.

Are you angry?

NO. I'M JUST FUCKING FRUSTRATED. I EAT RIGHT AND EXERCISE AND THIS SCRATCHY THROAT COMES ANYWAY.

Listen to what you just said. You said that you try physical preventative measures and they didn't work for your physically scratchy throat. it seems that you need to try something different.

I'M NOT SURE I GET WHAT YOU'RE TALKING ABOUT.

I mean, you didn't mention your frustration with Chakra solutions. You said that you tried that but you didn't mention what you tried. Are you trying to tell me that you don't understand the Chakra type solutions? What did you try?

WELL...MY SOLUTIONS WERE RATHER VAGUE BECAUSE I DON'T KNOW THAT MUCH ABOUT THEM. I THOUGHT THE THROAT CHAKRA, WHERE MY PAIN IS, IS ABOUT SPEAKING. I FIGURED THAT, IF I SPOKE ABOUT MY DILEMMAS AND THE THINGS THAT ARE MAKING ME "SICK AND TIRED" THEN MY PAIN IN MY THROAT WOULD FADE AWAY.

Did you talk about those things to anybody?

I TALKED TO MY CLASSES AND TALKED TO DONNA. I OCCASIONALLY WOULD TALK TO COLLEAGUES. BUT NOBODY GETS WHAT I'M TALKING ABOUT. I HAVE TO EXPLAIN WAY TOO MUCH AND IT IS PRETTY LIKELY THAT THEY DON'T AGREE WITH ME.

You are right in many ways but, it seems to me, that you need to expand your audience. Start writing the book. Write some more on WordPress. More importantly, talked to others like me and others in your world. Ask us how you can expand your audience. Like your recent dream, find your gang of boys to hang with. Find your freedom. There will be free money everywhere. Speak and trust. That is where your solution lies.

I WILL MEDITATE ON THAT. SPEAKING UP REALLY SCARES ME. MAYBE WE CAN TALK ABOUT THAT NEXT TIME.

I would love that.

October 27, 2018

WELL, I'M BACK.

Good to see you, Bo. Have you thought about what we talked about last time?

TO BE HONEST, NOT REALLY. I GUESS THAT MAKES SENSE, IN A WAY. WHY WOULD ONE THINK ABOUT HIS OR HER FEARS WHEN THERE IS SO MUCH MORE TO THINK ABOUT; SO MANY OTHER THINGS TO FIX.

That is certainly true. However, it seems like you have no sense of urgency on this matter.

IS THAT A PROBLEM?

I would say that it is quite a big problem. If you can't look at the problem, there is no way to experience any substantial growth. You do want some substantial growth, right?

SURE, I DO. BUT THIS SEEMS TO BE A SUBSTANTIAL PRICE AS WELL.

Great things need great investments. Don't you agree?

CERTAINLY, I DO. I GUESS I NEED TO MAKE THE GREAT INVESTMENT.

Remember our talking the other day? You were frustrated by your sore throat and congestion. The big question is this: Would you rather speak up or have congestion and a sore throat? Did you want to constantly cough or constantly speak your truth and constantly expand your audience? It is your call.

I THINK WE BOTH KNOW THE ANSWER TO THIS QUESTION. BUT THE QUESTION TO THE QUESTION IS WHAT DO I DO RIGHT NOW TO GET THERE?

As we talked about the other day, you need to start writing and brainstorming. You need to get writing on that book. You need to brainstorm how to gather more people of like minds. How to get all these like minds to meet in one place and have an avenue for discussions. Any thoughts?

YEAH. SURE. I NEED TO WRITE THE BOOK. I NEED TO WRITE MORE ON WORDPRESS. I NEED TO LOOK INTO WORDPRESS AND FACEBOOK AND LOOK FOR WAYS TO SPREAD MY WORD. I NEED TO INVITE PEOPLE OF LIKE MINDS TO GATHER, EITHER IN CYBERSPACE OR REAL SPACE. I NEED TO PREPARE TO PITCH MY IDEAS TO THAT SCHOOL IN SOUTHEAST GEORGIA. CONTACT MEG AND SEE IF SHE HAS ANY IDEAS. MOVE FORWARD WITH IRV'S VIDEO GUY.

But first?

BUT FIRST I MUST IDENTIFY WHO I AM AND WHAT I AM ABOUT.

Pretty tough self-assignment. Are you up to it?

YEAH...WELL, MAYBE....I GUESS WE WILL FIND OUT. I NEED TO JUMP IN THERE AND START MUCKING AROUND...AND ITS OKAY TO MUCK THINGS UP; IF IT IS MY DESTINY, THEN IT WILL WORK ITSELF OUT. IF IT ISN'T MY DESTINY, THEN THERE IS SOME LEARNING TO BE LEARNED IN THE EXPERIENCE.

There you go, man! It's out there. Just go out there and get it. Once you graduate soon, there are no restrictions of university to alter you path. You can make all your moral decisions, guided by the past guidance of your mentors at Saybrook. The path is pretty clear once you figure out what you are all about. Destiny does her job but it is your job to define what she has been telling you and showing you.

OKAY. I FEEL A LITTLE BIT BETTER. I JUST NEED TO KEEP MY EYES WIDE OPEN AND PAY ATTENTION TO WHAT'S BEEN GIVEN TO ME...

And what else?

I NEED TO WRITE. TO WRITE. AND TO WRITE SOME MORE. KEEP MY EYES ON SOCIAL MEDIA AND WORDPRESS. WHAT WAS IT KEREN POINTED OUT TO ME? ...OH YEAH! THE MONEY IS WHERE THE CHAOTIC BOYS ARE RUNNING. WHERE THE BOYS SEEM LIKE CHAOS BUT IT IS REALLY THE BOYS EXPRESSING THEIR FREEDOM AS YOUNG BOYS. I GOTTA FIND THAT FREEDOM!

There you go! Follow that flow!

October 28, 2018

PROFESSOR?!

Yes. I'm right here.

I WAS JUST WONDERING; IT IS SUNDAY AND WE ARE BACK AT SCHOOL TOMORROW.

Yes...

I WAS RECENTLY IN A TERRIBLE FUNK AND NOW I SEEM TO BE CRAWLING OUT OF IT. THE KIDS ARE SORT OF SELF-DIRECTED AND I FEEL A LITTLE BETTER ABOUT WHERE WE ARE GOING. I HAVE SOME SILLY DUTY BUT IT SEEMS TO BE ALRIGHT. SHOULD I BE WORRIED?

Why do you think you should be worried?

YOU KNOW; WHEN EVERYTHING SEEMS ALRIGHT, THEN THAT'S A PRETTY SURE SIGN THAT YOU'RE NOT PAYING ATTENTION.

That's true. Do you feel like you are not paying attention? Do you feel like everything is alright?

NOT REALLY. I FEEL LIKE MOST EVERYTHING IS BETTER BUT NOT GREAT. I AM ENJOYING TEACHING MORE BUT THERE IS NO WAY I FEEL LIKE THIS IS THE FINISHED PRODUCT. THINGS SEEM A LITTLE OFF. I'M PREPARED BUT NOT FULLY.

Sounds like you have one foot in "things are good" and another foot in "I'd better pay attention." It's a pretty good place to be but it may have a tendency to make you feel split. Overall, it is good to have this double awareness. However, you have to know where you ultimately and which island you are just a tourist. Where do you think you live?

I AM DEFINITELY A RESIDENT OF THE PAY ATTENTION ISLAND. I MAY LIKE TO VACATION TOO MUCH ON THE OTHER ISLAND.

Good! Good! It's good to know where you live and where you vacation. It is also good to know when you are vacationing too much. So good job on that.

OK. WE HAVE ESTABLISHED THAT I AM HEADED TO THE RIGHT PLACE AND RIGHT MIND. MY QUESTION IS NOW WHAT'S NEXT? HOW DO YOU HEAD THIS CORRECT DIRECTION WITH THE LEAST BUMPS IN THE ROAD?

That is very nearly your call. You need to take what you have and decide what you should do with those things.

WELL, THE KIDS HAVE SOMETHING TO DO AT THEIR OWN PACE. ALL I HAVE TO DO IS SHOW A LITTLE AND MONITOR THEIR PROGRESS. THERE IS A PLAN IN PLACE AND I JUST NEED TO PAY ATTENTION TO IT. THAT WAY I CAN LIVE WHERE I LIVE AND LET THEM LIVE THE FANTASY OF LIVING AT A VACATION RESORT. ITS THE PERFECT GROWTH SITUATION FOR ME.

However, ...

RIGHT! HOWEVER, THIS CANNOT CONTINUE ON FOREVER. I NEED TO BE PREPARED FOR WHEN THIS PLAN STARTS TO BECOME STALE. ANOTHER OPPORTUNITY FOR PAYING ATTENTION. I NEED TO LIVE THAT FOOTBALL ANALOGY OF "HEAD ON A SWIVEL." I NEED TO GO HARD BUT ALWAYS HAVE THE AWARENESS OF SOMEBODY OR SOMETHING IS WATCHING YOU AND WAITING FOR THE OPPORTUNITY TO KNOCK YOUR HEAD. I HAVE TO HAVE

AWARENESS OF A DEER IN THE WILD; EVERY SOUND COULD BE A SIGN FOR MY PAINFUL DEMISE. STAY AWAKE.

Good! I love the analogies! Pay attention. Never discount the sounds of nature. Always know that they are potential danger.

October 29, 2018

PROFESSOR, I NEED TO RANT ABOUT FACULTY MEETINGS.

Really? You know everybody hates faculty meetings. I am not sure if administrators even like these meetings.

I KNOW. I KNOW THAT THESE MEETINGS HAVE TO HAPPEN BUT WHY ARE THEY FILLED SO MUCH WITH THIS BULLSHIT.

I know what you're saying. What particularly are you talking about?

WELL, TODAY'S BULLSHIT IS CCRPI. ITS A METRIC THAT TRIES TO COMPARE SCHOOL'S SUCCESS.

What's the problem with this?

FIRST OF ALL, FROM WHAT I KNOW ABOUT RESEARCH, METRICS CAN'T MEASURE ANYTHING COMPLETELY. SECOND OF ALL, IT IS BASED ON STATE TESTS THAT HAVE BEEN PROVEN TO BE NOT VALID TESTS; SO, THE WHOLE METRIC IS BASED ON A FAULTY FOUNDATION. THEN THEY ADD TO IT GRADUATION RATES. GRADUATION RATES ARE REALLY BASED ON SOME SELECTIVE FACTORS AND, FRANKLY, ON INTEGRITY. ON TOP OF ALL THIS, THIS IS BASED ON A TEMPLATE THAT SAYS EVERYONE IS THE SAME AND EVERYONE LEARNS THE SAME AND THAT THEY ARE GOING TO COLLEGE AND BECOME ENGINEERS AND DOCTORS. IT STARTS WITH A FLAW AND ADDS SOME FLAWS.

Finished?

YEAH. I THINK SO.

You're right; this whole idea is flawed. This is intentionally flawed to cover the state, the district's and school ass. The idea is the old idea of "you're not working hard enough. You need to work harder." So, they try to figure out ways to extend the day. If you practice something wrong, it doesn't get better by doing that wrong practice longer. These are the things that are at the bottom of these lack of successes. But those administrators don't really want to look at those things because it requires them to completely revamp the system that have invested in.

I AGREE BUT WHAT DO WE DO?

That's an excellent question. I'm not sure what the answer is. It is obvious to you and me that the system desperately needs to be revamped. However, they don't want to let go of all of those investments. I know you want to go to the Finland Model. But they are in bed with standardized testing. They are in bed with textbook companies. They are in bed with Google. Instead of tearing the system apart and starting over, they are asking how they can follow these distractions to do more for them. That is the reason many people, like Peter Burmeister, believe that public schools are beyond fixable. I remember you telling him that you believed otherwise. Do you remember that?

YEAH, I REMEMBER THAT. HOWEVER, I DIDN'T SAY THAT THE SYSTEM COULD BE FIXED. AT THE TIME, I BELIEVED THAT THERE WERE WAYS THAT WE COULD TEACH BETTER WITHOUT ADHERING TO THE STATE'S CRAZY STANDARDS. IT WAS KIND OF A BLEND OF THE REQUIREMENTS VERSUS INTEGRAL TEACHING. IT WAS HOW I COULD JUSTIFY USING INTEGRITY IN AN IMMORAL SYSTEM.

Do you still feel that way?

NOT REALLY. A BLEND ADDS AN INVISIBLE STRESSOR TO THE TEACHER WITH INTEGRITY. I NOW BELIEVE THAT IT IS NOT FIXABLE AS IT IS. I NEED TO STEP OUTSIDE THE WORLD OF GOVERNMENT WORKING AND ACTUALLY REALLY TEACH.

Is this across the board for everywhere?

NO, SMALLER DISTRICTS SEEM TO WORK BETTER. OR AT LEAST SMALLER VENUES. IT'S SEEMS OBVIOUS THAT SMALLER SCHOOLS ARE BETTER AND THAT BIG CITIES ARE WHERE THE PROBLEMS ARE. THAT IS MAINLY BECAUSE THEY TRY TO POOL MONEY IN HUGE DISTRICTS, WHERE PERSONAL CARE IS NOT POSSIBLE.