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NEURO-COMPOSTION: DEVELOPING THE CREATIVE BRAIN IN THE
CLASSROOM

A dissertation submitted in partial fulfillment
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ST. JOHN'S UNIVERSITY

New York

by

Tara Scarola

Date Submitted _____

Date Approved _____

Tara Scarola

Dr. Steven Alvarez

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ABSTRACT

NEURO-COMPOSTION: DEVELOPING THE CREATIVE BRAIN IN THE CLASSROOM

Tara Scarola

This dissertation raises the question of how educators can incorporate research about the human mind to foster and support student growth throughout writing processes. In understanding how our minds process, interpret, and generate writing, valuable insights can be learned about the process of composing. Valuing the varying perspectives students possess and the types of texts with which students engage aid in developing not only what Paul Joy Guilford calls “divergent thinking,” but also a sense of empowerment and ownership over the writing process. In disrupting what Robert Thatcher calls “the phase-lock mode” and guiding students through reworking the writing process in a way that is most effective for themselves, the automatic process of composing will be revamped to reflect genuine and innovative writing. Breaking from the linear process of creation into a recursive approach will bring the classroom closer to what Steven Johnson calls the “adjacent possible” and will bring students closer to composing authentic writing.

DEDICATION
Mom and Dad, this is for you.

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INTRODUCTION

This dissertation raises the question of how educators can incorporate research about the human mind to foster and support student growth throughout writing processes. In understanding how our minds process, interpret, and generate writing, valuable insights can be learned about the process of composing. Valuing the varying perspectives students possess and the types of texts with which students engage, aid in developing not only what Paul Joy Guilford calls “divergent thinking,” but also in developing a sense of empowerment and ownership over the writing process. In disrupting what Robert Thatcher calls “the phase-lock mode” and guiding students through reworking the writing process in a way that is most effective for themselves, the automatic process of composing will be revamped to reflect genuine and innovative writing. Breaking from the linear process of creation into a recursive approach will bring the classroom closer to what Steven Johnson calls the “adjacent possible” and will bring students closer to composing authentic writing.

This dissertation is meant to acknowledge the complexities of writing not to demonstrate its difficulty but as a display of how hard the brain works to complete the task of writing. So often, people are reluctant to write because they feel they are not good at it, or it’s hard, or it takes too long; however, I want to flip the conversation from “it’s too hard” to “*why* is this difficult?” I want students to consider the questions: *Why* does it take so long for me to write? *Why* is this so hard? And I don’t mean because of procrastination, or unwillingness. I mean, what is going on in our brains that make this process seem so grueling, and how can we change it from seeming to be impossible to something that can be managed?

Writing has always come naturally to me. I enjoy writing. I write for fun. I think writing *is* fun. This is usually where I get blank faces from my students. It is a concept that many students cannot understand—write for fun? No, thank you. To have a conversation about why writing is difficult without considering the neurological processes occurring, is to have a conversation that circulates around “it’s hard; it’s boring; it takes too long.” Yet, research has shown that “Writing involves the fullest possible functioning of the brain, which entails the active participation in the process of both the left and the right hemispheres” (Emig 124). So, why are we not talking about this when we discuss the difficulties of writing? *Writing involves the fullest functioning of the brain.* That is a major statement.

This dissertation explores ways educators can use neurology to not only help students through the writing process but to educate them on the complexities of writing that may not have been considered. In doing so, I hope to alleviate some of the pressures reluctant writers feel when they meet an assignment that they find difficult. Previously thought to be only a right-brained task, writing actually needs the entirety of the brain; “Writing is markedly bispheral” (Emid 124). In fact, Janet Emig expresses that “The right hemisphere [...] seems to make at least three, perhaps four, major contributions [...to the writing process...] emotions; emotional appropriateness in discourse; source of intuition, a unique form of feedback, as well as reinforcement, exists with writing, because information from the process is immediately and visibly available as that portion of the product already written” (Emig 125). While, Planton “found that the left intraparietal sulcus was a consistent region associated with writing” (Baldo 3). This research reveals that both the left and right sides of the brain play a major role in writing.

The purpose of this dissertation is also to demonstrate that the writing process is meant to be considered by writers in order to make process individualized and accessible. George Steiner defines learning as “changed patterns of protein synthesis in relevant portions of the cortex” which shows that learning changes the makeup of the brain (Emig 124). In asking students to consider and learn from their past writing struggles, new learning and process can occur that will help to shape their futures with writing.

Chapter one aims to first explore the history of creative research and theories to demonstrate how researchers have approached understanding the creative mind. This research is included to articulate just how far the field has come. It used to be believed that creativity was once a divine gift that very few people could experience. Now, it is understood that all people possess an everyday creativity which situates the argument for a classroom in which more thought is given to the creative process. Additionally, this chapter unpacks the history of cognitive theory in composition in order to provide a foundation for my argument that neurological education should be present within writing classrooms. I situate my argument based on the cognitive theories that have shaped writing studies previously in order to provide innovative approaches that are first grounded in past approaches within writing and compositions studies. In turning to research done by cognitive scholars such as Linda Flower, John Hayes, and Janet Emig, the cognitive approach to composition will be revisited to call for a shift from a view that values the writing process as a production of a piece to a practice that instead values the growth of the individual who wrote a piece.

In asking educators to shift from a view that values the writing process as a production of a piece and instead asking them to value the growth of the individual who

wrote a piece, students in turn develop an individualized writing approach that can be carried into other classes and aspects of their lives. Emig's argument that stage models of creativity are useful because they demonstrate that "there are elements, movements, and stages in the composition process;" but, we should be careful not to relate the creative process to a linear process will be specifically examined to demonstrate that writing occurs recursively (Palmeri 27). In understanding that students move through the creative process in individualized ways, educators must then make space for model of writing that is accepting of multiple process and products. The chapter will expand upon Janet Emig's call for a shift from understanding the creative writing process as being linear to one that is recursive. In her book *The Composing Process of Twelfth Graders*, Emig describes how there becomes no "one-size-fits-all" writing process, because the ways in which the creative process occurs is individualized and learned through practice. Writers arrive at conclusions that vary from individual to individual because of the experiences he or she carries.

Next, Chapter 1 pushes the idea of the cognitive approach by asking what happens when writing moves beyond the alphabetic, to invite multiple resources of production would be to invite a larger space in which students can outline and develop ideas before writing. Palmeri discusses that writers and artists transform images and words to generate new ideas and imagine new goals; therefore, this process, which he calls "translation," is the writer's movement from nonverbal, mental imagery into alphabetic writing; and it one that should be present within the writing process (30). The chapter will discuss the idea that "writers do not think in words alone [...] so the writer's task is to translate meaning"

and how educators can use multiple modes of meaning making to encourage creative thought that will then aid in the production of a written piece (32-33).

Chapter 2 builds upon the groundwork Chapter 1 lays by working to understand how our brains work when creating in order to find pedagogical models that drive students to become creative thinkers and composers. In turning to neurology, educators can use effective writing activities that will stimulate the brain and aid in plasticity; “the ability to strengthen and grow neuronal connections in response to external stimuli” in order to push students to arriving at their own individual process (Wirtz 2). *In The Write Mind for Every Classroom*, Jason Wirtz demonstrates how “practice and experience results in changes to brain architecture” which not only disrupts previous ideas that writing habits cannot be changed, but explains why each individual’s brains are “wired” differently (2). Under this idea, the experiences individual carry, will be vastly different from that of their peers— which means varied writing processes are necessary in a classroom.

This chapter serves to understand the makeup of the human brain and what it means for creativity. The first section addresses the understanding that “because writing is such a complex cognitive skill there is no single location in the brain that houses our ability to write;” therefore, writing involves the whole brain (35). This means different exercises are needed to develop writing. The section will answer the questions: what writing activities are appropriate for students to engage in throughout the various stages of the writing process, and how can the strategies be used most effectively in the classroom? As Wirtz explains, plasticity of the brain is proof that effective writing skills can become automatic; however, it takes work to get there. Similarly, this section will demonstrate the importance in teaching students how to navigate, in a unique process developed for themselves,

through the various writing stages. This process is known as the “transferring” between brain states; and “encouraging adolescent writers to recognize their own organic, circuitous, iterative process and to personalize their own approaches reinforces the understanding that writing is not a chronological process leading to a ‘correct’ response,” but instead an individual arrival to a solution (Wirtz 43).

The chapter will then expand upon V.S Ramachandran’s main argument about mirror neurons in his book, *The Tell-Tale Brian* in order to provide educators with effective pedagogical strategies to help students learn how to mimic effective writing and writing processes before developing their individual process. Ramachandran argues that mirror neurons, which he describes as a “network of brain cells,” are vital in human evolution (4). Pedagogically, it is noteworthy to determine how and why these neurons play a vital role in creativity. These cells are active when a human undergoes an activity; but, interestingly, the neurons are also activated when the human watches the same action being performed by someone else. He argues that this activation of neurons “set the stage for the cultural ‘inheritance’ of skills developed and honed by others” which, in turn, drove to culture (2). Ramachandra argues imitation was one of the key steps in the evolution of humans. To expand upon his idea, student-writers must then first become “imitators” of effective writing skills in order to then use those imitation skills to produce authentic writing and eventually develop individual models. This step is important because educators and students first need to undo poor writing habits—such as writing only one draft of a paper—in order to create new automatic, beneficial habits. This cannot be done in one semester, which is why a curriculum that instills these ideas is needed across content areas. Lastly,

Chapter 2 concludes with sample lesson plans that can be used in the First Year Writing (FYW) classroom that support the pedagogies and practices this chapter outlines.

Chapter 3 acknowledges that collaboration and social involvement are conducive to creativity. Being social is a significant element of the human mind; therefore, effective strategies that produce authentic writing within a classroom should include social approaches. In *Social: Why our Brains are Wired to Connect*, Matthew D. Lieberman explains that education has been set up in part due to a misunderstanding of how the brain functions. Previously, the brain was thought to be “relatively fixed and had all the neurons it was ever going to have not long after birth [...therefore we can...] learn new information but not change [...] the processes that support thinking and learning” (294). He says this is the reason “education is so focused on the acquisition of new information rather than on trying to mold minds themselves” (294).

Lieberman argues that our brains are wired to be social; therefore, students crave a sense of belonging and an education that teaches them how to be better social people. He explains students’ socialness is not their fault nor is it something that can be fought. Instead, our brains are inclined to be interested in social situations; therefore, this chapter explores the question of how can classrooms be designed to include more collaboration and how can pre-writing activities include social aspects. The chapter will define Tim Brown’s definition of design thinking in order to transfer it into pedagogical spaces. Brown explains that design thinking “taps into capacities that we all have but that are overlooked by more conventional problem-solving practices” to turn companies and business into human-centered thinkers that rely on the creativity of the entire staff (4). This chapter pushes his ideas to think how a classroom can be redesigned to develop creative thinkers. In looking

at Foucault's *Discipline and Punish: The Birth of the Prison*, the suggestion that schools are used as a disciplinary vessel as opposed to place for development becomes alarming. Brown believes there needs to be a balance between divergent and convergent thinking in order to find success; however, traditional American school systems continuously flatten divergent thinking. In addition, Brown argues that creative teams need "the time, the space, and the budget to make mistakes" which means that the traditional semester does not allow for the flexibility creative thinking needs (71).

In the text *Where Good Ideas Come From*, Steve Johnson discusses the use of creative landscapes and the brain's makeup to promote creative thinking. Creative thinking cannot occur when the individual is stifled within a fixed routine or structure. Creative potential cannot be reached if the individual does not have access to certain mind-states or does not have a comfortable, accepting environment in which he or she can create. Creative thinking does occur when the brain is exposed to different environments, thought processes, and undergoes a series of various functioning; therefore, a balance between structure and unrestraint writing is needed. Robert Thatcher found that "chaos mode allows the brain to experiment with new links between neurons that would otherwise fail to connect in more orderly settings;" which means that an individual needs space to allow thoughts to run freely (4). The adjacent possible—the idea that creativity can occur within our own and society's own limits as long as the individual is given enough space to make mistakes, experiment, and create—is one that needs to be present within the writing classroom (33). As Bruce Ballenger points out in "The Importance of Writing Badly," students need more space to make a mess before the really good material can surface (33).

Lastly, this chapter considers the neuroscience behind Ramachandran's question concerning art: "why do we like to look at what we like to look at?" The chapter will expand upon the reasoning behind why art may be neurologically pleasing in order to include similar understandings when it comes to writing. How can educators push their students to produce authentic and meaningful writing pieces? The chapter includes research on art therapy done by Dafna Moriya to attempt to arrive at an innovative way to teach writing through arts-based research that supports the writing process; such as asking students to visually interpret their topics before writing, the use of abstract art as a prewriting strategy, and using poetic language as a springboard to academic writing. Concluding Chapter 3 is a sample lesson plan instructors can use to weave these practices into their assignments and lectures.

Finally, Chapter 4 discusses the idea that one way to develop writing through social approaches is to include translanguaging within writing assignments. Translanguaging is the flexible use of an individual's linguistic resources. In translanguaging, bilinguals have one linguistic repertoire from which they select features to strategically communicate effectively—which demonstrates that there is no one language that works best. Additionally, this chapter provides an understanding of the difference in makeup of the brain of a bilingual and the brain of a monolingual individual, so educators can better understand the needs of their students.

First, Canagarajah's "difference-as-resource" perspective will be addressed. His "difference-as-resource" pedagogy invites students' home languages into the classroom as a pathway to the production of meaningful writing. Under this idea, students use multiple languages, literacies, and cultural backgrounds to compose authentic and unique writing.

In drawing upon second language theorists such as Stephen Krashen and Jim Cummins, this chapter will explain why using the home language in the classroom is more beneficial to students versus an “English only” approach.

Next, Ramachandran will be revisited to explain Broca’s area in the frontal cortex which “contains maps, or motor programs, that send signals down to the various muscles of the tongue, lips, palate, and larynx to orchestrate speech” and the importance of this area to both monolingual and multilingual speakers (172). This area is important because it is rich in mirror neurons, and some researchers believe this is how speech first evolved. While researching people who were bilingual since birth, Joy Hirsch, and others, used fMRI to determine how multiple languages are represented in the brain. She and her colleagues found “the two languages show very little separation in the activation of Wernicke’s area,” which is an area of the brain that is responsible for the comprehension of language (252). This proves that having strength and skills in comprehending one language will provide the necessary knowledge to transfer the skills into the second language. For this reason, language learners should be using their home language in conjunction with English in order to continue to develop comprehension skills. Too often, students stop using their home language in order to learn English fast. Unfortunately, what happens next is their comprehension skills fade in their home language making it even more difficult to acquire these foundational skills in English. In understanding the makeup of a monolingual and a bilingual brain, educators can continue to support second-language writers.

The chapter will also argue for ethnographic writing assignments for these types of classrooms. The chapter will look at Shirley Heath’s arguments for ethnography in the classroom, to demonstrate how ethnographic writing brings the outside world into the

classroom. Ethnographic writing is multimodal, composed of smaller projects, and flexible in that the student chooses the topic which are all factors that are beneficial for bilingual and multilingual students.

Chapter 4 uses research of Joy Hirsch, and others, who used fMRI to determine how multiple languages are represented in the brain. While researching people who were bilingual since birth, she and her colleagues found “the two languages show very little separation in the activation of Wernicke’s area,” which is an area of the brain that is responsible for the comprehension of language (252). This proves that having strength and skills in comprehending one language will provide the necessary knowledge to transfer the skills into the second language. For this reason, translanguaging, the use of multiple languages simultaneously, should be present in the classroom. In understanding the makeup of a monolingual and a bilingual brain, educators can continue to support second-language writers.

Chapter 4 concludes with an outline of a literacy narrative unit that can be used in the FYW classroom. The unit combines the research this chapter discusses and includes artist Dafna Moriya’s discussion of art therapy. I use Moriya’s ideas to demonstrate that, similar to conducting an art therapy session, teaching a group of writers will require the instructor to provide multiple avenues for an individual to express their ideas, patience and support, and most importantly guidance on development of thoughts.

CHAPTER 1: A HISTORY AND INTRODUCTON TO CREATIVITY

This chapter aims to first unpack the history of cognitive theory in composition in order to provide a foundation for my argument that neurological education should be present within writing classrooms. I situate my argument based on the cognitive theories that have shaped writing studies previously in order to provide innovate approaches that are first grounded in past approaches within the field. In turning to research done by cognitive scholars such as Linda Flower, John Hayes, and Janet Emig, the cognitive approach to composition will be revisited to call for a shift from a view that values the writing process as a production of a piece to a practice that instead values the growth of the individual who wrote a piece. In asking educators to shift from a view that values the writing process as a production of a piece and instead asking them to value the growth of the individual who wrote a piece, students in turn develop an individualized writing approach that can be carried into other classes and aspects of their lives. Emig’s argument that stage models of creativity are useful because they demonstrate that “there are elements, movements, and stages in the composition process;” but, we should be careful not to relate the creative process to a linear process will be specifically examined to demonstrate that writing occurs recursively (Palmeri 27). In understanding that students move through the creative process in individualized ways, educators must then make space for model of writing that is accepting of multiple process and products.

The chapter will expand upon Janet Emig’s call for a shift from understanding the creative writing process as being linear to one that is recursive. In her book *The Composing Process of Twelfth Graders*, Emig describes how there becomes no “one-size-fits-all” writing process, because the ways in which creation occurs is individualized and learned

through practice. Writers arrive at conclusions that vary from individual to individual because of the experiences he or she carries.

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History of Creativity

For the purpose of this chapter, I will briefly address how an individual’s creativity was viewed throughout history order to demonstrate the ways the field has evolved and changed. While this chapter does not have the space to go in depth within this vast field, I will address how creativity has changed to demonstrate how scholars arrived at the understandings of creativity that are practiced today in order to explore how educators can use these ideas in the classroom to stimulate a creative environment. Most importantly, this research establishes how creativity has become viewed as a “teachable” skill. In 1950, JP

Guilford redefined creativity “as a measurable psychological power or propensity, distinct from the familiar ‘intelligence; “ which was a major shift in the field (Still 1). In separating creativity from intelligence and acknowledging that a creative thought possessed “psychological” thinking, it proved that creativity could be accessed, and used, not only by geniuses, but by all individuals.

Previously, creativity was viewed as something that existed outside of conscious thought. For an individual to be creative, it was presumed that individual possessed access to a divine muse that others did not. Before creativity was linked with individual genius, it was linked with God’s Creation, and the idea that only God—or a divine power—could create anything substantial (Still). In linking “ ‘high art’ [...such as the...] great paintings, poetry, and music [...occurring in Italy during the 15th and 16th centuries with God, there became...] a contrast with [...] art made out of given materials, [...which...] relied on skill rather than ideas” (Still 1). This “high art” was something that so few possessed, many believed that no human being could come up with the ideas. Instead, the individual was more like a vessel whom creativity flowed from an outside force.

Creativity was not something that could be controlled, it was a free-flowing force that seemed to “pop” into one’s head like a gift from God. It is under this thinking that the romanticized idea of an idea “suddenly” coming to our minds originated (Kaufman). I will explain more about this process further in the chapter.

Since creativity was previously viewed as a force of divine work, the process of creating did not receive critical or analytical analysis until these beliefs were challenged much later. In fact, it wasn’t until “the widespread emergence of the modern discipline of psychology in the twentieth century did people begin to use the term ‘creativity’ and

attempt to define it in a scientific way” (7). Creativity became linked with genius. In fact, “genius was the most popular term for referring to great creative capacities during the seventeenth through early twentieth centuries” (Andreasen 7). Viewed as inseparable characteristics, an individual was creative because he was a genius, and he was a genius because of his creativity. The first major evidence that “genius (in the sense of creativity) was not the same as a high level of intelligence [...was found in the...] Terman study of genius” (Andreasen 12). Lewis Terman’s study began in 1921 and spanned the lives of gifted individuals for more than 70 years. It determined that “as the cohort matured, its members did not produce a significant number of creative individuals” which demonstrated that high levels of intelligence did not necessarily mean the individual would possess a high level of creativity as well (Andreasen 12). Terman’s research there was proof that creativity could exist without high levels of intelligence.

IQ tests emerged in an attempt to understand how, or if, creativity was determined by intelligence. In the 1960’s Frank X. Barron’s groundbreaking research determined that “creativity might be distinct from IQ [...because, it was found that, IQ...] did not explain the particular spark of the creative mind” (Kaufman and Gregoire xxii). Barron’s research, among others, created the shift in the 1950s and 1960s from an interest in a creative person’s intelligence to an interest in a creative person’s *personality*. It was believed that there were certain telling personality features that made a person more or less creative than others. Now, it appeared that an individual may be able to possess varying levels of creativity that differed from intelligence. Still, creativity was believed to be something very few individuals could access; “creativity is a quality of the person; most people lack that quality” (Amabile et al

3). Due to the scholars and researchers in the field, a definition of creativity emerged in the 1960s which stated a creative thought must be novel, or new and appropriate to culturally (Amabile et al 4). It was under this definition and these shifting understandings of creativity that researchers began testing individuals to determine their creativity level. This was a major shift in the field because this opened up new ideas of how creativity could be accessed.

In the 1970s through the 1980s there became less of a focus on determining what personality traits might make a person creative and instead scholars became interested in the cognitive minds of creative individuals. Simon Blackburn expresses “that romantic tropes have done enormous damage in recent culture” by portraying creativity as a gift from the divine instead of something an individual must work at to achieve, often arriving at a successful project long after experiencing failures or difficulties (156). Blackburn worked to demystify creativity in order to demonstrate that creative thoughts follow similar ordinary conscious processes—which is accessible to most, healthy, individuals. His research concludes that optimal creative activity actually requires the help of the conscious mind (Blackburn). In 1970, psychologist Abraham Maslow expressed that “a more widespread kind of creativeness” can be seen in all areas of life—even the everyday activities of the average individual (159). Moments of a new mental combination that is expressed in the world is considered creative. For example, taking a new route to work, trying a new sport, or even a new restaurant is considered creative acts because these examples are all new to the *individual*; “when I figure out how to balance my grocery bags so that I can hold them up and open the trunk of my car at the same time, I have done something creative” (Carroll 68). This idea is called associationism which psychologist

Alexander Bain defines as “new combinations grow out of elements already in the possession of the mind” (Burkus 57). This research determined that creativity was not only accessible to individuals who possessed high levels of genius or who worked professionally in an artistic field.

In the 1980s and 1990s creativity shifted toward sociocultural thinking which is interested in how groups of people, in social and cultural contexts, impacted creativity. Under this thinking, creativity is judged for its usefulness or appropriateness for a social group. Researchers were interested in studying creative people working together in social and cultural systems. Furthermore, in order to call something creative, it is required that the creativity gives some type of socially valuable product. Simply being unique to the creator is not enough under this thinking. Instead, a product must be judged by a social group to determine its appropriateness and novelty.

In 1983, Gardner determined that there are “seven multiple intelligences—linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, and intrapersonal” (Sternberg 177). A person could demonstrate intelligence in one or more of the seven aspects. Scholars and scientists became interested in what kinds of mental processes occurred as an individual created, but, even more recently researchers of composition creativity “generally focused on creative technique rather than debate the creative thinking process” (Lee 19). It is here, in the exploration of creative technique that this dissertation is interested. In understanding that creativity is a mindset that can be accessed, trained, and shaped and then thinking about how to strengthen and grow these skills is what, I argue, should drive a writing classroom.

Framing Creativity as Teachable

A major argument in creativity scholarship has been the argument as to whether or not creativity can be taught. As an educator, and a believer in creativity, Berys Gaut's argument of creativity appeals to me. He argues for "the use of heuristics" a set of discipline-specific rules, in educating people to be creative (284). While I don't believe that there are necessarily "rules" to creativity, I do believe, that the brain can be taught creative thinking. Gaut explains that "the use of problem-solving techniques does not guarantee the production of creative insights, but it can train the mind to perform the kind of thinking that will favor the generation of new and interesting ideas" which is similar to the ideas of plasticity that Chapter 2 discusses when involving the brain's ability to learn new things (276). He expresses that to complete a creative act "one must act purposively in being creative [...and...] one must act purposively in respect of the value of what one produces" which means creativity takes conscience thought (273). Additionally, it should be noted that, as Lee and Erdogan explain, "Creativity scholars in the sciences generally agree that 'creative does not happen by chance' and have argued for creative learning environments" which demonstrates that, under the right learning conditions, the brain can adapt creative thinking (Lee 24).

In 2009, Dr. James C. Kaufman and Dr. Ronald Beghetto determined four levels of creativity. These four levels are mini-c; little-c; pro-c; and big-c levels of creativity. It is important to note that an individual is likely to move between the mini-c and pro-c; whereas, big-c is reserved for masterminds of creativity or innovation that has led to significant social achievement. To briefly explain the four levels, I will use Walden University's explanation of the four c's. Mini-c involves the type of creative thinking in

which “what one creates might not be revolutionary but it is new and meaningful to them” (Walden University). These moments consist of anything that an individual tries for the first time whether or not it leads to something significant for themselves or for others. An example may be trying a new recipe, a different hairstyle, or even walking a new route through the neighborhood. Mini-c creativity may be experienced multiple times by an individual every day.

Little-c “reflects an aspect of growth from the mini-c level [...because...] advancements are made and what was created might be of value to others” (Walden University). In little-c, the creative act has grown and is receiving feedback or criticism from others. This might be seen when a student shows their art work to a teacher or parent; in a writing workshop session in FYW; or when a teacher presents a new lesson to administration. This creativity might not be accessed every day, but it has grown beyond the individual because it was shared and is open for feedback from others.

A creative act under pro-level c is when an individual has the “ability to be creative at a professional level and in a professional venue. [...Additionally...] at this point, one would have had many years of deliberate practice and training” (Walden University). Examples of creativity under pro-level c are authors or artists who are being paid for their work, or any individual who can act creatively in their workspace. Pro-level c creative acts may still be evaluated and criticized, but the creator is being paid for his work and may be receiving compensation for their creativity.

Lastly, big-c is used to describe individuals who have achieved great success in a creative field and criticism or discussion which “includes an evaluation of one’s entire career and entire body of work and then evaluates the entire body of work against other

great contributors and decides where one fits in” (Walden University). Obvious examples of big-c are the works of Michelangelo, Picasso, and Beethoven among many others.

This dissertation is most interested in determining effective ways to include moments of mini-c and little-c in the FYW Classroom. Research has shown that students are more likely to be creative; “if teachers actively encourage them to use creativity when identifying and solving problems and if teachers explicitly guide students in how to be creative” (Lee 25). I believe the *how* to be creative is most important here. In guiding students through creative thinking and by offering strategies and moments for students to experiment, educators can make the space for creative thinking to thrive.

Mini-c creativity may be achievable for students who find new approaches to writing assignments. For example, if a student tries a new way to write their introduction, or even if the student tries brainstorming before writing instead of jumping right in. Little-c may occur as the semester progresses and students learn more about their writing successes and modify their processes accordingly. Lee suggests that, in order to create an environment conducive to creativity, instructors “might focus on quantity and not quality through divergent thinking applications. For instance, instructors can help students generate ideas during the task defining and invention stages [...of writing...] by giving them tools to generate a large quantity of ideas, topics, questions, or concepts” (Lee 27). This chapter—as well as the dissertation as a whole—works to determine ways educators can work to create an environment that supports a creative mindset and that is supportive of new approaches in order for students to grow as writers and as creative thinkers.

Scholars express that the different types of creativity fall under one of two categories: everyday creativity and remarkable creativity (Chatzidaki 89). Remarkable

creativity refers to “the creativity of individuals that leads to a new scientific knowledge in a particular field;” therefore, this type of creativity falls under the pro-c and big-c areas of creativity (89). While, I assume, most educators would hope their students will achieve this level of creative success, within the space of a FYW semester, it is more achievable to guide students to experience moments of mini-c and little-c creativity which can be accessed during everyday creativity. Additionally, the challenge can be raised to search for different ways to move between all levels.

Everyday creativity defines the creativity that all individuals can experience. Everyday creativity encompasses the creative achievements one would experience in the mini-c and little-c areas of creativity. Since creativity is accessible by any individual who tries an approach that is new to them, I think it is clear that creativity can be taught in a classroom. Furthermore, with everyday creativity, the individual is competing only with himself in terms of establishing a new or improved approach. The creative “success” comes from advancing one’s own skill.

I think this idea of “competing” only with oneself in a writing classroom is beneficial. To compete with others—in terms of writing—may result in feelings of anxiety, insecurity, or even failure. It is natural to look at others to compare, but I don’t think it is always productive in a writing classroom. While this dissertation argues for a more social approach to writing, the first step is to create an awareness of a student’s own writing approaches, their goals, and their growth. Additionally, it is important to note that there are no “universals” for individuals, or that each has their own process to learn about, but they also learn from sharing their processes with others. By reflecting on these ideas, each

student is creating their goals based on their personal approaches to writing—not based on what others are achieving.

As an educator, I believe creativity can be taught and grown. I believe that environment has an influence over a student’s comfort with creativity, and that as educators we have the ability to make our classrooms a space in which the creative process can thrive; however there are arguments that state creativity cannot be taught. In the twentieth century, scholars began to focus on creativity’s relationship with social structure (Kechagias). The question shifted to can all people—not only “creative geniuses”—experience creativity? If so, can one learn to be creative? The question then expanded to, should creativity be taught in schools; and, if yes, how should it be done?

I will address them here in order to provide research that nullifies these arguments. Two major arguments that go against the belief that creativity can be taught are the imitation argument and the rules argument (Gaut 266). Firstly, the imitation argument states that all learning is a form of imitation. Humans learn by observing and watching others. While I am not denying this to be true, imitation does not necessarily mean a lack of creativity. Berys Gaut gives the example of speech. A child who learns to speak is not only imitating every utterance her parent said; that would be echolalic and not communitive. Instead, she learns to string together learnt words in order to express ideas, desires, or feelings. This linking of words is viewed as creativity because she is putting words together to express her thoughts and needs, instead of copying heard phrases at random. To bring this idea into the FYW classroom, we can think in terms of providing students with sample texts. Often, we show students examples of writing, or exercises, that we wish for them to try in their own papers. We don’t, however, want the students to *copy*—this would be

plagiarism which would be penalized— but to take the models as guidance in informing their own work. By applying new learning students learned from the model, the students are making it into their own—and, therefore, activating creative thought.

Secondly, the rules argument states that all learning consists in the following of rules; and, following rules is incompatible with being creative, so one cannot learn to be creative (Gaut 266). This, too, is arguable because, as the research I present in Chapter 2, the creative process is much more complicated than breaking or not breaking rules. Additionally, many successful creative people don't have "rules" they follow when creating, but they do have a process. Gaut says both these arguments are invalid because they fail to respect the distinction between learning creatively and learning for creativity (268). The creative process should not be viewed as a process in which certain steps must be taken in a certain order, nor should it be viewed as something that is rigid.

The two examples above nullify the belief that creativity can't be taught, so I will now turn to the ways in which educators can support creative growth in the classroom. The constitutive argument states that teaching someone to be creative requires motivation and ability. This means, as an educator, encouraging creativity is possible. John P. White was among the first scholars to argue that creative expression is a natural, innate, characteristic of humans that can be seen demonstrated when an individual is young; but, "in some children the ability is frustrated, while others are enhanced and developed to the maximum, resulting in excellence in the arts and sciences" (Chatzidaki 88). This belief has since expanded to encompasses many more areas of creativity than only art and science. To encourage creativity, assisters need to be present while resisters need to be at a minimum. Assisters consists of people, environments, and situations that encourage creativity while

resisters are things and people that discourage or do not make room for creativity. Many of these factors can be controlled; however, some, like “an idea that is ahead of its time” cannot be (Johnson 34). Environment, social expectations, timing, and an individual’s drive are all examples of factors that can work to “frustrate” creativity or advance it. Since we know that intrinsic motivation is conducive to creativity activity, it appears obvious that a motivated student would be more likely to be willing to challenge and strengthen previous notions of creativity than a nonmotivated student. The question then becomes how can educators reach students who might not be motivated and encourage them to become more creative thinkers? How can educators work to challenge these students without frustrating them or turning them off to writing or creative thinking? These questions will be explored further as this chapter considers theory, neurology, and pedagogy meant to support creative thinking.

The Cognitive Theory of Composition and Creativity

Linda Flower, the pioneer of the cognitive theory of writing, developed a writing theory that stems from both psychology and cognitive science. It was under this theory, that Flower displays the importance of the thought process behind the writing process and how an individual’s thought process influences the writing process. Flower and Hayes, in *A Cognitive Process Theory of Writing*, wonders “what guides the decisions writers make as they write” in order to arrive at an understanding of how composing— “as a series of decisions and choices”—is achieved (Flower et al. 365). Under this theory, it is encouraged to view the connection between how writers think about a process and how they carry out the writing process. This theory stresses that students who are aware of their writing

process can also determine the positive and negative components of their process in order to revise and learn from their process to become a stronger, and more efficient writer. In fact, the cognitive theory of composition “has shown us that the way students think about writing affects the way they write and determines the ease and confidence with which they engage in reading and writing tasks” proving that is beneficial for students to pause and think about the work they are doing (Penrose et al. 5).

As much as creativity relies on being expressed physically in the world, scholars argue that creativity is a thinking act (Lee 19). What is going on inside the minds of creative individuals is necessary in order for the work to be eventually expressed in the world. In fact, even when we are engaging in mundane acts such as washing dishes, showering, or driving a familiar route, our brains are busy working. In our brains neurons are constantly making new connections which cause us to arrive at new, innovative ideas. To explain briefly what this process entails, Johnson states that “Neurons send electrical signals down the long cables of their axons which connect to other neurons via small synaptic gaps. When the electrical charge reaches the synapse, it releases a chemical messenger—a neurotransmitter, like dopamine or serotonin—that floats across to the receiving neuron and triggers another electrical charger, which travels out to other neurons in the brain” which forms new connections—or thoughts (Johnson 94). Chaos mode, the mode in the brain when neurons are firing rapidly and making new connections—is often the mode in which new, creative ideas are being formed. This form of thinking is known in psychoanalytical theory as primary process thinking. Primary process thinking is unconscious thought process from the id and is typically characterized with dreaming. In this thinking, since our brains are not focused so much on making meaning, or on logical

thoughts, creativity can thrive. This type of thinking occurs during the tasks that don't require as much conscious thought, such as doing the dishes or mopping the floor.

It is in this primary process thinking that Elbow positions creativity. He calls it 'first order thinking' (Lee 19). In this mode, our brain is engaging in some of the rapid fire thinking that occurs in a dream state—even though we are wide awake. Robert Thatcher states in a research study, it was found that “every extra millisecond spent in the chaotic mode added as much as 20 IQ points” on an individual's score suggesting that “the more disorganized your brain is the smarter you are (Johnson 105). It is under this chaotic thinking that Thatcher, among others, believe that the brain is able to experiment by creating new links between neurons which leads to creativity.

Secondary process thinking is a more sophisticated way of thinking in which reality and rules are important and necessary to thoughts. Secondary process thinking involves what Thatcher calls “the phase-lock mode [...] where the brain executes an established plan or habit” without attempting any innovative solutions (Johnson 70). Scholars debate about the varying roles these types of thinking play in the creative process—and in writing—but many agree that both modes of thinking are necessary, at different moments, to a creative thought. Unfortunately, in many writing instances, students are writing to complete an assignment for a grade without undergoing any meaningful thinking or creating. To break away from this “phase-lock,” mode of thinking, experimentation, mistake-making, and “do-overs” need to be incorporated to allow for not only eventual success, but also for the student to develop the “muscle” of the writing brain. The adjacent possible—the idea that creativity can occur within our own and society's own limits as

long as the individual is given enough space to make mistakes, experiment, and create—is one that needs to be present within the writing classroom.

In understanding how important thinking is to a creative thought—in both the primary and secondary processes— it becomes evident that students should spend more time thinking about their approaches to writing. Since writing is a difficult and often overwhelming process for many of our students, in guiding students through thinking about their approaches turns a rigid process into one that is made adaptable for certain assignments, individuals, and writing classes. It is under this understanding that I am also pushing for a classroom that explores the workings of the brain in order to further equip student writers with an understanding of how their mind works while writing in order to further develop and push their skills.

Janice Laure, in 1970, “drew from psychology when she asserted that instructors can improve how they teach the creative process in composition by reflecting on creativity as a heuristic tool, which can stimulate [...] flexibility in writing approaches” which demonstrates that linking composition with what we know about the mind is useful (Lee 19). Furthermore, Ann Berthoff suggests that “anything we [writing teachers] can do to make composing not entirely different from anything else our students have ever done will be helpful” for struggling writers (Palmeri 40). In building commonalities between writing and students’ lives, as well as incorporating information about the brain and creativity, students may begin to shift their approaches towards writing and strengthen their creative processes.

In thinking of the cognitive writing theory, educators can work with students to make the writing process more individualized and accessible to all students. Ann Penrose

breaks down three main components in the cognitive writing theory. The first being “if writing is goal directed, then the goals we set are critical, for they determine what we do when we write” (Penrose 8). This idea demonstrates that writing under goals produce not only different outcomes, but different expectations, and processes. I listened to a podcast a few months ago, and one of the speakers said he was intimidated by writing because he often sat down and said to himself; “okay, today I will write fifty pages.” That goal stifled him because he felt like a failure every time he didn’t complete the page amount; furthermore, it created anxiety for him to have this page number loom over his head each day. It wasn’t until he set the goal of sitting down to write and see what he creates, that his writing—and his relationship with writing—improved. In a classroom, teachers can work with students in setting achievable, focused, and challenging goals that push students to further their writing skills.

The next component of the cognitive writing theory is that “much depends on the strategies writers have available to choose from in meeting their goals” (8). In thinking of a goal, teachers should also work with students to determine appropriate strategies that will assist the student in achieving the set goal. Students will also need the space to test out these strategies and find out, for themselves, which ones are beneficial for them. Lastly, “the cognitive process model [also implicates] that writers need ways to test whether their goals have been met” that are effective and appropriate to the goal (8). Penrose expresses an “infective test” as asking how long a paper has to be or instances in which students are not evaluating their own work nor are in conversation with others about the strengths and weaknesses of the work.

Linda Flower and John Hayes critique the idea that writing is a discovery in order to demonstrate that “writers don’t *find* meanings, they *make* them” (21). The job of a writer is not to determine a predetermined meaning but instead, while working through the creative process, design and create meaning for themselves. This idea is liberating because it alleviates the pressure that struggling writers often feel when thinking there is only one correct way to arrive at an answer, or approach a writing task. The idea that “this act of creating ideas, not finding them, is at the heart of significant writing,” and this is where educators can work to guide students to change their thinking of the writing process (22). A simple way to explore this idea with students is to first turn to images. As a free-write, students can explore a few images and attempt to arrive at a few meaningful answers to the problem. I like to use the New York Times “What’s Going on in this Picture” to spark conversation with students. I like to ask the students to brainstorm on their own, then in groups, then as a whole class to determine what they think was happening right before the photographer took the picture. We have this discussion to demonstrate how there can be more than one answer to a given question and that this idea can translate into writing as well.

Another important aspect to be considered when writing is audience. I ask my class to consider the ways in which they speak and write to their best friend compared to how they speak and write to their grandmother. To demonstrate this point I usually ask them to think of something they want to share—an idea, a story from their day, anything. Then, I ask them to write a paragraph to their best friend about it. I tell them to write it exactly as they would if they were texting it. I then ask them to write the same story but to address it this time to their grandmother, or another adult in their lives. Students are usually familiar

with how and why they change their speech when talking to various people in their lives. We consider, too, the differences in other languages the students speak; for example, the difference between *tú* and *usted* in Spanish and how these terms shift writing and speaking.

I use our discussion that follows that activity to explain how the same idea applies to academic writing—audience matters to the format, approach, and the wording of a piece. Flower states that in a study meant to determine the differences between “good writers” and “poor writers” found that “One of the hallmarks of [...] good writers was the time they spent thinking about how they wanted to affect a reader [...] The poor writers, by contrast, often seemed tied to their topic” (27). This is why, before every writing assignment, I spend time in class discussing the intended audience for the pieces and how the writer plans on addressing the audience. Although the students are all writing for a grade in the class, many of the assignments I give are meant to be springboards for students to consider furthering their projects after the semester. Some students have ideas to write for business magazines, some want to share their narrative with their families, and others want to extend their ideas into novels. I ask students to consider the audiences they wish to read their work and then to consider the ways this impacts their writing.

A clear way to get students thinking about this is to model the differences in the way a medical doctor may write a report on a patient for fellow staff compared with how she would write it to give to the patient’s family. Flower and Hayes ask “Would the performance of poor writers change if they too had a richer sense of what they were trying to do as they wrote, or if they had more of the goals for affecting the reader [...] that [...] the good writers” had, and, I believe the answer is yes (30). If students pause to consider why they are writing and who they are writing for—aside for themselves—then the focus can

shift from trying to fit their writing into a topic to a focus on the process of creating. In fact, Fower and Hayes suggest that “setting up goals to affect a reader is not only a reasonable act, but a powerful strategy for generating new ideas and exploring” which is exactly what we want our students to do—explore their ideas in order to grow their skills (30).

It is with these three components of the cognitive theory in mind that this chapter works to extend these ideas into a classroom setting along with creative strategies that encourage students to think in new ways in order to further advance their writing skills. In understanding how writing, and the mind works, students can learn to develop skills and strategies that work best for them during the writing process. When considering that “The student who asks ‘what should I do’ is looking for authority for answers” instead of working for these answers for themselves, or to understand the choices that can lead to appropriate responses, educators can work to empower students to locate answers for themselves (Penrose 6).

Recursive Writing and Creativity

While it is commonly understood by scholars that writing is a recursive process, the writing process is commonly taught as something one moves through linearly. It is important to educate students on the various stages of the writing process; however, it is just as important to demonstrate how the process varies from one person to another. Janet Emig states there “may be *processes* of writing” as opposed to a single writing process, and this is a reality that students should become familiar with in a FYW classroom (131). In understanding that writing has processes and is not a single process, individuals develop

and determine an approach to writing that is unique to their own expertise and needs. I think it is important for students to have guidance while working to develop their own writing processes because it is often engrained that writing has a linear process that one moves through step by step. Reversing this belief may free students from the thinking that they must mold themselves to fit a linear writing process.

To teach students that writing should be performed in a linear fashion is to ask students to conform into a mold. Janet Emig states that “In teaching composition [...] there are really only two significant modes of intervention: the proffering of freedoms and the establishing of constrain,” but a teacher should be wary of leaning too heavily to the constrain side (128). In hearing the term “constraints” I find it connotes a negative idea, but, as Emig explains, some constraints are necessary in order to guide students; such as “establishing [...] parameters, [...for example...] helping the student to identify the audience to whom his piece will be directed” provides students with knowledge that can help to tailor their writing in order to better meet the assignment’s goals (130). As this chapter expresses, creative thought does not work well under constraints—but some constraint is necessary in order for growth to occur.

Creative thinking follows a similar belief: two successful creative people may have very different creative processes. Naturally, it seems obvious to think that a person whose creative success is found in piano playing and a person who excels at writing would have different approaches to creativity, but, people within in the same field differ with their creative processes as well. Creative psychologist Mihaly Csikszentmihalyi explains that the difference between creative people and those who do not demonstrate high levels of creativity is their “complexity. [Creative people] show tendencies of thought and action

that in most people are segregated. They contain contradictory extremes; instead of being an ‘individual,’ each of them is a ‘multitude’” (Kaufman and Gregoire xxvi). I love this idea of being a “multitude.” This term establishes the complexities a creative person embodies. Csikszentmihalyi expresses that creative people are complex in the ways they think and create in addition to the ways in which they *process* this thinking. To begin thinking about this, I want to turn to the definitions of divergent and convergent thinking, as coined by Joy Paul Gilford in 1956.

When thinking of divergent and convergent thinking, it is helpful to first view them as the opposites of each other. Convergent thinking is the ability to conform thinking into producing the most productive, single solution to a given problem. Solving a problem “convergently” would produce a result that is arguably the best solution. In this type of thinking, there is typically only one logical answer. There are many instances in which convergent thinking is necessary. For example, it is necessary when answering a multiple choice test or spelling. Divergent thinking, however, is the solving of a single problem by using many different possible solutions. Divergent thinking requires a particular space—one that is conducive to creativity and will be discussed in later chapters—in order to be effective. As previously mentioned, the environments or people who stifle creativity are “resistors” and those that stimulate it “assisters” (Cropley17).

To think of these terms in a different way, Arthur Cropley discusses the presence of cognitive structures within the brain. Cognitive structures, where the brain stores experiences, are important to creative thinking. It is through these cognitive structures that humans “perceive the world as systematic and understandable and not as complete chaos” which is necessary to our physical survival (Cropley 30). When we are creating we do not

have to completely abandon these understandings; instead, these understandings should be challenged or pushed. The primary and secondary processes of psychoanalytic theory mentioned earlier in this chapter is also an additional way to understand the different types of thinking. Cognitive thinking relates to secondary process and divergent thinking relates to primary process since, the primary process takes place in the unconscious and the secondary process works to preserve what is relational. Both processes, as with divergent and convergent thinking, are required in different moments of thinking. Brain waves also play two different roles in both modes of thinking. Beta waves, which “are associated with thinking, conscious problem solving, and active attention to the outside world” are evident during moments of conscious thought (Beal 44). Alpha waves are “gentler waves [...that ignites...] creative energy” and is accessed while day dreaming (44). Similar to both thinking process, accessing both the beta and alpha waves play important roles in the creative process.

Convergent thinking is sometimes necessary in order to lay the building blocks that can stimulate creative practices. Especially with students who are learning the English language, researchers have found “instruction through convergent tasks provided learners with more successful language learning by paving the grounds for their further involvement and participation (Marashi et. al 110-111). Structure, at times, is needed in order to develop an understanding of the material or task before an individual can be asked to experiment or develop their creative thinking and practices. Interestingly, it is also necessary to take into account an individual’s personality when it comes to whether convergent or divergent tasks might be more useful to learning.

A study was done to compare divergent and convergent tasks on those with extrovert personalities and those with introvert personalities to determine if the two types of thinking demonstrated differences among the two groups. The study, which focused specifically on students learning English, determined “that divergent tasks had a significant and positive impact on both introvert and extrovert learners’ writing development” which the researchers suggested may be due to “the similarity between the nature of writing and divergent tasks” (Nosratinia et. al 1312). This idea, the act of writing as a divergent task, can be compared to Linda Flower and John Hayes’s idea that a writer’s problem is never a given. To write is to invent which, already, is an act of divergent thinking. Writers, through the process of creating a written piece, manipulate words to express created ideas. In fact, the idea that “writers don’t think in words alone” demonstrates that while undergoing the process of creating writing, the mind is already working within a divergent outlook (Palmeri 32). This idea relates to felt-sense, which to explain briefly, is the idea that writers, when approaching a given topic, begin to think of “images, words, ideas, and vague feelings [that relate to the topic]. When writers pause, they are looking to felt experience, and waiting for an image, a word, or a phrase to emerge that captures the sense they embody” (Palmeri 35). This idea of felt sense is essentially the translation of feelings and images into words which will be discussed further in the next section of this chapter.

Ann Berthoff suggests writing instructors to pay attention to the “diverse ways that people make meaning of the world using multiple symbol systems [...because each...] “craftsman, writer, artist, builder, can teach us something different about pattern and design to forming” since each individual may approach, and express, a problem in a different way (Palmeri 39). Under this belief, educators should urge students to be cognizant of not only

the differences between approaches to writing, but the similarities as well in order to draw connections and create the community environment that is conducive to students' writing processes that Chapter 3 further discusses.

Translation of Images to Text

The cognitive theory of multimedia learning can be used in order to build upon the ideas stated above. The cognitive theory of multimedia learning combines research about the brain and the idea that people learn more from pictures that are accompanied by words than by words alone. Drawing from “several cognitive theories including Baddeley’s model of working memory, Paivio’s dual coding theory, and Sweller’s theory of cognitive load,” the cognitive theory of multimedia learning combines research from cognitive processes as well as media in order to develop a mode of learning that may advance understanding of learning (Sorden 155). Our students have likely grown up in a world where images are prevalent; however, how many of them have taken the time to stop, assess, and question the images they are exposed to in order to see in unfamiliar ways? In first asking our students to become critical thinkers and interpreters of the images that surround them daily will help build skills that can transfer into writing.

Marjorie Siegel points out that while using multimodal approaches to writing may be a new experience for students while writing in school, these practices are most likely mirroring the types of writing they do outside of school. Students are already engaging in multimodal writing while they interact with social media such as Instagram or Twitter. I like to write the words “Multimodal Writing” on the board and ask students (without using technology) to brainstorm first what they know about this term—if anything—and second,

to list ways in which they feel they already write in this manner. I ask students to consider the writing they do in their classes as well as the writing they do outside of school. Using multimodal approaches may help those “students who have been taught to think of writing as structured, formulaic, and measurable [then is expected to make], the transition to FYW, in which writing is theoretical, critical, and constantly shifting,” (Saidy 258). While bringing these ideas of writing to my students, I usually pair Eugene’s Gendlin’s concept of felt-sense to demonstrate that writing is already involving much more than words on paper. Further in this chapter I detail the conversation I have with students about felt-sense and how we practice engaging within this type of thinking.

Saidy states that if FYW educators “hope to transition students to differing values between secondary and postsecondary writing [...then using...] a multimodal genre that is ‘not’ the genres they used in high school [...is effective because it...] encourages students to move away from formulas that may have been successful in high school and invites them to cross, rather than guard, boundaries” (255-256). I think this is especially important because writing is often taught in a formulaic way that has rigid boundaries that students are penalized for crossing. Instead, I want students to view their writing processes as something that is ever-changing and meant to transcend. Saidy runs a pre-semester writing class meant to acclimate students to what will be expected of them in terms of writing. She first teaches a podcast as a transition for students to FYW because she noticed, like many others, that her students were “far better at orally telling me their ideas than writing those ideas on paper” (Saidy 261). She designed this class because, after surveying her incoming freshman, noticed students often expressed the types of writing they completed in high school were “‘essays about books we read,’ ‘3 to 5 paragraph essays,’ ‘expository essays,

persuasive essays, performative essays, etc. One student reported writing ‘research papers and essays,’ which suggested the research paper was a paper primarily in the linguistic mode” (262). Additionally, the survey demonstrated that in coming to the university, students “expect[ed] to learn more [...about writing...] with more depth [...]but they expect[ed] college writing [..to..] be an extension of what they learned in high school” (264). This idea expresses that students were taught to think of writing in school as a fixed practice with little room for creativity or change.

James Elkins expresses that reading an image is a skill that is much different than natural visual abilities. He explains that “competence in the visual-spatial world [...involves the...] abilities to distinguish objects from space in which they are located, to track a moving object,” among others (13). Mitchell references Bishop Berkeley to explain that these abilities are called “visual language [...or...] the universal language of language” meaning, that these skills are innate and shared among various species (13). The ability to read and write, however, are “natural languages which are cultural constructions based in arbitrary, symbolic conventions” that differ among cultures (13). Mitchell stresses, however, that living in this “pictorial turn” world does not guarantee each individual an innate ability to understand and process images. Images are no longer meant to simply entertain. Instead, like any natural language, learning to “read” images need to be learned. I agree with his argument when he states that in order to increase visual literacy among students “a university-wide conversation on what might compromise an adequate visual introduction to the most pressing themes of contemporary culture [...is needed, and the rhetoric of images...] need to be taken out of graduate philosophy and history classrooms

and brought down to FYW students are taught [...] It is time to consider the possibilities that literacy can be achieved through images as well as texts and numbers” (4-5).”

Stafford argues, that against what many researchers previously believed, vision is not our first interaction with the world; it is our brain. She says the mind “is not a blank slate,” but it already is “weighted with a diverse repertoire of somatic images” (34). Therefore, Stafford wonders how do we “instruct the remaining non-autopoietic 10 percent of the self actively fashioned by, and open to, sensory input coming from the environment?” (34). Under this lens, she wonders, why does our brain even go beyond our own minds when there is a complex, innate processing and functioning occurring without any environmental stimulation at all? In combining scientific and artistic standpoints, Stafford asks what’s left of selective attention? How can we make “seeing” into an active process; and this is what I want my students to consider as well.

An assignment I like to use to get students thinking about the images around them is, for homework I ask them to take a picture of 5 media images they see almost daily. These can be posters they see on campus, magazine covers that are around their house, billboards (if they can safely take a picture of them), or commercials that frequently play on the channels they watch. Then, I ask that they write 2 paragraphs detailing first, the things they visually see from the image (color, people, shapes, etc.); then what they think the image is trying to portray; their reaction to the image; and if they think the image is successful in getting its meaning across. In class, we share some of their responses and have a conversation around the idea that images carry meanings and how to be a more critical “viewer” of these images. I lead students to Elkin’s ideas about the differences between images and pictures. He stresses that a picture is a material object; it can be

destroyed or altered. James Elkins explains that an image—the thing that appears in a picture—is an idea, concept, or feeling that transcends any type of physical destruction or alteration of the picture.

I think, students can understand these ideas when they think of advertisements. For example, perfume advertisements often portray their products as a lifestyle; wear this perfume and you will be wanted, rich, beautiful, or powerful. The idea that the picture of the bottle of perfume and the models portray is one that is meant to stay with the viewer long before the advertisement is changed on the television or walked by on the street. I like to tell my students that strong writing does this too—it sticks to you rhetorically long after it is read, and that is the kind of work they can expect to aim towards while completing assignments in my class.

Flower and Hayes discuss the idea of writing as a translation from image form to alphabetic form which is a comparison worth demonstrating to students. They argue that even when writers are planning verbally, they are not necessarily thinking in prose-like sentences. Instead, “a whole network of ideas might be represented by a single word” (Palmeri 33). The writer’s job is to take the ideas and “translate” into words that a reader can not only understand, but feel as well. In pushing the idea of writing as a translation of images to include a translation of ideas, sounds, etc., then students may be able to bring other sets of skills they already possess to their writing in order to approach writing in a new way. Providing students with tasks such as “describe the taste of water” or “describe the feel of a breeze” may help students to begin thinking in this idea of translation or felt-sense writing which can be used to make their writing more descriptive and more felt. Educators might also ask students to do this in a reverse way; they may provide words such

as “the sound of water dripping” and ask students to create a visual representation of what this sounds like; or, draw “the smell of rain.”

Our goal as FYW instructors, is to assist our students in translating these emotions into words; however, words describe things in a linear manner—and it may be a daunting task for a reluctant writer to “show not tell” the feeling of a grandmother’s hug or the smell of dad’s garage. Instead, images—which can encapsulate many details at once—may be a place to start before turning to writing alone. Ideas are mostly first developed privately in non-communicative, preverbal ways and only then transformed into language; therefore, engaging in multimodal activities may be an effective place to start before asking reluctant writers to produce an essay.

One of purposes of a FYW classroom is to introduce and prepare students to meet the writing demands of their college courses; however, before we ask students to become critical thinkers and producers of academic language, we should ask them to be critical interpreters of their own lives. By doing so, students may become more aware of how much knowledge they already possess that can “translate” into their writing. To give an example, Ann Berthoff asks students to both write and visually sketch observations of a common object over a week’s time. Then the students observe their observations and explore how both their written descriptions and visual sketches entail an active process of making meaning” (Palmeri 40).

Dafna Moriya, in her book *Navigating Visual Imagery and Verbalization in Therapy* details her approach to linking stages of art therapy— specifically the use of metaphoric artwork—to stimulate an approach to the world that is viewed in similarities as opposed to differences. In Chapter 4, I argue that bringing arts-based research and parts of

art therapy into the FYW writing can stimulate writing growth and success because, through exploring and working within the stages of creating art, the linear progression of writing diffuses.

Conclusion

This chapter aims to situate the argument for a creative classroom in which students are encouraged to think about and challenge their creative abilities. In examining the field of creativity, it is evident that the field has grown tremendously and that researchers and educators alike are aware of the complexities and intricacies of the creative individual. The goal of FYW is not to expect all students to become innovative creators who contribute a groundbreaking idea to their field, but to encourage them to think in new ways that challenge their own previous beliefs and practices. I would consider a FYW class successful if each student was able to state one new writing or creative practice they tried. I tell my students on the first day to write a brief paragraph about their ideas of writing. I tell them that my job throughout the semester is to challenge their beliefs and guide them toward thinking in new ways about their creative practices. On the last day of class, I return the students' papers and ask them to write about, how, if at all, their ideas or approaches to writing have changed. Almost every student expresses a change to their thinking—if not their attitude.

Arthur Cropley's idea of the process of coding, which is the arranging of events with similar characteristics into various past categories, is important when thinking of teaching writing. Once an item is coded, it is difficult to see it anywhere else. He uses the example that when asked what a hammer is used for, a person would answer with nailing;

yet it might also be used as a door stopper, paper weight, or murder weapon (38). I think when students learn how to write in ways that are not deemed effective by them or when they develop a negative feeling about writing, these experiences become crystalized within the brain and may require time and practice to reshape the individuals feelings and approaches to writing. This dissertation calls attention to the idea that writing has been coded into many adolescent brains as something that is tiresome and difficult.

One student, when asked on the first day of FYW, expressed she began to view writing as “a chore” as she progressed through her schooling. Once viewed as a pleasurable activity when she was younger, the student expressed that “whenever a writing assignment was given to me, I would dread it.” See Figure 1. On the last day of class, when I handed back their paragraphs and asked the class to reflect on their views of writing to see if they had any changes, part of her reflection included the following: “I worked really hard in this class. It helped me enjoy writing again.”

The following chapters explore the ideas raised in this chapter in order to build upon history, pedagogy, and neurology to develop a curriculum that is accessible and appropriate for the diverse learners of the university in order to guide students to “enjoy writing again.” Sample lesson plans follow Chapters 2, 3, and 4 which prompt educators to begin thinking about their approaches to teaching and learning in new ways. In considering these new practices, educators are encouraged to challenge former beliefs and challenge students to become critical thinkers and composers.

When I was younger, writing was more of a passion for me than it is now. I loved writing fictional stories and letting my mind be creative in ways that a child should. I wrote everything from poems to short stories and just simple diary entries about my day. However, when I started middle school and essays about topics I did not like started to be assigned, my views on writing changed. I started to look at writing as something I absolutely had to do instead of something I enjoyed doing. Instead of writing poems about my cat I was writing essays on boring things I did not understand in school. So, as time went on and I got older I started writing less and less. My busywork assignments made me feel like writing was a chore. It sucked the life out of sitting down in a cozy spot and just writing the random things I was feeling or thinking. Whenever a writing assignment was given to me I would dread it.

Figure 1. Tara Scarola; *My Relationship with Writing*; 2021.

CHAPTER 2: THE NEUROLOGY OF THE WRITING BRAIN

Figure 1 above was written by a FYW student upon reflection of her relationship with writing. She expresses how writing was once enjoyable to her but as she grew older writing became a “chore.” This chapter aims to understand how our brain works when creating in order to find pedagogical models that drive students to become creative thinkers and composers and as an attempt to bring students back to viewing writing as an enjoyable activity. Focused on the creative process of writing specifically, I explore the complex neurology of “the writing brain” to demonstrate the multitude of skills writing requires. I turn to Jason Wirtz’s text *The Write Mind for Every Classroom* to not only demonstrate the complexity of the brain but also to show educators how to interweave “brain friendly” activities into the FYW classroom. Wirtz expresses that “practice and experience results in changes to brain architecture” which not only disrupts previous ideas that writing habits cannot be changed, but explains why each individual’s brains are “wired” differently (2). As an educator, it is imperative to be aware that students learn differently, act differently, and may be inspired differently in part due to the makeup of their brains. In turning to neurology, educators can use effective writing activities that will stimulate the brain and aid in plasticity. The plasticity of the brain refers to the brain’s “ability to strengthen and grow neuronal connections in response to external stimuli” (Wirtz 2). Under this idea, the experiences individuals carry differ from that of their peers vastly—which means varied writing processes, experiences, and prompts are necessary in a classroom.

This chapter serves to understand the makeup of the human brain and what it means for writing. The first section addresses the understanding that “because writing is such a complex cognitive skill there is no single location in the brain that houses our ability to

write;” therefore, demonstrating that writing involves the whole brain (35). A varying of writing exercises and prompts are needed in order to develop and hone writing skills. The first section will describe and detail the major parts of the brain that play a role in writing and provide activities and writing prompts that may help students activate and strengthen these areas. Additionally, this section will answer these questions: what writing activities are appropriate for students to engage in throughout the various stages of the writing process? and how can these strategies be used most effectively in the classroom? As Wirtz explains, the plasticity of the brain is proof that effective writing skills can become automatic; however, it takes work to get there. This section will demonstrate the importance in teaching students how to navigate, in a unique process developed for themselves, through the various writing stages. This process is known as the “transferring” between brain states; and “encouraging adolescent writers to recognize their own organic, circuitous, iterative process and to personalize their own approaches reinforces the understanding that writing is not a chronological process leading to a ‘correct’ response,” but instead an individual arrival to a solution (Wirtz 43).

Next this chapter will move through two main stages of the writing process: brainstorming and drafting in order to determine both what is occurring within the brain during these stages and what activities can help students while writing in these three different stages. Turning to studies conducted on the brain as well as both neuroscientists’ and educators’ perspectives, this section offers solutions for engaging students throughout the writing process that are considered “brain-friendly.” It will become apparent not only the different types of writing that occurs in each of these stages but also the varying mindsets, environments, and creativity that is involved. In turning to the discussion of

creativity that Chapter 1 details, the reader will find that writing requires a spectrum of thinking that trails back and forth from analytic to creative, and both types of thinking are necessary to the process. I will then expand upon V.S Ramachandran’s argument about mirror neurons in his book, *The Tell-Tale Brian* in order to provide educators with effective pedagogical strategies to help students learn how to mimic effective writing and writing processes before developing their individual process.

The chapter concludes with a sample lesson plan in which I detail how I encourage “brain-learning” in my FYW classrooms. The lessons can be incorporated into a multitude of areas of study and are meant to both educate students on the makeup of their brains and serve to both stimulate an individual’s writing production and challenge previous held beliefs of the writing process. The main purpose of this chapter is to provide both educators and students with an understanding of the complexities of the writing brain and the writing process. It is meant to demonstrate that writing is a skill that is crafted and developed through practice. Writing can be learned through the guidance of a teacher or mentor, but ultimately each individual must find and determine a process that works best for his or herself.

Framing the Importance of Understanding the Writing Brain

At the college level, when students are asked to write an essay, it is typically understood that students already have an grasp on *how* to write. Students are aware of what physically needs to occur in order for them to successfully accomplish a writing task. They know they need some kind of writing utensil, or a computer, they need a space to sit, they need quiet or music. It is also obvious that ideas, words, sentences, and paragraphs are

needed to structure a paper. While these are all important aspects that detail the necessary steps it takes one to begin and complete a writing task, I think it is beneficial for students to be pushed to think even further about what it means to understand how one writes.

Due to advancing technology, advanced brain studies have expanded on past studies to determine that the writing process uses much more of the brain than originally thought. “In 1881 Exner observed that the posterior end of the middle frontal gyrus in the left frontal lobe was associated with writing function [...which is responsible for...] movement sequences needed to generate letters (MacArthur et al. 99). Further research in 1978 conducted by Basso, Taborelli, and Vignolo determined that “the superior parietal lobule in the left parietal lobe [...is responsible for...] internal codes for letters” (99). Researchers found that the two spaces occupy separate regions in the brain, demonstrating that writing involves more than the one space originally thought during the study in 1881.

Further research, however, determined that a third writing center in the brain “responsible for the graphomotor [...skills needed for writing...] code for writing a letter in the external environment [...is...] located in the premotor region of the left frontal lobe (99). Research at that point, demonstrates that three separate areas of the brain are responsible for writing. Throughout time, researchers proved writing requires the use of more areas of the brain than originally thought.

Writing involves more than an understanding of letters. MacArthur explains that “a writing brain expresses the internal language code in the external word through the grapho [hand]- motor system” which illustrates the motor functioning involved in writing (99). These writing centers within our brain process and perform the motor skills needed to write. This includes the hand’s ability to pick up a pencil and form letters as well as well the

finger's ability to press keys on a keyboard to type letters. Different areas of the brain are needed for spelling and even "different brain regions activate for the morphological word form compared to the semantic meaning of words" (100). Along with the idea of writing with the whole body is Sondra Pearl's development of felt sense. Eugene Genlin, in the 1960's developed the term felt sense to attribute the mental and physical path to healing as a connection of the mind and body. Genlin describes felt sense as "not a mental experience but a physical one. It is an internal aura that encompasses everything you feel and know about the given subject at a given time [...] and is [...] communicate[d] to you all at once rather than detail by detail" (Part one: What is Felt Sense?). Sona Perl takes Genlin's idea further when she expresses the importance, while writing, in pausing, and focusing on the felt sense by asking "What's my feeling for what I'm getting at?" After understanding that feeling, a writer should then ask herself, "Have I said it?" If the answer is no, then the writer has the opportunity to change her text in order to move closer to the feeling of her work (Perl). I believe this to be the area in which FYW educators should drive students toward. In asking students to reflect on their work to determine whether or not the words echo the feeling the author intended, the students become not only critical thinkers of their work but also may arrive at an understanding that text is more than words: it is a feeling.

It becomes almost impossible to isolate areas of the brain needed for writing, especially when considering the process of planning, the production of spelling words, and the actual activity of physically writing. When thinking that even technology—such as using a computer and keyboard to write instead of paper and a pen—impacts the areas of the brain used for writing, it becomes difficult to attempt to isolate areas of the brain "needed" for writing. Jason Wirtz reminds that "writing exists as interconnected networks

across the brain [...and...] Because writing is such a complex cognitive skill there is no single location in the brain that houses our ability to write. This has important educational implications since to teach writing is to engage several different cognitive networks, or brain stages;” and this chapter aims to explore effective writing strategies within the brain stages (35). This chapter is not meant to determine exactly which brain areas are activated during the writing process, but instead it aims to offer pedagogical advice on how educators can stimulate student writers within a classroom setting.

In his book *The Write Mind for Every Classroom*, Jason Wirtz explores how writing instructors can tailor classrooms to be optimal places of learning. In the development and practice of skills proven to be beneficial to the writing process, Wirtz’s book combines brain research and pedagogy to demonstrate how the two can be linked. I find it is an appropriate place to start this chapter with his explanation of plasticity in order to demonstrate how educators can assist in student understanding that their brains have the ability to change. Wirtz says, “plasticity references the brain’s ongoing ability to alter its own architecture” to demonstrate that students and educators alike have the neurological “space” to rethink and redesign the ways in which they view and practice education (Wirtz 2). Although habits may be difficult to break, according to neuroscience, the human brain has the ability to change depending on experience. This means both good and bad habits can be learned, changed, and developed.

William James states, “We must make automatic and habitual, as early as possible, as many useful actions as we can, and as carefully guard against growing into ways that are likely to be disadvantageous” which demonstrates how all students arrive at the classroom with both positive and negative writing habits (Wirtz 1). It is assumed that most

people can reflect on their writing process and determine what is a “good” writing habit for them and what is a “bad” writing habit. While we at the university cannot change, predict, or alter the experiences students had with writing in their pasts, we do have the ability to tailor and shape it as early as they arrive; however, this must be done as soon as they arrive in order to be most effective. This is why taking a course such as FYW should be done in a student’s first semester because it is a space that can provide the foundational blocks to forming writing habits and approaches that will both challenge and develop previous beliefs and practices.

Wirtz explains “the plasticity of the brain, its ability to strengthen and grow neuronal connections in response to external stimuli, is the physical manifestation of automaticity” which is what educators wish for their students—the automatic recall of strategies and skills that will aid them to successfully complete an academic course (2). In having writing skills that are automatic, students do not need to spend time thinking about how to go about beginning the assignment, instead they just begin. Firstly, it is important to note that McCutchen found that writing “processes are too complex to become automatic in the strict sense of becoming effortless, unintentional, and unavailable to conscious awareness [...but...] it is certainly possible to reduce the relative effort required to plan ideas and their organizational structure, fluently generate sentences [...] review the plans and text from the perspective of both the author and the imagined reader” among other skills that can be taught in a classroom setting (Kellogg 16). Oftentimes, I meet students who explain their writing process looks something like, staring at a blank screen for a while, closing it, opening it, eventually walking away, then scrambling to write something the night before it’s due. Imagine all the time saved if students just knew how to begin

writing instead of spent hours agonizing over *how* to begin? Imagine if students were taught ways to make their writing process more effective for them?

Similar to driving, writing requires the individual to be less conscience of every single move and more aware of the entire process. When driving, it is unlikely an individual has to think before hitting the break—it is an automatic movement that our body responds to without our thinking as soon as we sense a crash or police vehicle ahead. By the time we “thought critically” about hitting the brake pedal, we’d already be hitting the car in front. Gene Yang states that automaticity is “the process of moving from your brain to your gut” and that is how I want students to begin thinking about their writing; as a process that involves more doing, more feeling, and less agonizing, especially during the drafting process (Wirtz 4).

At the college level, for most, writing is an automatic process; so, the important question becomes is the process the individual is moving through both effective in that the student is achieving his/her writing goals? and is the student growing as a writer while engaging within this process? By the time an individual enters college, it is likely that he or she has completed many writing assignments. It is also likely that the student can articulate what his or her writing process looks like. While this metacognition is important, I like to ask students if they’ve ever thought of the neurological implications of what it means to write. So far, I haven’t met a student who has answered in the affirmative. I think it is safe to assume that most people don’t typically think about the inner workings of a writing brain. As previously stated, if students are already thinking about their writing process—even if it only extends to being aware of the type of environment needed to be successful when writing—then it is evident that the student is capable of taking control of

a situation in order to maximize his or her results. The brain can be shaped and reshaped by experiences—due to its plasticity—and, if we understand how, we can use neurological information about the brain, combine it with writing strategies, and assist our students in becoming stronger writers and in becoming more aware of what is happening inside their own minds.

As an introduction to our discussion about the brain, I ask students to spend a few minutes taking the time to think, write, or draw about what they think is happening in their brain while they write. I'll post the question: "What is your brain like while writing?" and give students about ten to fifteen minutes to think it through. I'll detail this process further in the lesson plan that follows; but, I wanted to address what typically occurs during this assignment. As I circle the room, I see students tend to draw either a brain that is completely empty and sort of floating aimlessly across the page, a brain that is crammed with chaotic words or drawings that resemble a tornado, or even a drawing of themselves with thought bubbles above their heads that are filled with either despair or motivational tidbits. Some of the students, when asked, explained that the drawing was meant to demonstrate how hard it is to think of an idea to begin writing. The student likes to sit and just think, and wait, for an idea to pop into his mind. I have yet to see a student drawing that resembles the organ, the lobes, or the hemispheres. I don't think this abnormal. I think, more often than not, we think of our brain as a floating mechanism made up of either gears turning or an empty blackhole—depending on our outlook at the moment.

In the discussion that follows this assignment, I feel it is most important that students realize writing not only involves the entirety of the brain, but it also involves differing states of thinking. Wirtz explains "writing exists as interconnected networks

across the brain [..and since...] writing is such a complex cognitive skill there is no single location in the brain that houses our ability to write” meaning, educators have to tap into many different brain states, and writing strategies in order to meet the varying needs of the students (35). Improving one’s writing cannot be boiled down to saying something like: “well if I focus on my frontal lobe—the part of the brain most associated with planning—then I’ll be able to effectively plan, so I’ll be a better writer; or, if I learn how to strengthen my language and, in turn, Broca’s area of the brain, I’ll become a better writer. Writing is much more complex like that, and, as I like to point out to my students—so are they!

While educators could learn how to teach students to access different parts of the brain that are most associated with language or writing, I think it is important for students to realize that writing is a significantly complex task. There is no “one-size fits all” approach to either strengthening one’s brain or one’s writing skills. As a concluding point to the discussion where I ask students to draw their writing brain, I tell students that the phenomena that many of them refer to of an idea popping into their head seemingly out of nowhere, is actually a result of a multitude of past subconscious and unconscious thinking. I detail more of this idea in Chapter 1, but I am bringing it up here to demonstrate that an “ah-ha” moment is much more work that it appears to be; just as the writing brain is a much more complex task than most think. When students understand what is going on in order for them to complete a writing assignment, I think they will have a better understanding as to why writing is a skill that can be grown.

Before diving into studies and research conducted about how writing is processed in the brain, I will briefly discuss the makeup of the brain in order to be able to later demonstrate how writing is being affected by these various parts. I am simplifying the

makeup of the brain for both clarity and the space of this chapter, but I think it is important to first to explain a little bit of the terms and areas I will be discussing. The brain is made of two parts: the cerebrum and the cerebellum. The cerebrum is separated into the left and right hemisphere. The cerebellum is right below the cerebrum. Each of the two hemispheres in the cerebrum are divided into four separate lobes, the frontal; temporal; occipital; and parietal lobes.

While the complexity of each lobe is widespread, for the purposes of this paper it is important to note that each lobe is used for something particular; the frontal lobe is known for executive function—like planning which will be discussed further in this chapter— temporal, auditory processing; occipital, vision processing; and parietal, language production and spatial awareness.

Neurons are found on the surface of these lobes and are known as the communication path within the brain. As these neurons are layered within the brain they create a “collection of nerve cells on the outer surface of the brain [... that...] looks darker than the rest of the brain [...] and is referred to as gray matter, or the cerebral cortex” (Andreasen 53). It is through these neurons that the lobes of the brain communicate to form a larger picture. This communication makes it possible for an individual to complete a function as a flow rather than in parts. For example, I can look at a person I know—like my mother—and recognize who she is in an instant. The brain takes the information that the occipital lobes provide and transfers it into the cortex then into the temporal lobes where it is processed and understood in the instant it takes to look at a person’s face. As we go about our day, each thing we do needs different parts of the brain. The instance I detailed above explains what some call “the ‘what’ pathway, because it permits us to identity *what*

we are seeing” (55). While this information is fascinating, this paper does not have the space to go into each possible processing instance, instead, I present this research as an introduction to how complex, integrated, and incredible the human mind is in order to then think about ways instructors can educate students about their minds as well as provide FYW assignments that are meant to work with the natural way the brain functions.

A study was conducted in order to determine what the brain is undergoing while writing. Researchers followed the “cognitive process theory of writing” laid out by Flower and Hayes and fMRI to determine how the brain responds during the various writing stages. The study also wanted to determine whether Flower and Hays had set up an brain-accurate explanation of the writing process. In short, the cognitive process theory of writing laid out a “formula” for writing; as a person writes, they are moving through distinct categories all which are leading to the final product. The study wanted to determine if there were different occurrences within the brain during the brainstorming stage and the creative writing stage. The control group was used to determine the brain state during the reading stage and when note taking or copying. Participants undergoing the “brainstorming” stage “were instructed to compose as creative [...of a story as possible,...] with the restriction that stories should always be realistic and appropriate to the task” (Shah et al. 1090). These participants were asked to brainstorm their thoughts for a creative story. Additionally, the participants were asked to copy a text provided by the researchers.

The study determined that during the brainstorming stage the “brain network [...] obviously corresponds to the ‘planning’ processes” of Flower and Hayes’ cognitive process theory of writing (Shah et. al 1099). The study found that the activation of the “frontal linguistic areas during ‘brainstorming’ might be associated with a flexible and divergent

verbal thinking style quite similar to verbal fluency. Hence, they enable the verbal concept for composing the story (1095). This means that during brainstorming, the brain is undergoing a similar process it does when an individual is engaging with thinking out loud in a divergent, or creative and innovative way. I think this stresses the importance of giving students space to brainstorm aloud as well as on paper. Students could be encouraged to brainstorm in different settings, using different applications like voice notes, typing, or writing. If possible, the students could also be encouraged to attempt brainstorming in different locations like in a museum or on a subway. This can be done individually or as a whole class, if possible. Students can be asked to first brainstorm a few ideas on their own, then hold a discussion with a partner, or even as a larger group to provide time for the brain to undergo the verbal processing along with the nonverbal.

The second largest area activated during the brainstorming stage, according to the study, is the “left parieto-temporal region” which includes Werneck’s area—which is known for speech comprehension— and is noted for “fundamental language processing [...] language and sentence comprehension, prelexical perception, and auditory processing of language ” [...and...] free- associative thinking (1099). While in the brainstorming stage during the creation of a novel idea, the left parieto-temporal region is activated; however, the study determined that, while copying a list, this part of the brain is not activated. The study concludes by stating that creative writing is a cognitive-complex task, as it involves many language, motor, and processing parts of the brain; such as “translating the conceptual and verbal ideas into a handwriting process after selection, semantic integration, and motor coordination [...the knowledge of...] language processing, working memory functions [...] the memory system: episodic [the recall of personal facts} and

semantic memory retrieval [the recall of general facts] and the semantic integration in an original and coherent story concept” (1099-1100).

The participants in the study did not have any “pressures” on them while writing. They didn’t have deadlines or grades. A separate study determined that “neuroscientists have proven that when an individual is stressed or threatened, a part of the brain stem called the Reticular Activating System (RAS) will shift control from the cerebral cortex to the limbic system” which stifles creative thought and relies more on instinct or a flight-or-flight approach (Bane 41). Interestingly, it is without access to the cerebral cortex that instances that are “typically thought of as writer’s block or other forms of writing resistance” make themselves known (Bane 41). Students who procrastinate, or are anxious or overwhelmed by a writing assignment may be losing access of the various parts of the brain needed for writing due to the limbic system—which is responsible for the emotion and relies on the instinct of flight-or-fight—taking prescient (42). When the limbic system is in control, creative thought is pushed aside and “survival mode” is switched on. This chapter is interested in determining ways in which to keep students within “cortex control” to avoid a limbic system take over.

It is likely, as Bane points out in her study, that students may arrive at the classroom with their limbic system already in control; due to negative experiences of writing and anxieties about performing well, students may already have momentarily lost the cortex’s control. She, like my chapter, argues that it is first beneficial to bring neurological information into the classroom in order for students to become aware of what is happening automatically within their brains. The second step is for educators to incorporate relaxing

techniques into the classroom in order for students to make the switch out of limbic system control.

In addition to freewriting and breathing exercises, Bane emphasizes the importance of a writing routine. She gives simple examples of how educators can incorporate routines in the classroom. Hebb's Law explains "neurons that fire together, wire together" which means that tasks that are performed together are likely to create a similar response within the brain (Doidge174). Bane provides the example of "if students eat a lemon drop every time they write in class, writing in class becomes a pleasant experience and the sight, smell or taste of lemon will cause students to think of their writing" in order to demonstrate how an educator can begin to transform a student's mental approach to writing (49). This is why I like to begin every class with a ten-fifteen minute free write in which music is playing. Establishing this routine may work to switch students' minds from the busy day they had to become conducive to the writing we will be doing in class that night. It may be helpful to ask students on the first class to list two or three of their favorite songs or artists then rotate the songs during free write time.

The Neurology of the Writing Brain while Brainstorming

Firstly, I want to address that due to the space of this chapter and my own interests, this chapter will be detailing what is occurring in the brain during two of the major writing stages; brainstorming/planning and drafting. I chose these two to represent the writing brain because each of those phases partly require different environments and brain states in order to be most successful. Drafting is a choice because this is the stage in which the most uninterrupted writing is occurring. Brainstorming/planning was chosen because I would

like to see my students spend more time thinking about and working within. It is important to note—and to remind students—that there is much more at work within the brain than only the areas on which this chapter will be focusing. Spelling, word formation, word recollection, memories, hand-eye coordination, and vocabulary retrieval to name only a few are all involved within the process of writing.

Peter Elbow argues “writing calls on two skills that are so different that they usually conflict with each other: creating and criticizing” to demonstrate the complexity of writing as well as the multitude of skills students must possess in order to engage within the process (7). While creating and criticizing are two vital, but very different parts of the writing process, it is important to know when each skill should be used. Interestingly, however, I am arguing for a shift away from Elbow’s original ideas that these two skills—creating and criticizing—should be occurring separately during the writing process. Yes, there are moments in which the two must separate, which I will detail below using neurological research as support; but, it is also important for a flow to occur between these two states. Additionally, it is useful to challenge Elbow’s terminology as “skills” and instead view both creating and criticizing as practices. By doing so, it eliminates the idea that the term “skills” carries which brings to mind a set of abilities that a person has or does not have. Instead, in thinking of creative and criticizing as practices, it brings to mind the idea that these are abilities that can be grown, changed, and developed.

Amanda Boutler critiques Elbow’s theory in a way in which I agree because she states that it is not the theory he outlines that is the problem but the “oppositional approach that [...] has grown as a result and become something of an orthodoxy within writing classes, and now threatens to limit, rather than enhance, creative possibilities for student

writers” (Boutler 1). Boutler pushes Elbow’s idea because she wants “to explore how writers can be critically creative and creatively critical” which I think is an interesting way to begin thinking about the balance and use of both skills in conjunction (2). Chapter 1 goes into further detail about the creative versus the critical mind, but to bring this argument into the present chapter, I will offer practical skills educators can use within the classroom to help student’s transition through the naturally flowing brain states of writing.

At the brainstorming/planning stage, the writing topic is introduced and the students are asked to think of topics, ideas, or scenes that they may include in their paper. Elbow suggests freewriting as a place to start allowing ideas to flow freely without constraints. He says “freewriting teaches you to write without thinking about writing” which I think is a valuable lesson for struggling or apprehensive writers (15). As one practices freewriting, the beginning stages of writing become less of a critical activity and more of an idea-flowing, brainstorming, creative activity. Kaufman and Gregoire state there are “two broad stages of the creative process [...] generation [...] in which ideas are produced and originality is sought out [...] selection which involves working out ideas and making them valuable to society” and both stages are important to a creative thought (28). I believe that both the generation and selection stage are useful during the brainstorming and planning stages of writing.

Generation should be the first step while brainstorming because this is the moment when reality is momentarily suspended. During the generation stage, a creative thought has no limits; In this stage, the brain is working in a state of “flow” and the imagination network’s activity is high and the executive attention network (which is focused more on the practical and less on the creative) is quiet. While brainstorming, students should be

encouraged to write down everything that comes to mind, no matter how “ridiculous” it may feel. At this time, the critical mind needs to “shut off.” Tapping into this creative brain may take practice and guidance. Wirtz describes the brain state that is occurring during freewriting as “receptivity [...which is where...] no idea is considered too outrageous;” and, the opposite end of the spectrum as “discernment” which involves choices involving content, organization, and editing (40-41). To keep students within the receptivity brain state, writing-to-learn activities are most appropriate. The lesson plan that follows, details some example ways that instructions can guide students to take on this kind of thinking.

The two brain states in which the brain operates are the default mode network and the cognitive control network. Each network is necessary to creativity, and researchers have difficulty distinguishing how and when each network takes control. It has been found that “creative thinking involves both controlled and spontaneous cognitive processes” and it is difficult for researchers to determine exactly how much of each state is required for a creative thought or how much an individual spends within each brain state during a creative thought (Beaty et al. 96). It is thought that creative ideas grow within the “default mode network” (DMN) of the brain. It is interesting that the mode in which creative thoughts are said to grow occur during the “default” mode of the brain. Naturally, our minds are wired to engage in creative thinking—it is practical thinking, planning and working that hinder the default network from doing its job; “In brief, the default mode network is the brain state of daydreaming and mind wandering whereas the cognitive control network is the brain state associated with focused attention on a given cognitive work” (Wirtz 35). Both modes play a significant role in the development of a creative thought.

Both modes of thinking are required during the writing process. To demonstrate, Jung, among others, found that “blind variation—an uncontrolled process that involves random conceptual combination— may occur in the DMN” [...and...] “selective retention—a controlled process that involves evaluating blind variation activity—may occur in executive control regions of the brain” (Beaty et al. 96). In terms of brainstorming, blind variation can be thought of as an individual thinking up multiple topics or ideas for a paper. Selective retention is then the process of selecting the idea that will best meet the paper requirements and that the individual feels he can write most effectively. The most important takeaway is that, highly creative people effectively swing between both mindsets in order to effectively execute a creative idea; “a functional connectivity analysis found increased coupling of executive control and default networks throughout the creative process [...] requires flexible cognitive control” (96). To bring this idea into the classroom, educators can work with students to aid in developing a student’s understanding of how to switch between a creative and analytical approach. Games and creative exercises can be used to help students generate writing. I will detail ways in which educators can work with students to develop these skills in the lesson plan that follows this chapter. Chapter 1 also goes into further detail about these two mindsets.

The default mode network is called default because that is the state in which the brain naturally reverts to during moments in which the brain is not actively focusing on a particular task. Activities such as washing the dishes, driving to work, or showering usually involve the default mode network because while performing these tasks the individual’s brain is most likely “wandering.” We do not have to divert the entirety of our attention to performing these tasks which allows our brains to think freely without conscience

direction. Scott Barry Kaufman and Carolyn Gregoire state in *Wired to Create*, write that “the imagination network [...of the brain...] is not highly active when we take on [...] roles that focus on getting tasks completed” which means when students are writing to complete an assignment or meet a deadline, it is likely that their imagination network is not functioning at an optimal level (Kaufman xxvii). It is important, especially at the drafting and brainstorming stages of the writing process, that the imagination network is given the room to operate freely.

Even as the students move through the brainstorming task, their minds might already be engaging in critical thinking skills. As soon as an idea pops into their head, they may already be evaluating it. Executive functions within the brain “are basic cognitive processes that control thought and action” and are used during higher-order thinking (Benedek et al.74). As earlier stated, writing requires a multitude of cognitive networks. During the brainstorming phase, it is crucial to keep ideas “free-flowing” and to encourage students to write naturally without focusing on errors or perfection.

In order for the brain to enter the default network mode, an individual must feel comfortable. One way to ensure comfort is to implement a routine within the classroom. Knowing that the default network thrives when comfortable—and that there is some comfort in a routine— it should come as no surprise that “writing habits and rituals serve as neuromodulators to help writers maintain a brain state most conducive to writing” which is why, I feel, starting each class with a routine free-write is an effective way to begin shifting students from their lives outside of FYW into a mindset productive to writing (37). Over time, as the student participates in the free write, it is likely that the brain shifts into default mode quicker. Of course, the student is in a classroom and that alone might make

some students unable to “shut off” the more critical modes of their brains, but as the semester progresses it is hopeful that the students will begin associating this time with a relaxed, no stress, state.

After time has spent brainstorming and thinking of possible solutions or topics for their writing assignments, the second part of a creative thought— Kaufman’s and Gregoire’s second stage of the creative process—can be addressed. Here, it is time for the individual to select the idea, or ideas, that will be most effective in successfully carrying out the task. At this point, the brain shifts into the cognitive control network because, as a 2012 study focused on creativity in the drawing process found, “regions of the executive control network were more strongly activated during idea evaluation [...whereas...] regions of the default network were more strongly activated during idea generation” (Beaty et al. 96). When the individual chooses their writing topic, it is time to become more critical in order to select the option that will best complete the assignment or task.

A study done on engineering students attempted to study the effects of neuro-cognitive feedback on idea generation. This study wanted to determine whether bringing awareness of what is going on inside the brain while thinking of possible solutions to a problem would have any effect on the individual’s ability to produce ideas. The researchers “asked ten graduate engineering students [...] to develop a range of possible solutions using brainstorming for a design task” relevant to their field of study (Shealy et. 3). The researchers then provided neuro-cognitive feedback to students in order to demonstrate what was going on in the student’s brains as they brainstormed. The study found that “The students who received the neuro-feedback produced more ideas (7.8 ideas on average) compared to the control group (3.8 ideas on average) [...and it was concluded that...]

Neuro-cognitive feedback provides a biofeedback on participants' brain activity in order to encourage self-regulation" (Shealy et. All. 2). In other words, the students who received information on what was happening within their brains while they brainstormed, produced more ideas than the group of students who were not made aware of their brain states. Understanding the complexity of brain state during writing, may lead students to have a more concrete idea of what is happening within their brains as they write which may help them to have a stronger grasp on what it takes to grow their skills as writers.

The Brain During the Drafting Stage of Writing

Being creative, and growing as a writer, all comes from the ability for an individual to look within themselves and grow from mistakes, experiences, and practice. During the drafting phase, it is likely that mistakes will be made; but, the key is to keep writing. It is also within this stage that the author has to lose a little "control" in order to dig deep and let their creativity come out. The drafting process is similar to the generation stage of innovation which is discussed more in depth in Chapter 1. Briefly, during the innovation stage, individuals are coming up with unique ways to solve a problem. During this stage, no thinking is too grand and no idea extends beyond the rational. To demonstrate this point, Emily Dickinson's "slant" becomes useful. Her definition of "slant" states that, as a writer, "you're looking at the same thing everyone else is looking at, and it's not just point of view, it's the slant" (Wirtz 53). It is how an individual approaches and works through a problem—the slant or angle—they bring to the table that matters and not the overall solution.

While the drafting stage is often about writing as much as possible in order to get ideas on a page, researchers point out that there is caution in this approach. Boice found that “a common mistake of developing writers is to compose in marathon sessions or binges of massed practice that can exhaust and frustrate the writer [...instead...] professional writers learn to compose for just a few hours per day [...] but on a highly consistent daily schedule and students should be trained in the same fashion (Kellogg 18). While I can’t agree that all professional, or successful, authors follow this routine, I do agree that time needs to be spent assisting students in making a writing schedule that is not requiring all-nighters or an entire day for a paper.

The drafting stage is the stage in which the students most likely are spending the most time, therefore, it is important to spend time discussing with students different strategies of drafting. It becomes necessary for educators to teach students how to navigate through this stage. I argue for a classroom in which students are drafting *within* the classroom while receiving guidance from peers and their instructor. Drafting in the classroom is important because scholars have found drafting makes a difference in the final product; “novice and expert writers differ in how they plan. Expert writers tend to plan more and can be quite articulate about the various aspects of their planning. They formulate goals for their text and then develop plans to achieve those goals” (Fidalgo 131). It cannot be assumed that students arrive at the classroom with the knowledge of how to effectively plan. When I say “effectively” I mean in a way that works for the individual and is challenging and developing their skills as a writer.

Anne Lamott writes “very few writers really know what they are doing until they’ve done it,” and I think this effectively sums up both the importance of writing a

draft and the difficulty of writing a draft (Lamott 21). As Lamott states, there is a major misconception that successful authors are exempt from the reality that first drafts are usually “shitty.” From speaking with students, I think this idea is what turns a lot of them off to the idea of writing. For many students, writing is difficult, therefore, they feel like they must not be good at it because of its difficulty. I think it is important for writing instructors to address this misconception that famous, or successful, authors have an “easier” time writing. I detail how I begin this conversation with my students in the lesson plan that follows this chapter.

Peter Elbow details a drafting stage of writing that “creates a transaction that helps [...the writer...] expend [...] energy more productivity” when he expresses that draft writing is “not to do the task well [...but...] to do the task” (Elbow 20-22). At the drafting stage, ideas should be jotted down, not perfected; and, I think it is becoming obsessed with this idea of perfection while drafting that causes a lot of anxiety, procrastination, and even dread when it comes to writing. As stated earlier, the brain does not function best when it is under anxiety. The cerebellum “is connected to stress-related brain zones” and it “contains more neurons than the rest of the brain” which is important because it is through neurons that the brain communicates to create a full picture (Moreno-Ruis 1-2). So, it seems obvious that if the brain’s neurons are busy dealing with stress, it can’t carry out the rest of its tasks as it normally would. In fact, while undergoing stress, the brain kicks into defense mode which “might present as behavior-activating (increased arousal and restlessness) or behavior-depressing (avoidance of threatening stimuli)” (14). This could explain how, when pressured to complete an assignment, some people either pull all-nighters where an entire paper is written rather

quickly or, procrastination sets in and the task becomes avoided until, in some cases, the deadline might have passed.

It is understood that anxiety effects people's moods, behaviors, and their brains. This chapter is not meant to minimize or to go into detail about mental health; however, this chapter is interested in what parts of the brain are affected during anxiety and how this may affect a student's writing. Doctors found that anxiety comes from mainly two areas of the brain; "the cortex [...which...] is the pathway of sensations, thoughts, logic, imagination, intuition, conscious memory, and planning [...or from the...] amygdala pathway [...which...] can create the powerful physical effects that anxiety has on the body" (Pittman). When a person is feeling anxious, the brain is busy working to try and figure out and protect us from what the cause of anxiety. The amygdala is responsible for emotions and also it "encodes an emotional message, if one is present, whenever a memory is tagged for long-term storage," which means that an action may become linked to a positive or negative emotion (Sousa 7). Due to this process, when an individual remembers an event, the emotional response to the event is also remembered. Sousa points out that it is "intriguing to realize that the two structures in the brain mainly responsible for long-term remembering are located in the emotional area of the brain" which demonstrates the impact emotional responses have on memories (7). We remember the things that make us feel an emotional response, which is why, writing about topics that are meaningful to the writer, and the reader, may produce a more engaging narrative. This research also demonstrates the importance of minimizing stress in a classroom. As it is presented above, stress impacts the way in which a person learns, writes, and perceives

the classroom experience. The lesson plan that follows this chapter details ways in which the instructor can minimize stress in the classroom.

Charles Tart found that the brain undergoes a multitude of consciousnesses. He found that some states of consciousness are “creative states, meditative states, dreaming, and rationality (which here means being functional and effective in the world)” (Caine 30). Multiple factors influence the type of brain state an individual will experience in a given situations; however, it is important to note that while brain states fluctuate, there is an important purpose for each one. In addition, Caine states that “the brain as a whole [...is...] functioning” even as an individual moves through various states (30). This means that the entire brain is functioning even as the individual is moving through the brain states. These brain states each serve an important purpose in order for an individual to successfully navigate through life; however, there are certain brain states that are more favorable to learning than others.

While Caine doesn't specify which brain state may be most optimal to learning, she does express the importance of “arousal” within in individual when it comes to successful learning. Cain says “effective learning always involves the alternation of several states of arousal” which, to put simply, means an individual has to feel some sort of heightened emotion in order for learning to be successful (30). Some examples of these emotions are excitement because of an interest or passion of a topic, a desire to complete the assignment effectively and within the time limits, or moments of fixation in which the individual is completely absorbed within his or her work. I detailed above the negative consequences of stress in a classroom; however, it is necessary to note that a small amount of stress—desire to perform well—can motivate the individual to

successfully complete an assignment. This stress can be a positive motivator; however, it is important that the stress does not become consuming.

To conclude this section, I think it is important to connect the work being done during the drafting stage with the points discussed in Chapter 3 about social learning and Chapter 4 about translanguaging to demonstrate how a multitude of strategies can be incorporated into the classroom. Chapter 3 establishes humans as “social creatures” so, while working on drafts, it is beneficial to provide time for students to work together to formulate ideas, discuss problems, and to work together to improve their writing. one particular point to note about drafting is it important for students to have multiple ways to engage with others about their projects, with the professor, as well as time to reflect on their own. I have found that meeting with each student one-on-one to discuss their drafts a productive way to check-in with students before their papers are due. This is done so students have guidance before they are expected to turn in a final copy. I ask that students come to the meeting with a draft and at least one question, worry, or idea that they want to discuss with me about the paper. We then spend the meeting addressing the student’s concerns, ideas, and achievements while discussing where he or she can next take the assignment.

Asking students to come prepared with question is beneficial because it situates the student’s concerns first. It demonstrates that the students have agency and their opinions and worries about their writing are valid. Once the student’s questions are answered, I like to provide a strength, an area to work on, and a direction in which the idea may be pushed further. Giving feedback is important because “Without information about their performance, [the students’] brains won't know what neurons to grow or

which ones to prune” (Feinstein 66). In thinking back to the earlier statement that memories stored in long-term are usually associated with a feeling, “Positive feedback actually releases serotonin into the brain, reinforcing feelings of calm and happiness” which may demonstrate that in providing positive feedback to writing may help associate the writing process in a more positive way for students (66). In addition to meetings with the professor, “Stress management, nutrition, exercise, and relaxation, as well as other facets of health management, must be fully incorporated into the learning process” in order for the brain, and the student, to operate at the highest level (Caine 80). See the lesson plan that follows for ways to incorporate these “brain boosting” activities in the classroom.

Mirror Neurons in the Brain and What They Mean for Writing

It has already been mentioned that the brain is filled with neurons, and it is these neurons that provide connection to the brain areas as well as which form new connections that allow for growth. In fact, James Zull quotes Ausubel who says “The single most important factor in learning is the existing networks of neurons in the learner’s brain. Ascertain what they are and teach accordingly” when he provides suggestions to teachers who are considering using neurology in their classrooms (Zull 93). Neurons are important because they “ send electrical signals down the long cables of their axons which connect to other neurons via small synaptic gaps. When the electrical charge reaches the synapse, it releases a chemical messenger—a neurotransmitter, like dopamine or serotonin—that floats across to the receiving neuron and triggers another electrical charger, which travels out to other neurons in the brain “which is how connections are

formed (Johnson 100). This is important to education because to learn is to form a connection, and if students connect what they are learning in class to their outside lives, other classes, or past experiences, then it is more likely that the information will be transferred into long-term memory.

Ramachandran argues that mirror neurons, which he describes as a “network of brain cells,” are vital in human evolution (4). Chapter 3 discusses how humans evolved to become social beings, but pedagogically, it is noteworthy to determine how and why these neurons play a vital role in creativity. These cells—mirror neurons—are active when a human undergoes an activity; but, interestingly, the neurons are also activated when the human watches the same action being performed by someone else.

Ramachandran argues that this activation of neurons “set the stage for the cultural ‘inheritance’ of skills developed and honed by others” which, in turn, drove to culture (2). Ramachandra argues imitation was one of the key steps in the evolution of humans. In using the idea of imitation, then it can be argued that imitation may be the first step to learning in a classroom.

Ramachandra discusses how speech may have evolved from gestures due to the brain’s mirror neurons. He explains how synkinesia, which is “the linking of manual gestures and lip and tongue movements [...] makes it easy to see how primitive gestural language could have evolved into speech” (Ramachandra 173). He uses the examples that producing some words mirror the gestures that is used to stand for the word. He explains how some gestures “may have emerged through the ritualization of movements that were once used for performing those actions...” for example, pulling someone in when saying come, and “the ritualization and reading of gestures may, in turn, have involved mirror

neurons” (174). Interestingly, he also explains how the “tongue makes a similar movement as it curls back to touch the palate to utter ‘hither’ or ‘here’ and ‘go’ involves pouting the lips outward, whereas ‘come’ involves drawing the lips together inward” to demonstrate how the two may be linked (174).

To use Ramachandra’s idea, student-writers must then first become “imitators” of effective writing skills in order to then use those imitation skills to produce authentic writing and eventually develop individual models. I am not arguing for the type of imitation writing often seen where students are required to write within a structured model; nor, am I supporting writing that is formulaic. What I am arguing for are scaffolded lessons in which the educator presents multiple texts that model the desired writing outcome in many different styles. It is not enough to only expose the students to these texts. It is also necessary that students have time to practice mimicking the writing styles they see. For example, if the lesson outcome is to write a gripping introduction to their literacy narratives, then the first step would be to expose the students to multiple texts that have interesting introductions. The next step is to ask the students to write their own introductions using the texts as inspiration or guidance. I urge educators to be careful, though, and to be sure that the introductions provided to students demonstrate different approaches, so that the students can pick and choose what works best for them. I also like to ask students to write two introductions—both of which attempt a different style. Then I ask that students work in groups to critique and applaud each other’s work.

The reason I think it is important to show students a model is because it is too easy to become robotic when writing. Falling into a routine limits creative potential because, when following a routine, experimentation is at a halt. Exposing students to

different forms of writing may inspire them to try something new—as long as they are given the space and opportunities to practice.

Conclusion

In educating FYW students about their brains as well as giving students time to explore and examine their own thinking processes, it demonstrates the complexity of the brain and the writing process. In examining writing through this lens, it helps to frame the idea that writing is a skill that is crafted. Teaching students that the brain is, in part, shaped by experiences, helps to bring agency to a student’s education because it shows that one can “grow” their brain. Writing should be viewed in a similar way as one views practicing a sport or a musical instrument—as a skill that can be exercised and strengthened.

In exposing FYW students to the neurology of their brains, students become empowered to explore the powerful strengths their brains naturally possess. In addition to the information this chapter explains, educators may also wish to present students with the neuromyth information Chapter 3 discusses in order to provide clarification of some widely believed falsities about the brain.

Lesson Plan for Including Neurology in the FYW Classroom: Switching Between Creative and Analytical Thinking

FYW students should be made aware of the multitude of ways in which their brains are working throughout the day in order to both demonstrate the effect that things like stress or daydreaming have on the body as well as an attempt to educate students on the workings of their brain and the complexity of writing. What follows are some ways in

which educators can begin to bring neurology into the classroom in order to assist students in understanding their own brains.

First, it is important to spend time thinking with students about what is happening in the mind while writing. I begin by asking students to detail what their rituals are before they begin a writing assignment, or when they first start writing. We first have a group discussion about what it looks like for them as they begin to write. We discuss where they sit, what snacks they may have at hand, if they play music or need quiet, if sitting on a comfy chair, bed, or the floor is best, do they need caffeine or no, do they use a computer, tablet, or paper. We have a debate about these different scenarios in which I encourage students to argue both for and against these many different approaches to writing.

Once we establish that most people have some kind of physical “writing plan” we then move on to the question of what they are thinking right before they begin to write, or right as they begin to write. I ask them to jot down a few phrases they find may run through their head right as they begin to write or in the moments that lead up to writing. In groups, the students discuss this question, then as a whole class we compile a list of the statements, questions, and feelings the students feel right before they start a writing assignment.

Next, I like to show students a brief video from *National Geographic* directed by Catherine Zuvkerman that outlines the various parts of the brain. As a follow up to this activity, the class can be split into four groups. Each group will be assigned a section of the brain: frontal lobe, occipital lobe, parietal lobe, or temporal lobe. Using their computers, they will craft a brief informative presentation about their section of the brain

that they will share with the class. I ask students to show where each region of the brain is located, what that part of the brain is known for, and to express what they think this area of the brain might be used for when writing. The information can be presented to the rest of the class in any way the students choose—as long as there are accompanying visuals to support their points (specifically about the location of the area in the brain). Before they begin to work on this project, I give students a mini-lesson on how to correctly cite videos or images within a presentation in MLA format.

While each group is presenting, the rest of the students are taking notes that way each student will be able to answer the three research questions posed at the beginning of class for each major area of the brain— where each region of the brain is located, what that part of the brain is known for, and to express what they think this area of the brain might be used for when writing. At the end of each presentation, I ask the whole class to contribute added ideas of how the particular area being discussed is used throughout writing. At the end of the presentations, I like to provide students with a handout from *Mind Matters* that outlines the major areas of the brain. See Appendix F.

We conclude this discussion with a ten minute free write that asks students to process and respond to the information learned, to elaborate on any thinking of conversations brought up in class, and/or to revisit the drawing they made at the beginning of class and add details based on the new information learned throughout the lesson. I assign the article *What You Should Know About Your Brain* by, Judy Willis after this class because it provides an overview of the brain. Her handout accompanies her article “How to Teach Students About the Brain” which describes her experience educating middle school students about neurology.

In the following class, the next step is to connect the information we learned about the brain to writing. To demonstrate the complexity of the brain, I tie in the complexity of writing. To begin, students first need to recognize that, with dedication and practice, they can change their approach to writing. I like to begin the semester first asking students what their relationship to writing is, what fears/anxieties/dreads they have in taking a course with the word writing in the title, and asking them to describe a piece of writing they wrote that they feel the most pride. I ask students to reflect on their “best” writing piece and explain why they feel it was their best work. Was it for school? Did they receive a good grade? Was it particularly challenging to write, so it felt good when it was finished?

We spend time discussing their attitudes toward writing, how their attitudes changed, and what they wish writing would “feel” like. I then like to share with students that since humans have prolonged period of maturation—about 24 years—“we have a longer period of time for our brains to adapt to our environments, especially since our brains are particularly responsive to learning before maturity” (Wirtz 51). Since most of the FYW students are younger than 24, I remind them that their brains are growing and ready and willing to make new neural connections.

I also like to share the writing processes and quotes of famous authors demonstrating how writing is a skill in which requires a great deal of work; but, before I do that, I ask students to imagine what professional writers feel as they sit down to write. I show images of Stephen King, J.K Rowling, J. R. R Tolkien, Gillian Flynn, and Alice Walker to name a few. We discuss if they know who each of the authors are, and if they are familiar with their work. I discuss a few titles and movies that were inspired by their

work. I choose these authors because each of them inspired movies, and more often than not, the students are familiar with at least the movies if not the novels. I ask students to spend a few minutes sketching or writing a few ideas of how they think professional authors write. What does their space look like, what do they feel like when they sit down to write? Students could also take photos of their writing spaces then bring the pictures to class to share with classmates.

After students sketch or write ideas of the authors' workspaces and attitudes toward writing, we spend a few minutes discussing their responses. More often than not, students assume professional authors write in pristine rooms with views of an ocean or a rolling field. We discuss where their idealistic view of "the author writing" stemmed from, and I ask if the students feel like would be "better" writers if they were able to sit in a "perfect" situation as they imagined. I then display a few quotes from the author's on their writing processes. The following are a few that I like to use:

It starts with this: put your desk in the corner, and every time you sit down there to write, remind yourself why it isn't in the middle of the room. Life isn't a support system for art. It's the other way around. (King)

It is impossible to live without failing at something, unless you live so cautiously that you might as well not have lived at all, in which case you have failed by default. (Rowling)

I'd have an idea for a book and get 20 or 30 pages into it and stall out, Flynn says. Part of it was just not understanding that everyone hits a writer's block, and your job as a writer is to burst through it. But it

would get difficult and I would lose interest and put it away. I think that was the first sign that *Sharp Objects* was actually going to be a book. No matter how busy I was at work—and I wrote *Sharp Objects* all over the world, on different movie sets—I just dragged my laptop with me and wrote. (Flynn)

I wisely started with a map, and made the story fit (generally with meticulous care for distances). The other way about lands one in confusions and impossibilities, and in any case it is weary work to compose a map from a story. (Tolkein)

I share a little about these authors' lives, successes, and attitudes toward writing. I also like to show a picture of Stephen King writing which appears on the cover of his novel *On Writing: A Memoir of the Craft*. In our discussion, we discuss the picture of Stephen King writing and the quotes of the authors that demonstrate work, struggle, joy, and this *need* to write. Students are often surprised by the media's portrayal of writers. Of course, I am sure to bring up that the photo of Stephen King was likely staged; but, the point is, one can write anywhere and one shouldn't wait for the "perfect" conditions to arrive.

As stated above, it is critical that, while in the early stages of brainstorming, students allow their minds to be open to innovative ideas. One way educators can assist their students in optimizing their creative abilities is by making sure the environment is conducive to creativity. Soothing music and breathing exercises are two simple ways that may help a student relax a bit before diving into a writing project. Peggy Suzuki states

“The act of creation/creating something is fundamental towards developing ownership and deepening one’s ever-growing identity and sense of self;” and through making the classroom a welcoming space where creativity can thrive, students have space to grow their creative process in order to develop their creative skills further (Suzuki 1). Lastly, providing time in class for the students to brainstorm is important because it demonstrates that the process is important enough to necessitate class time.

A study on brainstorming’s effectiveness on improving group creativity points out that brainstorming, as we’ve come to understand it today, “was devised in the late 1930s by advertising executive Alex F. Osborn [who determined that] There are two core principles [to brainstorming] deferred judgment, and quantity breeds quality” (Hender 4). I like to share this with my students for a few reasons. First, it demonstrates that brainstorming is not solely used for writing—an advertising executive found it important enough to determine criteria for navigating through the process. Second, it states the two most important facts of brainstorming—the critical mind needs to be toned down and connections, solutions, and solutions should be spit out as fast as the mind can think of them—even if they seem ridiculous or unfeasible on the first thought. One way I like to get students thinking in terms of out-of-the-box thinking is to show them an image of unlikely animals. I like to use an image by Pascale Jones which shows an orangutan and a group of otters seemingly interacting at a zoo in Belgium.

With the image, we first discuss what we know about orangutans and otters—primarily noting the differences between the two habitats in which the animals live, diet, and/or look. It is always interesting, that while viewing the image, the conversation naturally is driven to discuss what is different about the two animals. Stafford points out

that, as a society, we are obsessed with noting differences; “in this age of otherness we lose sight of connection,” while we should really be working on *connections* in order to come up with new ideas (Stafford 175). After our conversation, I ask students to get into groups of two or three and discuss ways in which the two animals are similar, as well as how they think the pair ended up together. I tell the groups that they must think of at least ten reasons they are similar and ten reasons they might have ended up together for the photo. The only other information I give the students was the image was taken in a zoo. This is just an example of ways to get students thinking outside of the box.

The most important part during the brainstorming stage is that students are thinking both consciously and unconsciously about the topic at hand. Another activity I like to use is to introduce students to the idea of thinking of multiple solutions to solve a problem is Wallace Steven’s “Thirteen Ways of Looking at a Blackbird.” I usually will ask students to think of an object, animal, or person in their life and explain or draw this thing in 13 (or more) different ways. I may even ask students to consider the writing prompt at this stage and begin generating 13 different ways they could answer it— phrases and pictures count.

An additional activity that I find to be fun is bringing in stacks of newspaper or magazines and having students cut out sentences that seem to spark an interest in them. Next, the students will glue the sentences in a way that makes sense to them on a piece of paper. I did something similar to this in a class with Dr. Owens, and I think it is a great way to get students to begin thinking outside of the “box” of writing. All of these activities are meant to get students thinking in ways that they might not have considered thinking in before.

The activities detailed above are meant to stimulate creative thinking; however, as this chapter and Chapter 1 explains, students' stress levels must be low and the classroom environment must be conducive to creativity. Scaddan offers some anti-stress techniques that I think are beneficial to teach students because these activities can be taught and used in a classroom setting but they can also be used by the students outside of the classroom as a way to monitor and control their stress levels. Scaddan states starting classes with breathing techniques, peaceful music, and providing an overview of the class' section so students know what to expect may reduce students' stress levels (139-40). Students could each suggest a song and a class playlist can be formulated which can then be played at the beginning of each class. It is also suggested to spend the first few minutes of class talking to the students by sharing a story or asking the students about their own lives as a way to reduce stress and, in turn, provide a classroom environment that is optimal for creative thoughts to flow.

Freewriting in the beginning of every class is also a great way for students to transition from their busy day into the classroom.. I ask students to use this time each day class with a physical notebook and pen or pencil. A timer is set—usually for ten minutes—and the only requirement is that students do not stop writing for the entirety of the time. I tell students it is fine if they are writing the same word over and over, but they must continue to write until the timer sounds. If a student says “I don't know what to write,” I tell them to write that statement over and over until either they think of something or the timer sounds. Sometimes in the beginning of the semester, I will put questions or statements on the board to provoke thinking, but as the semester progresses I will simply state that it is time to free write.

One last activity I like to do with students is the demonstration of mirror neurons. To begin, I will show an image of a person who is happy, sad, and terrified. I will ask students to brainstorm emotions that may be tied to each photo, situations in which this person might be feeling this emotion, and to take note of the facial expressions on each person which gives clues to how the person is feeling. I would have the students first answer these prompts on their own, then share with one or two students around them, then have a discussion as a whole class. The students usually arrive at the point that humans can recognize emotions on other's faces even when there is no sound, context, or words.

Next, I like to show a clip from Mirror Neurons which is a PBS video directed by Denise Blumenthal that breaks down what mirror neurons are and why they are important to humans who are social creatures. We then have a discussion about what it means for humans to have mirror neurons, any examples they can think of throughout their life that they might have been taught through mirror neurons, and what they think mirror neurons may mean to learning to write and developing their skills as writers. Then I like to use part of activity that comes from a lesson plan from BrainU's website which gives students the chance to practice engaging within this idea of mirror neurons. The lesson plan states to break the class into groups of three. Once in groups, only one student from the group will sit in front of a laptop that is displaying the video; "the other students will split into two groups: primary observers and secondary observers (BrainU 3). Both the primary viewers and secondary viewers will not watch the video, instead they will be watching their group member's expressions. The primary viewers must sit so that they can see the viewer's facial expression as he or she watches the video. The secondary

viewers must sit in such a way that they can see only the primary viewer's face—not the video nor the viewer's face.

Once the group is assembled, the primary viewer will put in headphones and videos which each express a different emotion. While the lesson plan from BrainU includes 7 videos, I chose to only include two videos to avoid bringing any sensitive or triggering material into class. The two videos I use are a video of a little boy playing the ukulele while singing along to Jason Mraz's song "I'm Yours" and a video of a terrifyingly large snake which jumps at the camera. As the viewer watches the video, the primary viewers watch the viewer's face and the secondary viewer's watch the primary viewer's face. Between each video all students record what they notice. The viewer records how he or she felt while watching the video.

In the discussion that follows, I ask students to observe if all group members had similar reactions while watching the video or watching each other's faces. We discuss what this may mean, if emotions are always shown, and other examples of instances when people "felt" the pain or happiness of another person. I then like to show students a part of a video from the 2018 Research Symposium by Dr. Christian Keysers. In the video, Dr. Keysers explains his research in which he questioned if feeling emotions and watching someone else experience an emotion activate the same or different parts of the brain. The video shows a participant under a MRI scanner while his legs are being brushed by a woman wearing gloves. The MRI scanner mapped the part of the brains that became ignited while experiencing the feeling of touch on the body. Next, the participant was shown movies of other people being brushed. It was found that the brain region that was most activated while watching the video was the same region as feeling the sensation

of being touched (RootsofEmpathy 8:55). We discuss these findings and what students think about the importance of mirror neurons.

The above lessons and prompts are meant to both educate students about their brains and assist them in strengthening their writing skills. As always with teaching, different years and different classes will make it necessary to change and adapt the plans to best reach the students. The main goal of these prompts is to get students thinking in a new way while growing their skills as writers.

CHAPTER 3: THE SOCIAL BRIAN AND CREATIVE THINKING

This chapter discusses research that argues that collaboration and social involvement are conducive to creativity. I do so with the intent of arguing for the necessity of social involvement in the writing classroom. While writing is often thought of as a solitary act, I argue that during the stages of the writing process, social writing activities can cause students to rethink their own writing process as well as encourage new ideas and connections that will result in innovative papers and collaboration with other students. As students move through the writing process in a collaborate classroom, not only do students have a chance to learn from their individual writing processes, but they are also given the curricular space to learn from one another's writing processes. In exploring the present research, it is evident that a move to a more social classroom is necessary. Therefore, FYW is the place where college students should be introduced to the idea of a writing process that involves support and ideas from their peers.

This chapter will first discuss the impact of evolution on human's socialness on the mind. In turning to research conducted by neuroscientists Cozolino, Schutt, and Dunbar among others, the chapter will describe how the evolution of our brains grew to allow for more social advancement. Demonstrating the importance of social survival to evolution will situate this chapter's call for a more social classroom. This section will also describe neuromyths and their impact on the educational system today. In exploring what a neuromyth is and why these myths are still being practiced, the chapter will then offer ways educators can counteract these modes of instruction.

The chapter will turn to Matthew D. Lieberman's *Social: Why our Brains are Wired to Connect*, to explore some of the reasons why the American education system was set up

the way it has been. I will then use Steven Johnson’s discussion of a “liquid network” and a “gaseous network” to demonstrate how the classroom should be treated as a “liquid network” in order to make use of all the individuals inside of the classroom. It is useful to compare a “liquid network” to Csikszentmihalyi’s concept of “flow” to demonstrate Lieberman’s call for fluidity.

To demonstrate where education should move, and how to incorporate a more “liquid network” environment, the chapter will draw upon Tim Brown’s definition of design thinking in order to transfer his discussion of successful business’ creative teams it into pedagogical spaces. Brown’s work, which is primarily used in business, can be useful to writing studies as well; he argues that design thinking “taps into capacities that we all have but that are overlooked by more conventional problem-solving practices” to turn companies and business into human-centered thinkers that rely on the creativity of the entire staff (4). This chapter pushes his ideas to think how a classroom can be redesigned to develop creative thinkers and will outline specific necessities the classroom needs present in order for creative thinking to be at its highest potential. In discussing scholars such as Robert Thatcher Kaufman and Berys Gaut, the chapter will demonstrate how to use the brain’s natural state as a means to promote productive creative thinking. The chapter will describe putting these ideas into practice, especially in terms of creative making within the FYW Classroom.

The chapter concludes with a brief discussion of the creative nonfiction genre and argues why in FYW classrooms, this genre is an effective place to begin asking students to think of writing as a social activity. In looking at Carolyn Forché’s and Philip Gerard’s *Writing Creative Nonfiction* and Nancy Dafoe’s *Breaking Open the Box*, I will challenge

their ideas about writing pedagogy in order to demonstrate how educators can use well known and effective practices and shift them into a more social activity. A sample creative nonfiction text that can be used in the FYW classroom follows the conclusion of the chapter. It is important to note that nonfiction can be across genres; for example, ethnographies, poetry, and documentaries, so there are many ways to incorporate nonfiction writing within a classroom.

This chapter serves as a push-back against the idea that education, and especially writing, should be understood primarily as a solitary act. Much of the way education is set up today relies on an individual's ability to shut out distractors and tune into information being presented. The information is then expected to be memorized and produced on a test or assignment for a grade. While there are many reasons why such a system is in place, neurologically this set up does not prove to be the most effective environment for student learning. According to research, a student's desire to be social is not their fault; rather, it is an innate product of evolution. This chapter argues for a more social approach to education, a philosophy meant to engage students throughout the writing process. In adopting this model of writing, the classroom steps away from a traditional approach of students writing alone, workshopping their drafts within groups, only to work alone once more before submitting the final paper. Instead, as we will see, the image in our minds should be more thoroughly a collective one: students writing together throughout the unit, with the importance of the assignment resting less with the assessment of the instructor and more with the social writing interactions of peers.

Misconceptions and Neuromyths of the Brain and its Impact on Education

While both education and neurological research have grown tremendously throughout the past hundred years, misconceptions about how the brain works still guide many of the ways education is being practiced within the United States. These mistruths, or myths, are often called neuromyths and may actually be harming the ways in which students can effectively learn. In 2002, the term neuromyth was redefined by the Organization for Economic Cooperation and Development as: “a misconception generated by a misunderstanding or misreading or a misquoting of facts scientifically established (by brain research) to make a case for the use of brain research in education or other contexts.” It is under these neuromyths that many educational programs function; however, “the use of neuroscience in education [...] is young. Neuroimaging technologies have really only developed over the last [30] years” so there is still much to learn about how education can be shaped to better suit the brain (Bernard).

A major component of an individual’s success in education is based upon the ability the individual has to memorize information. Matthew Lieberman in *Social: Why our Brains are Wired to Connect* states that previously, the brain was thought to be “relatively fixed and had all the neurons it was ever going to have not long after birth [...] therefore we can...] learn new information but not change [...] the processes that support thinking and learning” (294). Under this belief, facts can be learned but our brains will not change or grow due to new circumstances or experiences. Under this model, the teacher becomes the authority of the classroom, and the students are “empty vessels” into which information is poured and critical thinking is absent. This is why “education is so focused on the acquisition of new information rather than on trying to mold minds themselves” which is problematic because

research has proven that cramming information does not necessarily mean it will remain in long term memory (294).

Jason Wirtz argues that “presenting the most important facts to children and expecting them to absorb and retain them” is not the way education should work (297). Instead, students with the greatest amount of self-control, or imposed discipline from authority, can control themselves into functioning under this model, but most of the population cannot. This model of education is a factory model; it resembles both prisons and armies. It should not be present within a classroom setting. Vygotsky’s Zone of Proximal Development states that “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers” which demonstrates that students can and do learn from each other (Vygotsky 78). Among other neuromyths are the idea that people are either right-brained or left-brained, only ten percent of our brain is being used, male and female brains as being different, and the belief that the ages between zero and three are most important to learning (Bernard). In many cases schools, programs, and entire curriculums have been based upon these neuromyths.

Despite growing research that disputes neuromyths, these myths stick around due to many reasons. In believing in neuromyths, people feel soothed—there may be an “easy” fix to an otherwise difficult issue; “Humans are neurologically prone to confirmation bias [...] a piece of information is more likely to hold our attention if it is meaningful to us;” and, the ways in which information is passed along skew our perceptions of what is true and what is false (Dijk 18). Many ways in which education was set up is based on

misconceptions; however, in many cases, it is costly to fix these mistakes. Entire curricula may have been purchased solely based on its claim to be “brain-based.” The goal of this chapter is not to address the entire spectrum of neuromyths that affect the classroom nor to outline how education is suffering from these widespread beliefs. Instead, I include some neuromyths in order to demonstrate that many parts of education that have become solidified need an upheaval. This chapter is interested in addressing how research conducted on the socialness of our brains can be used in the classroom in order to create a more social and productive writing environment.

Evolution of the Social Brain

To understand how important our social brains are today, it is necessary to first determine how we evolved to become so situated within a social cultural. Darwin’s natural selection theory is relevant because it operates under the belief that the strongest will survive. Our brains are programmed to survive, and in order for our ancestors to survive they had to “get bigger, smarter, or get smarter in order to appear bigger” (Medina 86). While physically becoming bigger would take too long, humans adapted to understand the meaning behind the phrase “strength in numbers.” Humans “learned to cooperate, which means we learned to form relationships, which allowed us to appear bigger” because humans grouped together socially (87). Unlike other mammals, humans grouped together and had the ability to maintain these groups and relationships which lead to a stronger group as well as a bigger brain.

Johnathon H. Turner explains how humans and apes do not “possess bioprogrammers, or genetically driven behavioral propensities hardwired in the neurology of the brain, for group affiliation” which separates us from most mammals who do possess

bioprogrammers (Schutt 41). These bioprogrammers are present in many mammals because they are necessary for the mammals, upon birth, to “form and remain in troops, pods, herds, and other group-like social formations” (41). Unlike most mammals, humans and apes must learn how to be socially accepted; it does not come naturally. During childhood and adolescence many factors play a role in determining the effectiveness in the development of the social brain. An individual’s positive and negative social situations will shape their mind as well as their outlook on situations; however, this chapter does not have the space to discuss all these factors nor their significance. Instead, this chapter is interested in the idea that humans learn to be social creatures, yet they spend a majority of their time in education compressing this desire to be social in order to best succeed in a system that focuses so heavily on the individual.

Dunbar, among many other social scientists, discovered that our brains grow depending on social interaction. First known as the Machiavellian Intelligence Hypothesis, the theory was developed to explain the unusually large brain to body size primates possessed in comparison to other vertebrates (Byrne and Whiten). It was found, that due to the complex and social dynamics of the primates living environment, their brains adapted to make room for all the information. Many researchers have determined that the larger cortex in humans and monkeys are, in part, due to the expansion of social groups (Cozolino 6-7). In order to survive, primates adapted to have a larger cortex to provide them with the space needed to store and categorize social information needed to be a part of the group. Humans, too, evolved to have a larger cortex than other mammals. Humans, like primates, needed to be social in order to be successful in important tasks such as “hunting, gathering, and caretaking” which, if left alone to complete, there would be little chance of success

(13). The saying “safety in numbers” speaks to the necessity of our ancestors to remain in a group for survival; however, it still rings true today that people require a certain amount of social acceptance.

Originally, the brain was thought to be made up of distinct sections that performed separate functions. After a study conducted on the brains of monkeys in 1990, however, research concluded that a “Set of neural regions [...in the brain are...] dedicated to social cognition [...Among them being...] the amygdala, orbital frontal cortex, and temporal cortex;” yet, further research has determined that the brain should not be seen as categorized, separate states and instead as part of a larger, connected network (Schutt 30). Instead of focusing on one area of the brain responsible for social cognition, researchers found it was more beneficial to consider the various networks. I believe this to be useful to education because in the classroom, teaching is often about much more than the content area. Teachers are encouraged to think of the “whole” student. In using research conducted in social cognition, I believe educators can craft more developmentally appropriate lessons by tapping into a student’s natural, social state.

Most importantly, it is thought that our ability to learn has “evolutionary roots in relationships” since forming groups were necessary for survival (Medina 87). Humans had to learn how to get along with each other and had to remember these social orders in order to survive. Our brains grew in order to make room to store all these intricate and important relationships. A 2010 study questioned if there was a “correlation between [...the...] amygdala and social skills in adult humans” in order to determine whether or not the brain size actually increased due to social interaction in humans (Bickart, K.). The study was interested in the amygdala because of its relevance in “the emotional coding of social

signals” (Dunbar 101). The study found “significant correlations between network size and complexity and cortical thickness in some regions in the temporal and frontal lobes (101). Social creatures’ brains have adapted for allowing for larger social groups which demonstrates the importance of maintaining and growing these relationships.

Additional studies have been done on human adults to determine the correlation, if any, between social groups and the size of the brain. In 2011 a study focused on an individual’s online social network size in relation to brain structure. The study found “significant correlations with all three brain regions amygdala, several cortical regions (left middle temporal gyrus, right superior temporal sulcus, right entorhinal cortex) and number of Facebook friends” (Dunbar 101). According to the research, an individual’s brain can be shaped by the socialness of the individual—even social networking online. Social competence is inherent in all of our brains, so it makes sense that it plays a major role in our happiness and success.

Part of being social is the ability to understand other individual’s internal feelings and being able to relate to these feelings. This is a point I stress in my class when students are drafting a piece. I remind them that even if other people have not gone through the same experiences, writing in a way that allows for connection, reflection, and understanding is an effective way for readers to be interested in, and even connect to, the piece. In fact, the ability to understand others is one of the most important factors in achieving social success. Through reading stories about other people’s experiences, individuals can come to understand or empathize with the author. From his experience facilitating digital storytelling workshops, Joe Lambert expresses how a group process of story-telling brings authors to the understanding that our life stories are connected, and we

are not alone. Furthermore, Natalie Phillips studied how reading affects the brain. Her conclusions were aimed to understand why people regularly describe their experience with reading as one of “immersion.” She found that, while reading, “the whole brain appears transformed as people engage in close readings of fiction” which is neurologically similar to what would occur should the person be engaging in the activity (Leavy 7). Phillips states the brain’s response to reading was as if “the readers were physically placing themselves within the story as they analyzed it” (7). To further demonstrate how reading stimulates the brain, she found there is heightened connectivity in our brains for days after reading a novel (7). Many parts of the brain are activated when it comes to understanding and interpreting other people’s behavior. Chapter 4 dives into this idea deeper in its discussion of mirror neurons which play an important part in how humans understand and learn from each other.

Another important aspect of the social brain is the ability to think critically and reflect upon the self. This aspect is particularly relevant in the writing classroom where students are asked to redraft projects and consider peer feedback. Research using functional magnetic resonance imaging (fMRI) has shown that the areas of the brain that are responsible for self-reflection “show increased activation during the retrieval of self-specific information, in contrast to tasks that involve focusing on physical or semantic aspects of stimuli” when the subject is asked to self-reflect (Schutt 32). Interestingly, these same brain areas—the midline cortical structures—are also the areas that “are considered [...] the brain’s resting state, or ‘default mode network’ (32).

As our brains grew and became more social, social success or failures became “sociostatic regulators of our minds, bodies, and emotions” (Cozolino). This means that

social interactions grew to mean more than only survival and instead became a necessity for happiness and even health. Social acceptance evolved into meaning so much more than survival in a group. It came to mean happiness, acceptance, and success within society. It is not surprising, then, that a major part of school for students is the social aspects. There is a reason why many students say lunch is their favorite subject—they are free to socialize!

Lastly, to further demonstrate the importance of social success, Lieberman explains that physical pain is neurologically similar to social pain. Social and physical pain both activate the dorsal anterior cingulate cortex (dACC) and it responds identically whether the pain is social or physical. The idea that the body's response to pain—physical or social—is identical reveals the importance of social acceptance. Interestingly, this connection may also explain why humans fail to categorize pain to the correct source. Is the chest pain one is feeling due to the worry of a sick relative, or is it a sign of heart trouble, or is it a combination of the two? In understanding that social failure can truly cause pain, I think it situates the argument for the necessity of educating the social brain in the classroom; “humans use social interactions as a way to feel included and worthy within their communities” so, shouldn't they be taught effective ways to exercise this behavior, or at least be asked to use these skills more often within the classroom (Cozolino 655)?

Since our brains are wired to be social, Lieberman wonders why education is not moving in that direction. He argues for “social brain” classes in which students are taught effective social skills. These classes “will provide a shared language for discussing and considering these [...social...] errors when they occur, which in turn will help people understand that the errors that others make usually aren't malicious or intentionally self-serving” (Lieberman 292-93). These errors that Lieberman refers to are moments in which

social interactions ended in either rejection or an undesired social interaction. These classes would be both a learning experience for students and serve as a safe space to alleviate any drama that arose out of a social instance. Giving students the opportunity to do this in school, may diminish the amount of bullying or fighting in schools because students are given time to remedy any problems. It also would teach student healthy ways to solve a social problem.

Lieberman explains that a student's socialness is not their fault nor is it something that can be fought. Our brains are literally wired to be interested in social situations; "the value or increasing our sociability is a major reason for why we evolved to have a larger brain" (33). In order to maintain and understand the social status of people in relation to ourselves, a bigger brain was necessary to track and fully understand our place within a larger social context, as proven in an experiment done by Smith, Johnson and Brown on chimps (34). In fact, social cognitive regions of the brain are the ones activated when our brains are in an idle state, proving that it is the brain's preferred state of being.

Supporting a "Liquid Network" Classroom Environment

In *Where Good Ideas Come From*, Steven Johnson explains the difference between a "liquid network" and a "gaseous network" to demonstrate the necessity for socialness in innovation. He discusses how when human begins organized into settlements that resembled "liquid networks," a period of high innovation followed when compared to previous years in which humans lived in a "gaseous network" of "small packs of hunter-gathers bouncing around the landscape with almost no contact between groups" (53). Humans thrived creatively when they stayed in the same place and had contact with a larger

number of other humans. In this “liquid network,” forming connections with various people lead to new ideas.

We can think of a university as a liquid network. Students arrive with differing backgrounds, majors, goals, and personalities and are placed in classrooms in which they—most likely—have a similar goal; pass the class. By arriving in the classroom, students are already equipped with an amplitude of varying knowledge and beliefs; therefore, when the educator makes room for more student collaboration, the liquid network expands and innovative ideas may be formed. With both guidance from the instructor and through interactions with peers, students should be lead to the discovery that they are not empty vessels; but, they arrived already overflowing with knowledge.

Cozolino argues that humans navigate through life in terms of finding their “tribes,” and while I won’t use the word “tribe” to classify a group of students within a classroom, I do agree that the classroom is a community. In most instances, a classroom is a mix-match of students who are arbitrarily thrown together; however, for the time in which the students are enrolled in the class, they all have at least one commonality: they are all taking the class. The classroom is a place in which there are certain social and academic standards that students learn to use in order to fit in. In addition, “research [...] shows that social tasks such as cooperating, communicating, and decision making have led to increasing sophistication and growth in size of the human cerebral cortex—a part of the brain that is associated with memory, perception, language, and consciousness” which demonstrates how important social skills are to human development (Tracy 655). It is important that educators use this knowledge to create an environment which allows for the optimal growth of both creative thought and academic success. In considering a classroom in which

students rely more so on each other as a community than themselves as individuals, the liquid network that Johnson discusses is more likely to grow.

The liquid network supports Vygotsky's sociocultural theory which states that learning is a social process which involves the support from peers and adults. Vygotsky determined that social interactions lead to learning. A human's ability to learn "presupposes a specific social nature and a process by which children grow into the intellectual life of those around them" which means that children learn from and, in some ways, become, the type of people or situations with which they are growing up (Vygotsky 88). Taking into account that asking students to approach writing in the way that this chapter suggests may be a new experience for most students, it is necessary that the classroom provides the type of learning and support that will guide students to become innovative thinkers. Similarly, in thinking of the classroom as a community, each member becomes important both as an individual and as a part of the larger group.

Using the term "community" denotes a different feeling than the term "group." A group is constantly changing. In thinking of the phrase "a group of undergraduates," one may conjure up students eating in the cafeteria, lounging on the lawn, or hurrying in the hallway for a class. A single student can be part of all of these groups as he or she moves about her day; it is changing as fast as she or he is moving. Using the term community, however, does not change despite the interactions and movements of an individual throughout the day. A community is defined of people brought together by a geographic location. A member can travel outside the boundaries of their geographic community, but they will still continue to belong to that community. As students roam the campus at St.

John's, some miles from their homes, they still belong to their neighborhood, cultural, and familial communities.

I would like students in my class to consider FYW as a community because even as they are outside the walls of the classroom—especially as we undergo a shift from in-person learning to remote-learning—they are still a part of our class community. In thinking of the classroom as a community, the liquid network thrives because students are united through a commonality but encouraged to bring their differing perspectives, pasts, and interpretations. Through the students' interactions and the instructor's guidance, the classroom community evolves into a space in which new communal processes are formed that aim to be conducive to developing writing and learning.

This is why I find it is important to create a classroom environment in which the students are talking with each other and moving around the classroom as much as possible. Simple things like pairing students with someone they haven't worked with before, asking students to maintain eye contact with not only me but with their peers when they answer a question, and using icebreaker activities all begin to shape the type of environment needed for a liquid network to benefit and thrive. In doing so, educators are supporting student brain growth because “neurons within the brain will grow depending on the conditions of the learning environment [...and...] by ensuring that students feel respected and capable, teachers can foster an environment that promotes neural plasticity within the student's brains” (Tracy 656). Once students are removed of fear and anxiety, growth in writing can occur because students are more likely to take risks which can push their writing further.

In considering this information, the chapter aims to answer the question: how can FYW educators use the social brain throughout the writing process? While the individual

brain is necessary in education, recent research has suggested that a shift to understanding how the social brain works may provide key research that will aid further understandings of the capabilities of our brains. Since humans “learn and develop [...an...] understanding of the world through social interaction which is commonly mediated by language,” it is safe to say education would benefit to make a shift toward the more social classroom (Mercer 3). Individuals crave a sense of belonging and students need an education that teaches them how to be better social people. Educator’s should use the preferred state of the brain—the social brain— as a way to enhance classroom lessons and material.

Brown’s Design Thinking in Education

In looking to successful business’s creative teams, educators can get a sense of what needs to be present in a classroom in order for creativity to occur at a maximum protentional. Tim Brown, among others, claim that certain criteria must be met in order for an individual to use his or her creativity to protentional. Similar to the classroom environment I speak of in Chapter 4, an environment conducive to creativity is more likely to result in individual taking risks which will lead to innovative connections and ideas.

First, I will address how educators can adapt Brown’s design thinking. Design thinking calls for a certain expressive, forgiving, and experimental environment in order to encourage student creativity. Brown explains that design methods should be used in all businesses not just within a creative or research team, and I argue it should be present in classrooms as well. Educators can use universal design learning to create the type of environment that Brown’s design thinking needs. Under universal design learning, “teachers should be providing students multiple ways to stay engaged, and multiple ways

to present the material and for students to demonstrate what they have learned” which, in providing these options, leads to a classroom in which multiple approaches to an assignment can lead to success (Mrachka 22). This idea acknowledges that there is not only one way to effectively complete an assignment. Design thinking “taps into capacities that we all have but that are overlooked by more conventional problem-solving practices” to turn companies and business into human-centered thinkers that rely on the creativity of the entire staff (4). Under this model, the “creative team” is no longer only responsible for creative thinking; instead, the entire office is expected and encouraged to delve into their creative minds.

I find that when applying design thinking to a classroom, there is a shift away from the classroom that relies on the same three or four students who participate while the rest of the class sits back and listens. Those listeners, whether or not they are actively listening or zoning out, allow others to do the speaking, thinking, and connecting for them. I understand many students are shy; however, involvement does not need to be only in speaking. In adapting a design thinking model in the classroom, all students would be required to listen, think critically, and respond in some type of way.

A simple way to begin incorporating design thinking is by asking all students to write in a journal throughout the semester. Students can be given the choice to use a traditional journal—a marble notebook and a pen for example—or, to choose a digital approach. If using an iPhone, students can choose to write within either the “Notes” application or “Pages.” Both applications allow users to type in text. Pages also gives the option for users to insert shapes and images as well as provides more options for font sizes

and color. Using a digital format, students can use media to complete their journal assignments. They can write and include pictures or drawings.

Often, I ask students to use this journal to respond to free writes. Before asking the entire class to respond to a question or a reading, I ask the students to free write a response first. In this case, all students must think of a response before hearing what their peers are thinking. Another way to get students to begin to challenge their thinking is to ask them to write each night, continually for about fifteen minutes. At the beginning, I set a timer because I want them to become accustomed to writing for a full fifteen minutes. In my online classes, I encourage students to set their own timers and to complete the free write first before the rest of the assignments in order to begin the transition from thinking about their busy day to opening up to a mindset in which creativity can occur. They do not have to share these free writes with me. I tell my students that as long as their pen or pencil doesn't stop moving across the page, they are doing the assignment correctly. I encourage them to write down whatever words or thoughts fill their mind throughout the duration of the fifteen minutes, or they can choose to write about a specific topic. I will detail more of these approaches in the lesson plan in this chapter.

It is an option to include music during these writing assignments. Taking a poll on the first day of class asking students if they like to listen to music while writing or be in silence is a way to decide whether or not to include music during these free writes. Students can also provide one or two names of songs, artists, or genres they like to listen to in order for the professor to create a playlist that can be used during the semester. If choosing to use music, then in creating this type of routine, the brain begins to form connections between

the music, the atmosphere, and writing which may result in an easier “switch” into writing mode, as Chapter 2 detail is important to creativity.

Toward the end of the semester, I ask students to submit a few pages narrating their experiences with the free writes. That is the only graded portion of the assignment. Students have often admitted that they struggled the first few nights of this assignment. They claim they had “nothing” to say, but they have found that each time they completed the assignment the more natural it felt and the more meaningful the writing became. In a world of social media where attention is easily and quickly being grabbed, it is sometimes hard to find the time and space to simply sit, be still, and write; however, it is during these moments of reflection and stillness that lead to innovative ideas.

To accompany the journal writing, students will also make a video of what their writing process looks like at home. The video can describe their routine, show the setting in which they usually write, and express their thoughts about their writing process. The video is meant to encourage students to think about their writing process. Students can consider what is working about their writing processes, what isn't working, and possibly gain new perspectives by viewing their peers' responses to the video assignment. The students can be grouped with two or three other students to share their videos. They can determine what is working for others, what new ideas they would like to try, as well as provide their own ideas for others to try. In reading each other's comments about their own writing processes, students are being exposed to new ways they may wish to approach writing. It is possible to extend the video assignment into an ethnographic assignment in which the student examines how they write. With the increasing popularity of TikTok, it could also be an option for students to create a TikTok that describes their writing process.

In groups, or as a whole class, students can view and respond to the TikToks. Students may also choose to interview people close to them—like parents, a teacher, or a sibling—to come to an understanding of how the student learned to write. This video will be shared with other students in order to spark a discussion about the different ways in which people write.

When designing a product, Brown stresses the importance of understanding the culture in which creators want the product to be successful. In order to do so, one must understand the people, environment, and contexts under which the item would be used. He states “if you already know what you are after, there is usually not much point in looking,” meaning, if designers are approaching a product thinking they know what people need without investigating those people, their product will fail (23). At the core of all learning is empathy. The users become important partners to the design. I think this belief can be extended to the classroom in terms of both the educator and the students. First, the educator should know his students and be aware that each group will be different from the last. Throughout the semester, asking students to answer surveys, or give feedback on the class or their writing process is a simple way for an instructor to check in on the students’ responses to the class. Similarly, on during the first class I ask students to list a few things about themselves that they enjoy, that they dislike, and that they believe make them unique. In adapting a constructivist classroom, there is a shift from realism which is when “the learner is regarded as an independent observer of objects” to an environment in which the students become learners as well as educators (Scheer et al 9).

I find it is easy to occasionally incorporate points of interests in the class conversation or to encourage a student to share a unique trait or experience with the class.

In order to be most effective at design thinking, Brown believes that an individual should be knowledgeable in other fields outside of their work position—or, in the classroom’s case, outside of the field. Individuals who possess a strong knowledge in multiple disciplines are invaluable because they offer differing perspectives. I think this reason alone is why it is important to encourage different perspectives throughout class discussions. Creating an environment in which individuals learn from each other, John Dewey finds is “essential for gaining knowledge [...because...] learning [...is...] a multi-facetted process of structured interactions of humans with their natural and social environment” and the more one engages in a learning environment the more knowledge one will gain (Scheer et all 9). Unfortunately, the way in which education is set up often neglects these constructivist beliefs by segregating subjects and disciplines; however, the real world does not operate under such distinctive breaks. Instead, innovative ideas occur when neurons are making new connections that transcend across disciplines.

A way to encourage creative thought in the classroom is to incorporate more divergent thinking. Divergent thinking asks an individual to solve a single problem using as many different possible solutions as possible as opposed to convergent thinking which can be explained as the solving of a problem with one correct, simple answer. Writing asks a similar task. Flowers and Hays state that a writer’s problem is never given; “it is an elaborate construction which the writer creates in the act of composing” and it is through this creation that the individual’s creativity is demonstrated and strengthened (Flowers and Hays 22). As students work through a writing assignment, they are raising and solving issues that may affect them on a personal level.

A way to introduce divergent thinking to students is to ask them, for example, all the possible uses of a hammer. In asking the students to list possible uses that extend beyond building or hammering in a nail, asks them to begin thinking in terms of divergent thinking. I give them the example of using a hammer as a door stop or paper weight, and then give them about ten minutes to work on their own list. It is also useful to provide students only with the visual of a hammer and ask them on their own to come up with the various uses of a hammer. Then, students can share within a small group the ideas they came up with. Within their group, they can and work together to create a few more ideas. Lastly, each group can share with the class the different solutions they came up with. Divergent thinking requires a particular space that is often unfortunately absent in schools, business places, and society. In terms of school, divergent thinking is often lost under the pressure to perform well for a grade. Don Treggenger calls environments or people who stifle creativity “resistors” and those that stimulate it “assisters” (Guilford 17). Assisters can be physical people, but it can also be luck or good timing. There are many ways an instructor can modify their classroom to allow for an environment that is conducive to creativity. Some examples are asking students to examine the “weird” things they encounter, and it should always begin with asking “why.” My favorite, though, is “make it a rule that at least once a day you will stop and think about an ordinary situation. Take a second look at some action or artifact that you would look at only once (or not at all) as if you were a police detective at a crime scene” which, I think is a great assignment for students to complete because it asks them to be critical thinkers of their own worlds (Brown 237).

Brown believes there needs to be a balance between divergent and convergent thinking in order to find success, and I believe that is true to the classroom as well. In the business world, creative teams need “the time, the space, and the budget to make mistakes” however in the classroom there are other factors that we need to be wary of (71). Tuition is expensive and students do not have the financial means to take classes over again. In addition, their semesters are often packed with classes they must pass in order to finish in within the allotted four or five years. It is important, then, for the instructor to set up their class in a way that encourages creative thought but also provides clear guidelines and expectations on what is expected; “ A lesson [...] should answer, *How* students can experience certain situations, and how teacher can enable this experience’ (Scheer 10). Scheer outlines steps that educators can take to create a classroom in which embodies design thinking. The first step, is to “understand and observe” which involves the “build up [...of...] empathy and understanding of the people and the situation the problem or challenge is set in” which is where, I argue, the theory of mind should be addressed (12).

The Social Brain and The Writing Process

In rethinking the design of the FYW classroom, more opportunities for social thinking, creating, and discussing should be considered. Lieberman believes students should be exposed to “brain classes” that help develop and strengthen the social brain; however, I think it is possible to bring elements of these projected brain classes into the FYW classroom (295). Liberman suggests meditation classes to teach self-control, but I think when it comes to writing students often need to be taught to let loose and loose a little bit of control to allow for ideas to flow freely. Journal writing, as discussed in Chapter 4,

is one way to begin students in this type of writing. Free writes and stream of consciousness writing aid in encouraging this type of thinking as well.

Anthropologist Dunbar introduced the concept of the ‘social brain’ in 1998 (Mercer 1). As I discuss in Chapter 4, social scientists have discovered that individuals tend to mimic each other in social settings which scientists have come to understand is due to mirror neurons. This attempt to understand another individual’s actions is known as “theory of mind.” It is through the theory of mind that individuals understand how others may react in a given situation. Humans are not born with this mind reading ability, but begin to develop it as early as age three. Grist, explains “Part of theory of mind consists in thinking about what other people are thinking about other people [...it...] is a very complicated kind of cognition” (44). I argue that education should move to a stronger instruction on developing theory of mind in order to teach individuals how to further understand and use their socialized minds.

As previously stated, memorization is sometimes necessary to education; however, hands-on approaches that require for a learner to be engaged with material prove to be an effective learning model and one that supports social learning. A study at Okayama University Hospital researched medical residents to determine whether simulation or lecture groups provided more effective memorization of material to improve test scores. The study found that “simulation-based learning [...] is potentially more effective in improving the postgraduate education” when compared to lecture learning (Yamamoto 1). In the medical field, simulation-based learning provides students with practice that does not involve harm to real patients if the learner makes a mistake. In this low-stakes environment, students receive training outside of the classroom that mimics real life

situations but that eliminates fear. As Chapter 4 discusses, learning is more likely to occur in an environment in which the individual will not be penalized for making mistakes. Our classrooms need to be filled with more risk-free moments that require students to engage with material. Writing classrooms especially need room for innovation.

In order to begin thinking of this transition, FYW educators are urged to consider an interactive writing approach. Much research has been conducted on interactive writing from a K-12 standpoint; however, I think the approach may be useful for undergraduate writers as well. Additionally, while interactive writing is defined as “a dynamic instructional method during which the teacher serves as the expert writer for students as they work together to construct a meaningful text while discussing the details of the writing process.” I am pushing away from the instructor as the “expert” and instead the students become both the teacher and the student (Dabrowski 44). Instead, students will be given a question or a writing topic and, in groups, will be assigned to answer the topic. All students will be asked to contribute to the writing and the goal is for the students to work together to answer a prompt while also thinking critically about how they each choose to answer the prompt and the writing styles the students use. They will also be asked to write a reflection of the writing process in order to think through the writing that was completed.

I like to give students a topic or question and as the free write for the beginning of class they answer the topic independently. Then later in the class, in groups of four, the students will revisit and revise their examples. I ask that each group member reads each response first. Then they are asked to recomplete the assignment together combining pieces of their responses but also incorporating new thoughts. In utilizing group writing, students, especially those for whom English is not their home language, may feel less anxious in

completing the assignment because they have a chance to discuss with their peers (Storch). While not much research has been done on the effectiveness of group essay writing, I feel group essay writing is a beneficial place for student writers to start because it gives students a chance to work collaboratively, interact with varying points of view and writing styles of their peers, and express their own opinions and writing styles in a way that makes sense to the group.

Group writing can also be a chance to include writing games. For example, a game called “Rapid-Fire Writing” can be played in groups of three. There are three questions and each person will answer one of the questions. Since it is called “rapid-fire” the goal is not to think about the questions and to write the first thing that comes to mind. For example, the first question can be “Who is coming to dinner tonight?” The first person will write a response and the other group members will be able to see the response. The second question can be “What is the secret the guest will share over dinner?” Then, the second person writes a response. The last question can be “How will the other dinner guests react to the secret?” The last person will write a response. Then together all three members will write a quick scene where all their answers come together. Each group can be provided with the same three questions in order to compare the different scenes the groups came up with; or, each group can be provided with something entirely different.

In approaching writing as a social activity, students may begin to see the act of writing as less stressful. Vygotsky notes “human development [...is an...] inherently socially situated activity” and since it is often that people learn from each other, I believe reluctant writers should be given an opportunity to learn and grow with each other before being assessed individually (Storch 152). Storch points out that it is quite common for

instructors to utilize peer writing when within the brainstorming and editing stages; however, I think utilizing peer writing is valid for reluctant writers in the drafting stage. I understand as FYW instructors, we are expected to give grades to students based on their individual growth and development as writers; however, I think it is beneficial to start the semester with a group essay, even if it is a smaller essay of two or three pages, in order to begin shifting student thinking. The essay students compose can even be done in class and be ungraded. These assignments are considered “low stake” assignments because the pressure of performing is alleviated so the focus on writing takes precedent. I think the most important part of an assignment like this is for students to begin thinking differently about their writing, learn from each other, and sharpen their own writing in order for their points to come across clearly to other group members. To assess assignments such as these, if a grade is needed to be given, I believe, it is important to be transparent with students beforehand so they understand the breakdown of their grade. This assignment is not a typical “group work” assignment in which each member has a separate role; however, it would be foolish not to take into account that some students may not put in the same amount of effort as others. Firstly, I ask students to anonymously grade their group members. They are asked to answer a set of questions which involve both rating a peer’s involvement on a numeric scale, “yes; “no;” “sometimes” questions, as well as a brief but mandatory paragraph which both assigns a letter grade to the peer and details why the student feels this grade is appropriate. Sites such as Survey Monkey can be utilized for anonymous feedback. Since this assignment is completed in the classroom, I also ask for homework that students rethink the assignment and write an individual response of the same page length. All factors would contribute to an individual grade for each student.

Creative Thinking and the Makeup of the Brain

In the book *Where Good Ideas Come From*, Steve Johnson discusses the use of creative landscapes and the brain's makeup to promote creative thinking. Creative thinking cannot occur when the individual is stifled within a fixed routine or structure. Similarly, creative potential cannot be reached if the individual does not have access to certain mind states or does not have a comfortable, accepting environment in which he can create. In the classroom, I believe environment is something an instructor can easily control. On the first day of class, I tell students that the course is intended to be a learning progress and that I am looking for writing growth not perfection. I remind students that authors of any type of literature do not publish the first draft. I share quotes from established writers that demonstrate the dedication, practice, and persistence required to write as well as my own experiences with writing. I do this to remind students that writing is hard and requires practice. It is not a skill that people either have or do not have; and everyone has room to grow when it comes to writing.

It is important to think of creativity in terms of "habits" and "practices" instead of in a "skills," "to emphasize that creativity relies not just on the *ability* to think, attend or reflect in certain ways, but on the *inclination* to do so, and to take *pleasure* in doing so" (Claxton 58). I think in examining creativity through this lens, students are more likely to understand that their creativity is something that is always changing and; therefore, is malleable and can be strengthened and tailored over time. Many students arrive at the FYW classroom believing they cannot write well or be creative; they say it is a skill they never had and believe they never will. Simon Blackburn states "Romantic tropes have done

enormous damage in recent culture," because they present creativity as a kind of divine gift rather than a capacity nurtured by grit (Samuel 156). He seeks to demystify creativity by identifying it with ordinary conscious processes and concludes that optimal creative activity actually requires the help of the conscious mind. It is the conscious mind that I aim to help my students learn how to shape in order to rethink their experiences with creativity and writing.

Creative thinking does occur when the brain is exposed to different environments, thought processes, and undergoes a series of various functioning. I believe, that creativity is teachable and it can be practiced for learning. In *The Philosophy of Creativity*, Berys Gaut endorses the use of heuristics, a set of discipline-specific rules, in educating people to be creative. While these rules are not meant to be strictly followed, they are meant to train the mind to perform the kind of thinking that will be conducive to generating innovative and interesting ideas. Whether one succeeds in being creative will depend on a number of factors, only some of which are under one's control; however, for the purpose of the classroom, there are many factors in which an instructor can control in order to support creative thinking.

Robert Thatcher found that "chaos mode allows the brain to experiment with new links between neurons that would otherwise fail to connect in more orderly settings;" which means that an individual needs space to allow thoughts to run freely (4). Chaos mode occurs most obviously when a person is in REM sleep, where neurons are firing "55 milliseconds at a time" but it can also occur while daydreaming or completing mundane activities that do not require intense focus (89). This type of thinking can be supported during freewriting in which the students are asked to write their stream of consciousness or in which they are

asked to recall the type of thinking they do while driving or washing the dishes. In pushing students to recognize this type of thinking and why it is important, is the first step in demonstrating to students that the brain is creative.

A major argument in whether or not creativity can be learned, is the debate between whether or not imitation is creative. The idea that students are taught a new way to write and then may “imitate” the structure or style of the paper is often debated as not being creative because it was an imitation of something already done; however, Gaut rejects this argument in a way that I find valid. He states “learning through experience negates that all learning is a form of imitation [...] to copy something is to reproduce another of that thing [...] a... child learns to speak by imitating parents, but we would not call it learning if she simply repeats everything her mother says” (268). The goal of a writing instructor is not to have the student reproduce an identical essay to the model, but to guide students into thinking of a unique and individual approach to the writing that challenges and shifts previous thinking. Working from a model text provides students with a mold of a possible solution; however, it should be encouraged that students challenge this mold with the space to redesign. Giving students space, models, and strategies that are favorable to creativity are all factors that must be present in the classroom in order to generate and grow creative thinking.

Often students struggle with a writing assignment because they are waiting for an “aha” moment where things seem to suddenly click; however, multiple scholars have argued against the validity of this seemingly one moment of sudden success. In reality, the “ah-ha” moment people experience is actually long in the making. Neurons making new connections during moments in which the mind is wandering is thought to eventually lead

to one “grand” idea which is why it is important to give students many opportunities to make new and creative connections. The journaling I spoke of above is one way to prompt students to practice.

In *Wired to Create* by Scott Barry Kaufman demonstrates how the creative process is a complex involvement of the whole brain. He begins by explaining the three main components of imagination network: the personal meaning making, mental simulation, and perspective taking as a whole, ‘self-generated cognition;’ however, creative thought does not emerge solely from the imagination network. The “executive attention [...which...] helps us direct our attention is also crucial [...because...] it helps us plan future actions, and focus our imagination” (12). Creative people are good at exercising flexibility in activating and deactivating these brain networks that in most people tend to be at odds with each other; therefore educators should provide ample moments in which students can practice fluctuating between these states. The shift between these states occur while engaging in various activities, social interaction, and through play. Creating requires the use of the entire brain; the “brain has roughly 100 billion neurons, but all would be useless for creating ideas if they weren’t capable of making such elaborate connections with each other;” meaning, eventually all the smaller ideas, thoughts, experiences, come together to produce one grand idea (Johnson 46).

Creative Nonfiction Genre in the Social Classroom

I have found the genre of creative nonfiction as an effective place for instructors to provide a multitude of moments that shift learning into a more social approach. Given the broadness of the genre, there is plenty of space to bring in current events, students’ own

interests, and students backgrounds. These topics likely lead to many moments for connections, conversations, and debates with peers. The genre has been referred to as “the fourth genre” or “literary” or “narrative;” however, I use the term creative nonfiction to stress the creative and expressive spin I want my students to place upon fact. I like Carolyn Forché’s and Philip Gerard’s definition that appears in their introduction to the *Writing Creative Nonfiction* anthology. They define the genre as:

A fertile meeting ground for writers of all kinds, from investigative reporters to literary short story writers and lyric poets. Somehow all their diverse interests converge in a genre that seems expansive enough to connect the self to the larger world of experience, shaping its form to tell the truth of a particular moment. (1)

I like this definition because it recognizes the fluidity of the genre which makes space for the diversity of authors who are writing within this genre. I think in having the space to tell the truth in a way that is not bound by too strict of a stylistic format, students recognize the freedom they have over their writing voices. Nancy Dafoe explains the most important aspect of writing—creative or nonfiction—is truth; and one way to teach students how to write truthfully is to offer more choice; “Choice also involves creative thinking as students must consider and weigh the advantages or disadvantages of various options. We should guide students in this process while still allowing them to make decisions” and within the space of the creative nonfiction genre, there is plenty of room for choices (20).

In the creative nonfiction unit, I make plenty of room outside of just the peer-workshop day for students to be reading and working with each other’s papers. Usually, a writing workshop is used as a means for students to review each other’s work, provide feedback, and then the authors are expected to go home and make changes to their papers

accordingly. While I am a supporter of peer-workshopping, I believe that the workshop day should not be the first day in which students share their work. Giving students space to review each other's writing and to work together to construct a paragraph or scene of their paper is beneficial because it provides a space in which new connections can be made. Through practices such as these, students learn elements of storytelling through the practice of writing. Janet Emig's "Writing as a Mode of Learning," explains that the process of writing is an activity that is learned while it is practiced, and since the research of this chapter supports that learning is done through interaction with others, it seems appropriate to include social opportunities throughout the writing process.

Additionally, since authors of creative nonfiction "think critically about themselves but also about the world around them and they use writing not just as a means to report this critical thinking, but actually as a method to do the critical thinking," I believe they need space to work through these critical thoughts (Bouelle 35). Engaging with peers throughout the writing process may better assist students as they think through and develop their ideas. Creative nonfiction as a genre "embraces an understanding that writing, whatever process the writer is using, is a way of thinking;" and, since the human brain is so heavily controlled by the desire for socialness, using the classroom as a space to discuss, think, and develop writing is beneficial (41).

Writing Nonfiction Prose: FYW Lesson Plan

Combining the research of this chapter, I provide a sample lesson plan to be used in the FYW classroom that combines neurology, our innate social abilities, and writing. I also use Brenda Miller's and Suzanne Paola's *Tell It Slant: Writing and Shaping Creative*

Nonfiction to outline creative nonfiction exercises that can be taught in the FYW classroom. At the completion of this unit, students will turn in a creative nonfiction piece that is accompanied with some kind of multimedia piece. I show students examples of past assignments where students created a song, a poster, a drawing, among other accompaniments. I explain that accompanying the multimedia project will be a short paragraph or two explaining why this particular medium and project connects to their final project. While each student has to turn in an individual project and multimedia piece, throughout the drafting process students will be engaging in writing in pairs and engaging in social writing in many instances.

We begin this unit by first spending some time discussing the creative nonfiction genre. It is a tricky genre because it is neither entirely fictional nor nonfictional, and it can span a wide range of genres, which can make it a sometimes difficult proposition for students to determine how to write within this genre. And yet there are strong claims for using the creative nonfiction genre. Since creative nonfiction is often described as broadly as “personal essays, memoirs, autobiographies, new journalism, and certain traditions of travel writing, environmental writing [...] and so on,” I remind students that this genre provides them with plenty of choices in which it is up to them to shape a narrative that speaks their own truth (Hesse 251). Creative nonfiction is a genre about true events that is written in an engaging way, and I tell students that the topics for their papers are endless, as long as they can craft a narrative around it. I like to write the following quote on the board to begin: “Through careful attention to form, [...creative nonfiction can...] create art out of your own experience” (Miller & Paola 74).

We have a discussion about this quote, and students come to the understanding that they are writing about their lives in a creative way; therefore, ordinary situations or days can be tuned and crafted into a piece of writing. I use this particular quote because often students say “nothing exciting happened to me” or “my life is boring. I don’t have a story.” I remind students that the key here is not necessarily to have a thrilling story, but to tell the story in an engaging, thoughtful way that invites connection from their readers.

Next, we do an entire class “flowing” free-write. We arrange our desks in a circle then I start off the paper by writing something like, “On my way to campus today, I saw something that made me smile.” I pass the paper to my right where the next student will write an additional sentence or two for two minutes. I set a timer because I want each student to have the same amount of time writing. As the paper moves, I tell the class that as soon as the timer goes off, the student must stop writing even if she is in the middle of a sentence. They are allowed to finish only the word they were in the middle of writing. The next student is required to pick up where the previous left off, and the story continues.

During this activity, the students who do not have the class free write in front of them, are completing a free write on their own with a similar topic such as “Things that make me happy are...” or “A moment I was truly happy was when I...” I ask them to write continuously on that piece unless they are working on the whole class free write. The goal in this session is for continuous writing, and I ask that they keep writing even when they are stuck. I tell them even if they need to write the same sentence over and over until a new idea comes, their pen should keep moving the entire time.

After the paper makes it through the circle, I ask a student to read the entire paper aloud and we discuss what was written. We discuss the varying sentence structure, details, and events that students added to the paper. We talk about the million different ways the story could have gone, and the details in the story that could be true to anyone's day. We discuss how often we have similar experiences but view them through many different lenses. An event on campus could be seen to one person has fun while to another as unnecessarily loud or irritating. In the discussion we also touch upon how to write a piece that connects to other people, even if the people reading have different experiences or points of view.

We spend the next class discussing how story material surrounds us on almost a daily basis; we just have to look around. I include this exercise because students often are not sure what to write about, or say nothing "interesting" or worth writing about has ever happened to them. It was during an independent study with Dr. Owens that I saw him ask his students to make a list of twenty moments in their lives of either beauty, sadness, happiness, or confusion. Any moment in their lives that they consider significant would go on this list. I ask students to complete this activity independently because this likely leads to the topic they will write about. In their list I ask them to list two details, or feelings, or memories under each moment. We usually end class with this activity, as it does take a long time to complete. I encourage students to reach the full twenty moments because I want them to begin thinking of their lives as having many stories. I also tell them throughout this unit we will be going back to their list to use for free-writes, group writing, and smaller projects, so many of the listed moments won't go to waste. See Appendix C for an example of a few of a student's twenty moments. Not all students will come up with

twenty, and that is okay! As long as they are spending time thinking beyond the obvious moments that pop into their heads, they are completing the assignment. While students are completing this activity, I am completing it as well. I collect the lists and will return it next class with comments.

The next class we discuss the truth in creative nonfiction. We have a discussion about how much truth they should add to their paper and how much of a creative liberty they should take. We do this by first discussing an interview with author Sandra Cisneros and an excerpt from her novella *A House on Mango Street*.

I ask students to practice this idea of writing about truth while also adding in details or removing details in order to craft a story by getting into groups of two. They revisit their list of twenty things and I ask the students to collaborate on choosing one to write about. Of course for one student, the memory is likely to not have happened, but that is the point. I set a timer for about ten minutes and ask both students to independently write about the moment. The student whose memory it is will write as close to the truth as possible, and the other student will write a completely made up piece. Then the groups will together craft a brief story of about three pages combining both the true version and the made-up version. Usually this will take part of two classes for students to complete.

We also discuss Miller, Brenda, and Suzanne Paola's section "The Permutations of 'Truth': Fact Versus Fiction." We debate how much truth to include and how much to omit. We discuss the idea that "memory, in a sense, is imagination: an 'imagining' of the past, re-creating the sights, sounds, smells, tastes, and touches (82). As part of their homework, I ask students to investigate a bit about the setting and people they are choosing to write about. I ask them, if possible, to return to the scene and write notes about what they see

and hear. If they cannot go back to the place, I ask them to spend time researching the place, pulling up pictures of the place, and also writing down notes. If it is not possible to do either of those things, then the students will simply remember as best they can or talk to other people who were also there. Students also will do the same for the people who were there, and who they are going to include in their story. They will make a character outline for each person which states physical attributes as well as emotional.

I ask students to think of the major characters (including themselves). Next, they will outline conflicts the characters underwent and the relationship between themselves and this person at the time of the event they are writing about, before the event, and in present day. I also like to use Sonya Huber's "Interest Inventory" character worksheet. See Appendix A for her worksheet. I ask that the students complete one sheet for at least two major characters in their story. I also ask that they give the sheet to a friend or family member to fill out about themselves. During the next class, students will use all of this information and share with a partner. In pairs, the students will discuss their character information. I ask them to consider what type of person this sheet describes? Does the sheet accurately describe themselves? Can your partner get a sense of who your characters are? What is missing that you'd like to include about your character? They do not need to write their answers to these questions, just consider them and discuss them in the context of their pieces. After the discussion, the group will write a scene for their paper that involves at least two characters. They will write each other's scenes together, and I will collect it to provide feedback.

Miller and Paola discuss the comparison between creative nonfiction and photography that I also like to use in my classes (75-76). They discuss literary theorist

Hadyen White who explains “sign of the real” to demonstrate how creative nonfiction and photography “both operate as though the medium itself were transparent” (76). They go on to explain this to mean when a photographer takes an image, that image comes to stand for the truth; however, the image is “a highly manipulated version of [...the...] world” (76). This same logic is true to creative nonfiction. I assign students the section “The ‘I’ and the Eye: Framing Experience,” and ask that they bring a photograph that they took to our next class. The photograph could be of scenery, an animal, a person, or a group of people. As long as they themselves took the photograph, anything is fine.

In groups of three, the students will compose a paragraph or two writing about the image. Two partners will together write about the third group member’s image, while the person’s whose photograph is being written about will write their own memory of the image. This is a quick writing assignment mean to get students thinking in terms of imagery. They will share with each other what they wrote and I will lead a discussion about how their paragraphs differed from the truth of the photograph in the eyes of the photographer, and how, if at all, they all arrived at a similar truth.

We also spend time discussing how to write an introduction to their papers. I urge students to think in new ways to begin their papers that may be different from any approach they previously tried. Students are often surprised to hear that many authors write their introduction, or first chapter, after their piece has been completed. I tell students this is because often when writing, an individual isn’t sure where their piece is going to end up, or their piece goes in an entirely different direction than originally thought. We spend a class drafting introductions that hook readers, set a scene, and introduce the type of person or situation that will be the focal point of the essay. I ask students to write two different

introductions and in groups the students share and critique each other's two attempts. As a group, they choose which introduction they feel works best, and I collect the papers to assess and return for next class.

Next, we investigate how authors use real events to spark fiction by discussing Joyce Carol Oate's *Where are you Going, Where have you Been?* Their homework is to choose an additional moment from their list of 20 moments and write at least two pages describing the moment. At this point, students should have an idea of their topic for the paper, and should have done a lot of work with that moment, so I ask them to choose a topic from their list of twenty moments that they won't be using for the final. I do this because I ask them to defamiliarize their experience by writing in at least three details of things they don't remember and I want them to spend time thinking in a new way. My only requirement is the facts they chose to include must read as if they could have been true. I ask for no "unreliable" events, characters, or settings. If students are at a loss at what to write about, I offer the exercise Steven Earnshaw suggests in his book *The Handbook of Creative Writing* which states:

Choose a house you once lived in and remember well. Draw a plan of one floor, showing rooms, doors, windows, pieces of furniture, etc. Ask someone else to randomly mark an 'X' in one room (or if necessary, close your eyes and do it yourself). Write a detailed description of that room, paying attention to all five senses. Then write something that happened, or didn't happen, in that room (115).

One of the requirements for the creative nonfiction paper is to include dialogue, so we spend time discussing how to write it. We discuss grammar and formatting of dialogue, and I like to use *Method and Madness: The Making of a Story* by Alice LePlante as a mentor text. We have a class discussion about the six examples of dialogue that LePlante outlines. See Figure 2.

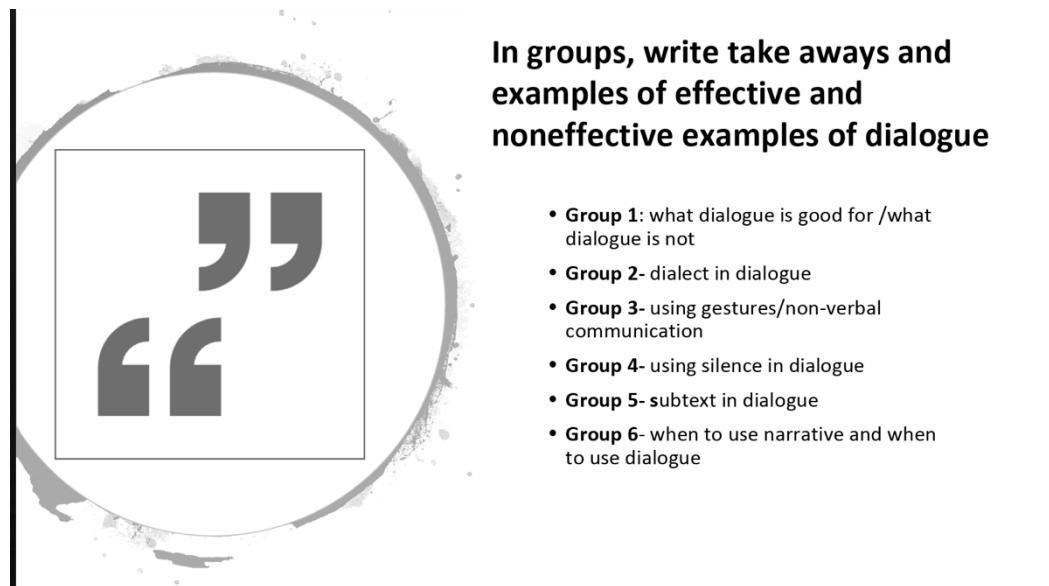



Figure 2. Tara Scarola; *Six Rules of Dialogue*; 2021.

Then the students work in groups of four or five on one of the six examples to create a poster explaining the dialogue “rule.” I ask them to include a quote or two from the book explaining the rule, an example of dialogue written as a what not to do, and an example of the same scene rewritten in effective dialogue. I show them an example. See Figure 3.

Dialogue is not used to state facts



"You told me you'd be here at 5:00, but now it's 8:00 and you show up and expect me to be happy and ready to go out? This is, like, the fifth time you've done this to me."

"I made it."
From the couch, she heard the sound of his boots crash against the wall.
"Got stuck again," he said opening the fridge. He rounded the corner, beer in hand and a stupid, goofy smile on his lips. "So, you ready to go?"
"Seriously?" She crossed her arms over her chest and glared at him. "You're three hours late." She scoffed. "Again."

"Dialogue is not an important source of facts about a piece" (Laplante 258).

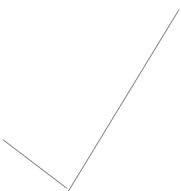


Figure 3. Tara Scarola; *Crafting Effective Dialogue*; 2021.

In this unit, we also spend time working with sources and quoting within papers. We typically spend a class discussing how to quote sources in MLA format. After a discussion on annotating and quoting from sources, I usually break the class into groups of two and give them a short article to read. Together, they will be responsible for reading the article, annotating it in the margins, and, together, writing a detailed description of the article that both expresses the author's point of view and expresses the students' view on the topic. Following that class, their homework is to research at least two articles that pertain to the topic they are writing about for their paper. If they are not writing about a current event or a moment in history that may have a lot of material, I ask them to consider the theme in which they are writing about. For example, if they are writing about a heartbreak they experienced in high school, then they should research and determine scholarly articles that discuss adolescent relationships. They will annotate the articles just as they did in class; however, this time they will each complete it individually.

On our workshop day, students get into groups of four. Each person will read all the essays and have a discussion about them. Each student will also meet with me. We follow a similar workshop as I state in chapter 4; however, I ask students to first pick one paper to be read first then all group members will only read the introduction paragraph. I tell them to make a note on the paper about what they think the essay will be about. Then they can continue reading the paper. I ask that they make a note if the paper was true to the introduction and, if it wasn't, how can the author rethink the introduction. See Appendix B for other peer-work shop discussion questions I may ask students to consider.

Conclusion

It is evident that a move to a more social classroom is conducive education. In looking at how leading businesses execute their design teams and shifting those practices into an educational space, the classroom becomes a space of innovation that is present in today's times. When students arrive at my class, they are usually reluctant to take a writing course. Some may even be dreading it. I ask them on the first day to write about their relationship with writing and their outlook on this course. Usually, many of them express they loved writing when they were younger but then grew to loathe it. Others state they don't like writing because it is "difficult" or volunteer that their grades "never come out the way they wanted."

I think the students are often surprised by how my FYW class runs, because on the last day I ask them to reflect on their writing process throughout the semester. I ask them to revisit their relationship with writing. I tell them they don't need to include their names on this assignment, but most of the students choose to. Students' attitudes are usually much

more positive. They have stated things like “This class taught me to write about what I love and what inspires me. Writing now for me is like a treat.” That statement came from a student who on the first day of class said writing was a “struggle” to her because she had trouble getting her thoughts across in English. I use this example not to demonstrate the effectiveness or lack of effectiveness of my class; instead, I use the example to show that when students are guided to an understanding that they control their writing, a lot of great things happen. This chapter serves as an example as to why incorporating moments throughout the drafting process for students to socially write may aid students in becoming more confident writers who take risks and explore creatively.

CHAPTER 4: TRANSLANGUAGING, THE BRAIN, AND MULTILINGUAL STUDENTS

In this chapter, I combine the translanguaging definitions and practices of scholars such as Suresh Canagarajah, Thibault, Li Wei, and Ofelia Garcia with the neurological research of neuroscientists such as Thierry Galopin, V.S Ramachandran, and Joy Hirsch to demonstrate how using translanguaging practices in the First-Year Writing classroom is beneficial not only to students who speak multiple languages, but also a neurologically appropriate place for educators to begin pushing all students to think more critically about their writing voices. The chapter will look specifically to the research conducted on mirror neurons to demonstrate how writing educators can use the plasticity of the brain to help student writers navigate through their language repertoire in order to be more critical, expressive, and innovative in their writing assignments.

I conclude the chapter by first discussing the benefits of assigning a literacy essay early in the semester as well the neurological appropriateness of starting with this assignment. Last, I provide the outline of my own literacy narrative unit that I use in the First Year Writing classroom. My unit combines the research this chapter discusses and includes artist Dafna Moriya's discussion of art therapy to provide teachers of FYW with an example lesson that demonstrates how educators can access and include a student's repertoire in writing assignments in order to push students to discover innovative writing voices. This lesson can be used at a FYW teacher orientation training or as the first unit in the FYW classroom.

I use Moriya's ideas to demonstrate that, similar to conducting an art therapy session, teaching a group of writers requires the instructor to provide multiple avenues for an individual to express their ideas. Additionally, it requires the patience and support of

the instructor and, most importantly, their guidance as students develop their writing voices. My literacy narrative unit also aims to demonstrate the importance of working up to a final product slowly, with care, and with drafting. The reasoning of combining translanguaging practices and neurological research is to guide students to the understanding that being in control of one's language use is not only powerful but achievable. My goal for this chapter is to use the ideas of translanguaging and research conducted on multilingual and monolingual brains to present an outline of a first year writing literacy narrative assignment that values students' literacy practices across languages by asking students to consider, and value, their language repertoire.

The purpose of a first-year writing classroom is to introduce and prepare students to meet the writing demands of their college courses; however, before we ask students to become critical thinkers and producers of academic language, we should ask them to be critical interpreters of their own lives. Author of *Ender's Game*, Orson Scott Card said, "Everybody walks past a thousand story ideas every day. The good writers are the ones who see five or six of them. Most people don't see any." One of my goals when teaching first year writing, is for my students to become better interpreters of their worlds. When students begin to think critically of their own lives and worlds, they often find they are sounded by plenty of story material. One crucial step in getting students to think about their worlds is to ask them to think about their language use. Additionally, as Sara P. Alvarez and Bruce Horner express, "thanks to monolingualism, almost all writers and speakers, 'native' as well as not, believe they lack [...] 'discursive agency'" due to previous social and political understandings of how language is valued or devalued (18). The goal of this chapter is to create a curricular space in which students are encouraged to use the entirety

of their language repertoire in the classroom. Alvarez and Horner push educators to use writing “classes as occasions for taking up more deliberately the work on language that students are already inevitably and necessarily engaged in” which is why encouraging a translanguaging writing approach may be the first step in breaking negative stigmas that surround languages (18). The classroom is where students receive a majority of their education, and it is time for educators to shift thinking from pushing students to master language like a native writer, and instead teach students how to effectively and productively write as themselves.

Language surrounds us on a daily basis, and it is common knowledge of pragmatics that certain language is appropriate for certain situations. Many students have come to feel “their” language is not accepted in the university. The push for Standard American English comes from the centuries long anxiety that English would become lost among the various languages immigrants bring to the country (Bailey). This chapter does not mean to devalue the importance of academic language, nor address the history and debate of the term SAE; however, the chapter is concerned with how students who grew up speaking varying versions of English, or other languages, navigate the complexity of academic language expected in the university?

Language theorist James Cummins’ differentiation of basic interpersonal communicative skills (BICS) and cognitive academic language proficiency (CALPS) demonstrates that language is divided for multilingual students, in many cases, between the home (BICS) and school (CALPS).

Under this theory, Cummins defines BICS as the first words that a learner of English would learn and the language an individual would use at home or among friends. This still takes

about one to three years for an individual to master. CALPS, which is the language of school, comes second to learn. CALPS take five to seven years for an individual to fully acquire, according to Cummins. I argue that competence of CALPS is not reserved for multilingual students alone; monolingual students still suffer in finding their place within the complexities of this discourse. Instead, all students, whether they are monolingual or multilingual develop an academic repertoire that is built upon past experiences within academia.

Alvarez and Horner express that due to political and social stigmas, “language is imagined as a kind of property one either inherits or attempts to acquire, that one possesses (or not)” and it becomes the educator’s responsibility to negate these crippling beliefs (17). In the FYW class I am calling for, I am not requiring students to master any aspect of language; however, I ask them to think critically about their own language use to improve their writing skills to best convey their message. It is hard work, and students worry because it goes against many previous assignments and classes they have taken where they found mimicking a writing style was enough to get a passing grade, however; in asking students to engage with and think critically of their language use this “approach to language difference can force a change in social relations by its acknowledgement of labor” (Alvarez and Horner 17). It within this labor that growth and change occur; and the classroom is an important place to begin inflicting change. It is an educator’s responsibility not to erase past languages in replace for academic language, but to teach students how to access their full repertoires and how to expand their repertoires. By introducing practices of translanguaging, simple neurological research, educating students about their language

repertoires, and providing ample opportunities for students to practice writing, the first year classroom can become an area of writing transformation and growth.

Translanguaging operates under the understanding that an individual has one linguistic repertoire from which they select features to strategically communicate effectively. One language is not operating on its own—rather both languages are working together to create an individual approach to communication. Anthea Bristowe, argues that “the notion of ‘repertoire’ is more productive in investigating linguistic identity, than the notion of ‘language’” (229). In thinking of an individual’s repertoire, much more than a language is being considered. Hymes expresses that a speech community “should not be thought of in terms of a single language but in terms of a repertoire, or ‘ways of speaking’” (Hymes 33). Under this understanding, an individual has a unique way of speaking to those around them. She may speak Spanish with her grandmother, English slang with her best friend, and a mixture of Spanish slang and English slang with her sister. As the individual engages in these situations, she is choosing which words to use in order to have success in the conversation. Like a muscle, these languages must be practiced often in order to be remembered. Languages are not stacked in the brain as separate languages, but an individual’s language is “a collection of specific resources which include [...] accents, language varieties, registers, genres, and modalities” (Blommaert 102). An individual’s repertoire evolves and changes through interactions with language. Under this belief, language is action and practice, and I argue, a beneficial starting point for a reluctant writer.

In understanding that language works like a muscle—it is strengthened by use—then FYW educators should instruct in a way that requires students to first think of their own repertoires. Incorporating translanguaging strategies into the first year writing classroom will not only benefit students who speak multiple languages, but all students. While operating within translanguaging approaches, writing is not measured by the lacks of grammatical confections a student has, but instead praised for the unique ways in which an individual arrives at a meaning.

It is important to note the difference between a bilingual individual and translanguaging. Despite the varying definitions or approaches to what classifies as a person to be “bilingual” the term associates an individual as having two separate languages that operate separately within their brains. It was previously thought that a bilingual person had a balance of two languages within their brains at their discretion. Similarly, the belief was held that these two languages were equal. It is now understood that language is almost never “equal” and that the act of translanguaging is the natural use of language in a way that is unique to and individual or culturally unique to a group of individuals. The brain does not categorize language by distinguishing between Spanish, English, or Italian; instead, these languages all fall under the umbrella of “language” and make up the individual’s repertoire.

Jasone Cenoz and Durk Gorter call for a “Focus on Multilingualism” which shifts from the belief that each language an individual speaks is categorized separately within the brain (360). In focusing on multilingualism, the whole individual is taken into consideration and all of his languages becomes one, unique, valued language. There is an important relationships among the varying languages an individual speaks, and it is vital

not to view the languages as separate. Ofelia Garcia extends the use of translanguaging beyond spoken to include the use of modalities. It is under these understanding that my chapter works to create an outline of an unit in first year writing.

I am especially interested in Paul Thibault's rationale for the use of translanguaging when he states that language learners "adapt their bodies and brains to the languaging activity that surrounds them [...] they participate in cultural worlds and learn that they can get things done with others in accordance with culturally promoted norms and values" (Thibault 76). Under this belief, language is learned as the speaker participates within various language moments, therefore, the speaker is simultaneously building his or her own understanding of how language functions in various social moments while engaging within them. Language is flexible, it changes, evolves, and is manipulated to fit a scenario; and to be a successful writer, an individual must learn how to mold language into a way that successfully and truthfully communicates the purpose of their text.

Similarly, according to Lu and Horner, "The seeming regularities of language can best be understood not as the preexisting rules determining language practices, but, rather, as the product of those practices: an effect of the ongoing process of sedimentation in which engagement of language participates, a process of building up over time" (588). It is understood that language is manipulative, can be taught, and is ever changing. Language as a practice changes, grows, or diminishes based on exercise and use. Similarly, an individual's repertoire also changes throughout time. When discussing repertoire, Roz Ivanic states "the social domain changes the practice" which demonstrates the agency speakers possess when accessing their language repertoire (114). As a speaker engages in a social situation, the individual chooses from his repertoire, the most effective ways to

communicate. In a learning environment, language is not a set rules one must memorize and follow instead, language becomes a thing that can evolve and that is forever being manipulated and repurposed by the speaker.

History of Translanguaging and Home Language Theories

The term translanguaging comes from the 1994 English translation of the Cen Williams' Welsh word *trawsieithu* (Wie 15). Colin Baker, a colleague of Williams, translated the word into English as translanguaging. After observing classes in which the Welsh language was being taught, Williams observed that while the teacher was teaching in Welsh, the students were responding in English (15). As the teachers and students conversed back and forth in both Welsh and English, Williams noticed that, in contrast to previous beliefs, communicating in two languages actually enhanced students' understandings of language and their problem-solving skills (15). A transformation of thinking occurred; bilingual speakers were not "lacking" in skills, instead, they had an advantage. These speakers were able to adjust speech in order to effectively communicate which requires creative thinking.

Li Wie, in the article, "Translanguaging as a Practical Theory of Language" describes translanguaging as not the "use of different languages and language varieties, but more importantly a process of knowledge construction that goes beyond language" and I think this is useful because the emphasis is placed upon the practice and process of a language instead of the rules one must follow to be successful in a language (15). It is this evolution of one's language abilities that I am most interested in discussing in this section. If language is viewed as something that can be changed, then, I argue, the best way a

writing classroom can foster this change is to meet students at the level in which they are writing and build upon their skills. This thinking follows theorist Stephen Krashen's "Comprehensible Input" theory (2003). Under this belief, an individual will only learn a new language if certain criteria are in place; such as the information being received is challenging but not too challenging that the student shuts down.

In the article *The Comprehension Hypothesis Extended*, Krashen explains that the process of language acquisition is done subconsciously; "while it is happening, we are not aware that it is happening, and the competence developed this way is stored in the brain subconsciously" (1). For a language to be effectively and subconsciously absorbed, anxiety must be low, self-esteem high, "integrative motivation," which is the desire to belong to a certain group, must be high, and "instrumental motivation" the desire to accomplish a task must also be high (Krashen 1). While Krashen's theory applies to individuals learning a second language, I argue that it is also applicable to beginner writers. In welcoming translanguaging practices into the classroom, all students—even those who are monolingual—can benefit because translanguaging approaches language as interactive.

To first address Krashen's call for anxiety to be low, an educator has the ability to create an atmosphere that is comfortable, experimental, and forgiving. An educator can begin to create a welcoming atmosphere on the first day of class. The book *Where Good Ideas Come From* by, Stephen Johnson discusses the use of creative landscapes and the brain's makeup to promote creative thinking. Creative thinking cannot occur when the individual is stifled within a fixed routine or structure. Creative potential cannot be reached if the individual does not have access to certain mind states or does not have a comfortable, accepting environment in which to create; however, creative thinking does occur when the

brain is exposed to different environments, thought processes, and undergoes a series of various functioning.

Using these ideas, it seems evident that, when being taught to write, students need to have room to make mistakes. Assignments cannot be given, assessed, and returned with the expectation that creative potential has been reached. Many students are stuck in what Robert Thatcher calls “the phase-lock mode [...which is when...] the brain executes an established plan or habit” without attempting innovative solutions; and our goal as educators is to bring awareness of these habits to our students and work with them to break any negative habits (Johnson 70). In asking students to think critically about their approach to writing, instructors can challenge previously held beliefs. Unfortunately, in many writing instances, students are writing to complete an assignment for a grade without undergoing any meaningful thinking or creating. To break away from this “phase-lock” brain, experimentation, mistake-making, and “do-overs” need to be incorporated to allow for not only eventual success, but also for the student to develop the “muscle” of the writing brain.

I like to ask my students to make a list of their writing habits. I ask them to include things they think are positive and things they think are negative. I ask them to think of the environments in which they write. We discuss these habits and I challenge students to attempt to break the habits they classified as negative. I also ask they try a new writing habit they heard of during our class discussion. Part of their homework then would be to think about the habit they want to break and the new one they want to try during the semester. Figure 4 shows an example of a student thinking of the environment in which she mostly writes.

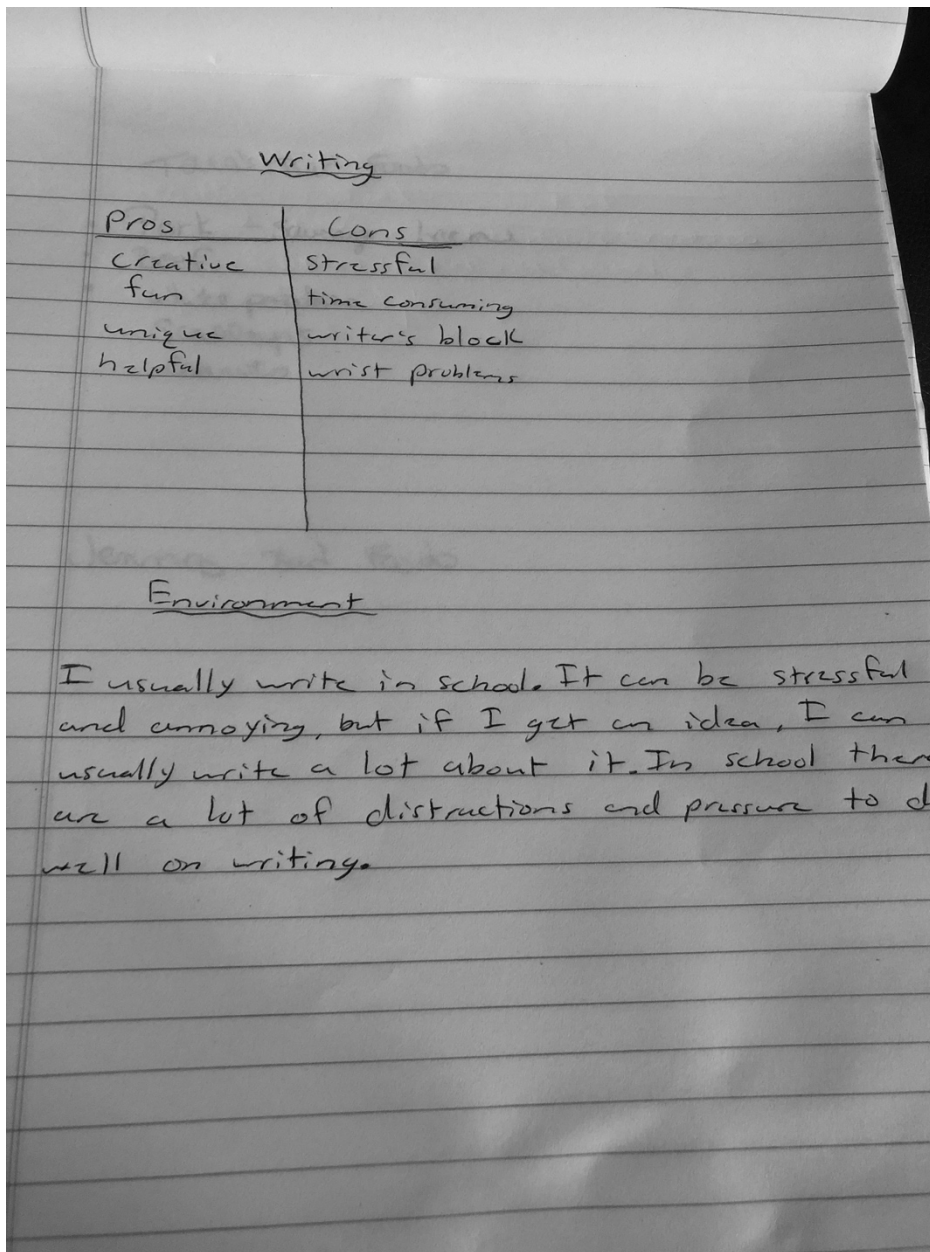


Figure 4. Tara Scarola; *Writing Pros and Cons*; 2021.

This student chose to make a positives and negatives list to writing in school. In analyzing what the student wrote under “environment,” it is obvious that the pressure to

complete a writing assignment well is often the biggest motivation factor. Under writing “cons,” she lists “stressful;” but, under “pros” she writes “creative,” “fun,” and “unique.” How is a process which she deems “creative” and “fun” causing so much stress? Is it possible that it is because in the pressure to do well, any creativity, or fun, is stripped? Is it possible that students have been taught to remove any creative thought when completing a traditional, academic writing assignment? From my own experience as a student, and from my experience as an educator, I believe the answer is yes. With the push for standardized testing, formulaic writing became a norm and academic English language has become, in many cases, the only acceptable language. When students approach a class such as mine, they become nervous. The work I am asking them to do goes against what they learned, and is difficult because it is often a new way of thinking and writing to them. Or, rather, it might be a way of writing in which they are returning to but have suppressed for years. In order for change, however, the adjacent possible—the idea that creativity can occur within our own and society’s own limits as long as the individual is given enough space to make mistakes, experiment, and create—is one that needs to be present within the writing classroom, and I think in allowing students room to break and form habits is an effective place to begin (33).

The second part of Krashen’s theory states that in order to be successful in learning a language, one must want to be part of the group in which the language is being spoken. In a writing classroom, it is beneficial for an individual to be comfortable with his or her own identity and voice before asking a student to write to fit into a certain group. In the context of this paper, the certain group or space we want students to feel comfortable within is academia. The goal, of first year writing, is to make a student aware of the expectations

of academic writing and enhance their successes in conveying their meanings within the academic assignment; however, before expecting a student to be able to master these skills, they must first be comfortable with their writing voices.

Often, students will describe their lives growing up with parents who speak languages other than English. Students will tell me their parents are “illiterate” or they will say things like “I learned to speak wrong because my parents English isn’t that good.” Under this model, the language the students are wishing to attain is proficiency in Standard English. They are faulting themselves, their culture, and their families for not allowing them to be “literate.” Under this deficit perspective, students are seeing “lacks” in their language and they are deeming it as their own fault. Yet, it is argued by Asao B. Inoue in his book *Antiracist Writing Assessment Ecologies* that these language “stigmas are [...] not categorical [...] everyone speaks and writes a brand of English that has its nuances, its deviations” which means, no single person speaks “perfect” English (33). Young makes the claim that we all have hybrid Englishes. These hybrid Englishes make up an individual’s repertoire, and should be used to build bridges to academic writing not as barriers (33). It is important to educate students that literacy is “the knowledge of a practice, that is, the ability to use [...] a language [...] in specific contexts” (Luria 246). When one is “literate,” one is able to read a particular document and understand the document. I remind my students that one can be literate in English, car manuals, or picture books (246). I remind my students that each of us have different literacies. The students are often pleasantly surprised to find that the languages they grew up speaking does not devalue their language use but instead adds value. To initiate multilingual writers into academic discourse, Canagarajah suggests the “contact zone” model. In this model, students bring

into their writing the values and discourses of their vernacular communities so as to deliberately negotiate with the academic discursive conventions and create multivocal genres. This is why translanguaging is the first place to start.

Starting with what students can do already will demonstrate that they are equipped with a lot of language knowledge already. Often, in the writing classroom, there is signification pressure placed upon students to write with a certain voice or structure. This formulaic approach to writing is especially difficult for multilinguals who have varying relationships with language. Scholars such as Canagarajah suggest that instead of pushing students to assimilate within a writing structure, educators should consider the “difference-as-resource” approach (13). Under this idea, students’ different ways of communicating is valued. Educators can also demonstrate to students that, as Gee explains, “discourses are ways of behaving, interacting, valuing, thinking, believing, speaking, and often reading and writing, that are accepted as instantiations of particular identities” (3). In order to gain authority within a certain discourse, one must show proficiency of the discourse.

Lastly, to address the final part of Krashen’s comprehensible input theory which states “instrumental motivation” the desire to accomplish a task must be high in order for a language to be effectively learned, I argue that to instill this in students, educators can demonstrate that the student’s voice is valued, and that they are excited by the growth (1). There has been much research done on how to value students’ writing, however, I find the simplest approach is to show excitement about their work. Pointing out strengths and choosing only one or two things for the student to work on in order to grow has proven to be effective feedback to keep students motivated and not feeling overwhelmed.

Innovation, Repertoire, and Writing

Tim Brown in *Change by Design* express that inventors, when designing a product, must understand the culture in which creators want the product to be successful. Similarly, when writing, the author must understand the audience that will be reading the work. If designers are approaching a product thinking they know what people need without investigating those people, their product will fail (23). If an author approaches a text without understanding his audience, the text will not be successful. In the business world, the users become important partners to the design, in the writing classroom, the audience becomes essential. When applying these thoughts to the writing classroom along with the composition contributions of Linda Flower, James S. Gee, and Elizabeth Wardle, the importance of voice and an individual's identity become the center of the writing classroom. In using translanguaging, these ideas are acted upon when students are invited to use multiple languages, literacies, and cultural backgrounds to compose writing.

As one of the first class assignments, I like to use Jody Shipka's assignment where she first asks students to make a list of all the texts they know how to produce. This can be emails, text messages, grocery lists, anything that requires writing. Next, students are asked to reflect how, when, why, and where they learned how to produce these texts. In this assignments, students begin to think about the literacies they already possess as well as how they learned to do these things. The second part of the assignment asks students to create a one-minute video responding to questions about their language use. Shipka's questions ask students to respond to "What languages, dialects, codes, and styles do you speak or write besides so-called 'Standard English'? Who do you use this way of

speaking/writing with? What can you do when you speak/write this way and with these particular people that you can't do with others? Explain. [...and...] Do your parents, grandparents, or other family members speak a different language or in a different way than you do? What impact has this had on you or your family?" I would extend Shipka's assignment to also ask students to choose one moment in which they remember their language being criticized in the classroom, and one moment in which they remember being praised for their language use in the classroom. Reflecting upon the use of their language in this way will ask students to begin thinking about the ways in which they already successfully use language.

In using approaches such as the one outlined above, Canagarajah's "difference—as resource" theory is being used to assist students transition into academic writing. The "difference as resource" states that students come to the classroom equip with a multitude of language resources. This approach strips pressure multilinguals may face when attempting to write a certain way; "Multilingual students do—and can—use their background as a stepping-stone to master academic discourses [...this allows for the student to...] transfer many skills from their traditions of vernacular communication" (13). While I agree that knowledge in a native language can be useful to acquiring a second language, I have to disagree that any language should be used as a "stepping-stone." Under that assumption, the native language is a mere bridge to attaining mastery of the target language—which would be English in many of the United States' college classrooms. This theory is inadvertently still asking students to choose one language over the other; however, that is not what translanguaging is about. In a translanguaging classroom, students' linguistic and cultural "peculiarities" are valued because they allow for the unique

expression of their identities and voices in academic discourses. Students' linguistic skills are always changing. Language is not static, and its evolving structure invites growth.

Canagarajah in *Critical Academic Writing and Multilingual Students* explains that before students can master the grammatical aspects of a language, they must first develop a sense of who they are as individuals and develop a writing voice before attempting to follow the rules of a language's grammatical structure. It is important, to Canagarajah, that students are engaged in negotiating with grammar, so that they understand grammar as being contextual, ideological, and negotiable; therefore, students can insert themselves into the language. I suggest starting units with poetic writing, as poetry allows for the manipulation of language in ways that other text structures do not. In my plan at the end of this chapter, I have included an example poetic-language assignment that I use before asking students to write a narrative in order for them to begin seeing language as malleable.

When writing, Canagarajah notices that students become overwhelmed by the idea of the "text" they must produce. It becomes daunting to think of creating a document that must be turned in, evaluated, and graded. His critical orientation approach redefines writing because, through this lens, the text is not the most important part. Instead, the message becomes the most valuable. Canagarajah states that "Texts not only mean, but do" which suggests that what the text is doing is most important (4). Now, a text has an agency; it is recreating reality not simply existing within it. A text is meant to do much more than simply exist, it is meant to convey an idea, suggest for change, or convey an emotion. When students realize that they are writing in order to communicate an important idea, then they must take in to account how their text is being received. In order to bring students to an awareness of how their text is being read by the world, peer review is necessary as part of

the revision process. I will explain how I run my peer-review sessions in the lesson at the end of the chapter.

A written text, without the flashy advertisements or pictures that many people are used to seeing in today's media-filled world, seems, to many, to breathe no life. It is usually flat, written in black ink, and offers no interaction; however, what many students fail to realize is that the internal interaction—thinking and responding—with the piece is the most important. Without the reactions or thoughts texts provoke, their uses would be meaningless. We write to convey a message, and that message is meant to be shared. I often remind my students that through their writing they are communicating with me and their peers in the class; therefore, they must write in a way that best reflects what they are trying to communicate. Canagarajah states that “In constructing a text, a writer is conducting a conversation with [...a...] diversity of readers” which raises a text above the flat one-dimensional artifact into something that is meant to be engaged with (4). Texts are read by people with their own perceptions, and the goal of the author is to make the author's thoughts become the reader's thoughts. The author must first affectively convey his or her point before a reader can argue or agree with it. To achieve this in the first year writing class, students must first be comfortable with their own voice and be aware of what their voice sounds like. This is why, I argue, that translanguaging in the classroom is not only important but a necessary bridge into academic writing. A student must be comfortable with their own voice in order to share it with others. Once a writing voice is established, then a teacher can aid students in manipulating that voice for various audiences. Students must remember there are dominate norms related to

academic genres, but these norms can be strategically negotiated in relation to their personal agendas and values (Canagarajah 29).

Canagarajah in his book *Literacy As Translingual Practice: Between Communities and Classrooms* explains “a translingual approach [...to writing...] defines languages not as something we have or have access to but as something we do” in order to demonstrate that one’s writing ability is forever changing and growing (27). In viewing writing as an evolving practice, it is understandable that one’s writing abilities can grow with practice. The more a student writes, the more she is changing her abilities as a writer, and she is changing her language. In comparison to the speaking repertoire discussed above, there is also a writing repertoire that is built upon and sculpted through writing experiences; “writers call on or create literate resources in the process of making do” (Leonard 228).

A student learns how to shape their writing based on successes or failures in the past; however, I would like to move away from the mentality of a student “making do” and toward a reality in which the student learns to access their diverse repertoire as an advantage. To understand that one has ownership over writing, is to understand that one has power. A translanguaging approach asks students, and educators, to change their attitudes toward writing and view it not only as a process but as something malleable; “By recognizing writers’ agency in and responsibility for all their language productions, [...] it is applicable and of benefit to all students” because, now, students are asked to be responsible for their use of language (Canagarajah 29). In giving the student the power to control his language, then the student comes to the understanding that the writing belongs to himself. The goal becomes to assist students in what Paul Prior and Jody Shipka label

as “tuning” which is the ability for a writer to adapt his writing to the environment in which he is writing for (230).

I like the term “tuning” to describe this process because, similar to an instrument being tuned, it elicits that educators are not asking students to completely change the way an individual writes, but to write in such a way that accomplishes a given task. Just like the string of a violin that is capable of producing a multitude of notes but has only one sound that is most beneficial in a particular piece, the educator is there to help “tune” the student to the most successful writing voice without eliminating any of the other voices. James Gee reiterates this when he states “Identities thus are neither fixed nor static; they are multiple and fluid, enacted and achieved according to social context, with power playing a crucial role in what identities get recognized, enacted, and legitimated” (Baron 90).

Monolingual and Multilingual Brains and Translanguaging

Now that I explained how translanguaging is being discussed within this chapter, neurological research that demonstrates how multilingual and monolingual speakers’ brains work

as they use language will be considered in order to situate the importance of using translanguaging methods in the first year writing classroom.

It has long been understood that language requires the use of the whole brain; therefore, to teach language *is* to teach to the whole brain. Thierry Galopin, neuroscientist in the field of bilingualism, states that if the argument that language occupies one area of the brain is believed, it “is misleading both from an anatomical and functional viewpoint” (523). To separate language within a particular section, is to ignore the intricate way the

mind, and language, works. Before diving into the findings of neuroscientist's functional magnetic resonance imaging (fMRI) research, I will first address V.S Ramachandran's discussion of mirror neuron's function in order to understand how to use this knowledge to assist writing. To understand why this is important to language, we must first understand what mirror neurons are, how they work, and where they are located in the brain.

Mirror neurons are neurons that light up when an individual is performing an activity. Interestingly, these same neurons light up when a person, completely still, simply observes an individual undergo the same action. This means an individual can learn how to perform a certain task by watching it be performed by someone else. This idea is similar to a model text which functions as a source for students to learn from. Mirror neurons have been found in primates in the premotor cortex (which is located within the frontal lobe of the brain) and the inferior parietal lobule (which is found where auditory, visual, and somatosensory cortices connect) (Fabbri-Destro and Rizzolatti 171). Mirror neurons are, essentially, "the transformation of specific sensory information into a motor format" which explains how humans are able to watch something be done and then perform the same task (Destro and Rizzolatti 171). Some studies suggest that these mirror neurons are linked to the development of empathy since the job of these neurons are to "give the observer a direct feeling of what others feel;" however, for the purpose of this chapter I am only discussing their use in the production of language (171).

When considering mirror neurons, it is also important to note that humans tend to align their behavior with those around them during social interactions (Lieberman 2007). We have an innate need to be liked by others; we can see this most specifically at a young age when a child is watching a television program and imitates a line or movement of a

character. It is the same reason, too, why people tend to pick up speech patterns or gestural habits of the people they spend the most time with. Researchers noted that after a study conducted in 1996, participants who unscrambled sentences with words typically associated with the elderly (bingo; Florida; etc.) walked slower in their walk from the room to the elevator compared to participants who did not unscramble sentences associated with the elderly (Bargh). This study demonstrates that an individual's physical movements are influenced by their interaction with the world.

The premotor cortex is the area in the brain in which is responsible for "preparing" an individual's certain movements. (Rizzolatti1988). This area becomes activated when an individual is performing an action; however, this area has also been proven to become activated when an individual is watching someone else complete the action (Iacoboni 659). What this means, simply, is the brain is capable of learning what a specific action looks like and what the results of that action are by observing another person go through the action. Mirror neurons allow for humans "to understand actions performed by others by mapping those actions onto actions that it can itself perform:" therefore, the individual is "translating" the watched action into something he or she understands from previous actions performed (Corballis 1). What I claim this means for translanguaging in the writing classroom is students, when writing in their home language and working within a supportive and inquisitive environment, can learn to translate the skills into writing successful academic papers by watching, and writing with, successful models that demonstrate successful writing techniques. Second language theories state that reading and listening are typically the two first modalities of language that a second language learner acquires and speaking and writing come as the final two skills of language

acquisition. Since writing is one of the most difficult skills for a second language learner to acquire, there needs to be ample support in helping the individual grow throughout the writing process.

Bilingual theorists have demonstrated that the acquisition of a home language aids in the development of a second language; however, foundational skills in the home language are necessary in order to have success in the second language. Stephen Krashen's Comprehensible Input Theory claims that people learn a language best when they are listening to the language (1985). Then, after having ample time to listen, an individual can move to the production, or spoken use, of the language. One must first understand the sounds of a language before they are able to produce words in that language. While this makes sense for speech, I argue that it is also relevant thinking in the use of written word. One must understand the ways in which writing works and the agency one has within the genre one is writing under, before the individual is able to successfully navigate within in genre. To expect a student to successfully write an academic paper without giving lessons on how to do so, is like asking a French speaker to pronounce English words without teaching them the sounds of the English alphabet.

In a study conducted by Hirsch, individuals who spoke second languages as young adults and those who learned two languages simultaneously while growing up, performed expressive linguistic tasks in order to determine the activation of Broca's and Wernicke's area in the brain. Broca's area is associated with the production of speech and Wernicke's area is associated with the comprehension of speech. The study determined that while Broca's area found differences between those who learned a second language early and those who learned it later, Wernicke's area, in both groups of individuals "show[ed]

effectively little or no separation of activity” (171). What this study established is no matter how late in life an individual learns how to speak a second language, the ability to comprehend the language is relatively the same; however, the ability to produce the sounds of the language depends on the age in which the language was learned. This means the motor skills of forming the words with the mouth and tongue are the most difficult for a second language learner who learns a language later in life. This is why many people will have an accent in their second language for the entirety of their lives. This research is useful when thinking about how repertoires expand; however, it is important to note that language is not segmented by “type” within different areas of the brain. Instead, all language makes up an individual’s repertoire.

As stated above, Broca’s area in the frontal cortex is important to speech. Broca’s area “contains maps, or motor programs, that send signals down to the various muscles of the tongue, lips, palate, and larynx to orchestrate speech [...and is...] rich in mirror neurons” which, some researchers believe, suggests that this is how speech first evolved (Ramachandran 172). It is possible that spoken language was developed by watching the gestures of others; “the mouth and lips and pharynx actually become small as if to echo or mime the visual smallness of words such as ‘teeny-weeny’” (177). Ramachandran explains how the tongue makes a similar movement as it curls back to touch the palate to utter ‘hither’ or ‘here’ and ‘go’ involves pouting the lips outward, whereas ‘come’ involves drawing the lips together inward” (174). So, some gestures “may have emerged through the ritualization of movements that were once used for performing those action” such as pulling someone in when saying “come” or pushing them away when saying “go” (174). Additionally, in an effort to understand how languages are processed within the brain, the

use of functional magnetic resonance imaging (fMRI) has been used on many occasions to determine if native and second languages are processed differently within the brain. In looking at Broca's area—the frontal-lobe region which is associated with language—Joy Hirsch found “second languages acquired in adulthood are spatially separated from native languages; however, when acquired during the early language acquisition stage of development, native and second languages tend to be represented in common frontal areas” (Hirsch 171). In pedagogy, I propose that these theories are disrupted because in understanding that an individual has a language repertoire, then it is understood that language is not segmented into various categories within the brain—all languages make up an individual's repertoire and is accessed based on the situation's need. In understanding how the brain processes first and second language, in addition to understanding how these languages are stored in the brain, educators can tailor assignments.

In understanding mirror neurons, the most important thing to realize is our brains are capable of learning behaviors by watching others complete a behavior, which, is why I suggest writing teachers provide many examples and guidance in the early stages of writing instruction. Language, and writing skills can be taught, and the instruction, for struggling writers, is likely to be equal with the writing production. Good instruction will equal good production because the instructor will have provided many samples and steps before expecting a final piece.

The Literacy Narrative

There has been significant research done on the effectiveness of using the literacy narrative assignment in the classroom. The literacy narrative, which asks students to think critically about one or two crucial moments in their lives that shaped their use and

understanding of literacy, is an effective first assignment because it gets students use to the idea that their voice is important within the classroom. The literacy essay is often viewed as a pathway for students before asking them to write other, more academic, papers. In asking students to first view their relationship with literacy, students are required to think back to the moments that shaped their current relationship with literacy. As I stated earlier in this chapter, students arrive at the university with varying backgrounds that have shaped their ideas of literacy. Oftentimes, their previous understandings of literacy are much different than what is traditionally accepted in the university. Parmegiani states second language learners face challenges that are related not “only to second language acquisition, but also [in] navigating discursive practices” (29). This is especially true for students who attended schools outside of the United States or who grew up speaking more than one language. The goal of a FYW instructor is to ask the students to think about their language use by asking students to access their repertoires. One way I begin pushing students to think critically about their language is by incorporating poetry and imagery to assignments. Poetry is especially productive for multilingual students because it invites poetic play and experimental with language. To compose poetry is to think creatively, so it provides multilingual students an opportunity to be expressive while writing.

Mlynarczyk states “it doesn’t seem feasible” of educators to expect students who are not considered strong academic writers to find success “without using the primary resource they bring with them to college—their own expressive language, language that is personal to the self” (13). Introducing genres such as the literacy autobiography or the autoethnography relies heavily on the experiences and language students come to the classroom already equip with. To ignore that expressive writing can help bridge the gap

between a student and their success in academic language is to ignore the fact that so many students are struggling to find success in academic assignments. Amy Robillard explains how welcoming different voices within writing assignments activates a “class consciousness” because students can learn from each other and from themselves about their histories (64). Using storytelling devices bring students’ voices to the center and demonstrate that they have importance; especially for those who are from marginalized social, racial, or linguistic backgrounds.

I like to use Lucas Corcoran’s activity of asking students to formulate an idea of what adding the “-ing” ending to a word creates as one way to begin asking students to think about language as something that can be manipulated (65). Using pairs of words such as “talk” and “talking” Corcoran asks students to “work out an account of these differences” between the two words in order to push students to begin thinking about how language is used (65). He also asks students to think of “linguistic structures similar to the English ‘-ing’ ending in other languages” which is an excellent way to introduce the idea that there are multiple ways of using language and diverse backgrounds in the classroom— all of which are welcomed (65). He ends this activity by asking students to discuss the differences between the word *language* and the word *linguaging* to push students to the understanding that linguaging is an action.

In Canagarajah’s article “Multilingual Strategies of Negotiating English: From Conversation to Writing,” Canagarajah points out that “for multilinguals, language use and language learning are interconnected;” therefore, why should it become separated in the writing classroom? (20). Multilinguals navigate various conversations by learning from mistakes, successes, and the language uses of those they encounter. It is fine to do go

through a similar process with writing, however, a grade is attached to most writing assignments done in a classroom setting and it would be an unproductive way to learn from mistakes if it resulted in multiple failing or receiving undesirable grades. Canagarajah points out that “A language based on negotiation can be developed only through and in practice” so it is necessary that students have ample time to practice before they are being graded (65). We need to help students develop, as Shannon Carter theorized, "rhetorical dexterity.” Carter states, "The ultimate goal of rhetorical dexterity is to develop the ability to effectively read, understand, manipulate, and negotiate the cultural and linguistic codes of a new community of practice based on a relatively accurate assessment of another, more familiar one" (80).

I will conclude this section with a comment from a student at the end of our class. After many conversations struggling through a topic for his final paper, this student decided to write about his father’s debt despite all the successes his father had in the business world. The student wrote a paper that included financial advice to his father, business terminology, as well as conversations written in Spanish and English between himself and his father. The student was proud of, and felt inspired by, the work he completed because he included many important languages to him within one paper and they all were equally valued. This student wrote “Everybody has their own language [...] everyone has a different way to get their point across. This class has actually encouraged me to start writing and publishing research that I do in the field of finance.” This student came to the realization that in accessing his full language repertoire, he wrote a paper of which he could be proud, and planned on continuing with writing outside of the classroom. This is the type of feeling that I want more students to experience while writing in the university, and I hope that by

incorporating some of the ideas I put forth in this dissertation, educators and students alike will be inspired to transcend their previous notions of what it means to write.

Literacy Narrative Unit Lesson Plan

I now will outline my literacy narrative unit which I use in my first year writing class at the start of the semester. In addition to the theories and practices I stated in this chapter, much of this lesson plan draws upon Dafna Moriya book *Navigating Visual Imagery and Verbalization in Therapy*. While her ideas are meant to be used with patients who are undergoing art therapy, I find much of her text useful to first year writing because of the way each activity builds upon each other in order to slowly arrive at a concluding understanding. Moriya's goal is for her patients to arrive at a place in which they can express, process, and heal from their past trauma. My goal is to use some of her ideas combined with neurological research and translanguaging to assist students in becoming more comfortable with their writing skills through the literacy narrative assignment. I also aim to demonstrate that writing is a process. Writing is not meant to be perfected in one draft or one assignment.

Before students pick a topic for their essay, I explain to them the various moments in their lives shaped their literacy. Geographic, cultural, demographics, schooling, among others all played a role in their language development. I ask students to think back to their earliest memories of speaking, reading, and writing. I then ask students to spend a few minutes jotting down ideas. I encourage them to take their notes in the language that is

most natural to them—whether it be English, a home language, or slang. While students are doing this, I ask them to associate feelings with their memoirs. Were these good or bad moments? What emotions do you remember having? What emotions do you have now while you think back on these moments? This can be done as a list or a narrative. I tell students we will be sharing our work, and I will share an example with them at the end as well. I think it is important to be writing alongside my students. Figure 5 shows the prompt I give students when we begin this part of the assignment.

Free Write

- Various moments in your life shaped your literacies.
- Think back to your earliest memories of speaking, reading, and writing.
- Write down your memories. Your notes can be in English, a home language, or slang.
- Associate feelings with each memory. Were these good or bad moments? What emotions do you have now while you think back on these moments?



Figure 5. Tara Scarola; *Literacy Free Write*; 2021.

Next, I ask students to think of their high school years and to jot down a few more memories with literacy. I ask them to think about communication. I ask them to write a moment that they communicated very effectively then I ask them to write about a moment that communication went wrong. I ask that they use verbal, face-to-face communication because I want them to focus on spoken words because texting language is a different conversation. As before, I ask students to associate emotions with these encounters.

We then have a discussion about the moments they chose. Eventually the conversation will move toward the understanding that there are certain language expectations for certain situations. At the end of the discussion, I ask the students to write a paragraph or two reflecting on the moments they chose to write about and answer the questions “Why did you choose these moments?” and “What did these moments teach you about your own personal use of language?” Lastly, I ask them if they could go back in time and change this moment, would they do it, or not? and why? We conclude this part of the lesson with a discussion of M. Nourbese Philip’s “Discourse on the Logic of Language.” We spend some time discussing the poem—as a text—and the video of her performing her poem.

In discussing first the poem as a written text then as a performance, I guide students to discuss the similarities and differences of their interpretations when reading the text and listening. Does listening to the poem change meaning to them? Is one easier for them to understand over the other? Usually, this conversation leads to the students’ discussion that written words can be interpreted differently than when listening. I choose Philip’s poem because of the visual way her poem is presented in the text as well as the topic she is discussing. Reading Philip’s poem involves choices that are left up to the reader. I ask students, after they read the poem for the first time, to explain how they chose to read the poem? Did they read from top to bottom, then read the text on the sides? I ask them to briefly ask themselves “why did I read it this way?”

I ask them in groups to discuss their decisions. As a whole group, we discuss what we know, as English speakers, about the structural set up of a text. We read from left to right, top to bottom; yet, Philip’s poem challenges that idea. We discuss the possible

reasoning behind why Philip might have chosen to do this, and how, if at all, it changes readers' perceptions. I then ask if Philip's purpose of this text is clear or unclear due to her structural setup.

We follow a similar discussion after watching the performance of the poem. The conversation tends to arrive at the fact that, when deviating from a typical text structure, it is easier to control your audience's interaction with the text if the author reads aloud the text. I tell students that with the literacy narrative assignment, their challenge is to guide readers to some understanding of their paper and that, while the topics discussed are unique to the author, their goal is to write in a way in which their readers can relate to their topic. I also tell the students how they choose to structure their essay is up to them, but we spend more time discussing that at a later date. Multilingual students might excel in such an assignment because they are encouraged to use the entirety of their repertoires. English is not the only medium in which they have to experiment within which provides space for individual's to use their own unique voices.

Moriya explains that if a patient is ready to move to words accompanying a piece of art, then poetic language is a good place to start. She states that poetic language gives us more room in invention as opposed to every-day language; "Images, metaphors, and symbols may be described as instruments of transformation;" and that is where I like to start with my students as well (24). In a world filled with media, our job as writing teachers is often to educate students how to become translators of images into alphabetic spaces.

It might seem elementary to educate undergraduate students on basic literary elements such as metaphors and symbols; however, I have found that doing so results in students including more poetic language in their papers and drawing more unlikely

connections that create for a stronger piece. We spend a class or so discussing these poetic devices using their own writing and published short stories by authors such as Joyce Carol Oats, Ernest Hemingway, Sylvia Plath, and Langston Hughes. We discuss the style, themes, and word choices of the authors. After this lesson, their homework assignment is to create a few poems based on their experiences with language. I encourage them to choose a topic from the list they made on our first class discussion of the literacy narrative.

After the students have an understanding of poetic language, one way I ask students to play with language is by showing them a grouping of words and asking them to construct a poem or short paragraph about their topic using these words. I might ask them to attempt using the words to describe their topic, to write a poem using only these words, or to simply use the words as a jumpstart to a short paragraph about a topic of their choice. I like to include in my list common words such as “happy” or “train,” but I also like to include words that the students might not have heard before such as words in another language. I also encourage students to include words from different languages they may know. I encourage students to look up definitions and translations of any words that are unfamiliar to them.

Students share their poems in a group and compare and contrast their final product with those of their peers. I ask them to identify a theme each student is expressing, then I ask them to identify places in which the language is supporting that theme. I ask them to consider how the language is being manipulated in each poem to support the author’s central message. It is always interesting to the students to see the differences in the pieces and how the language was manipulated to fit their individual purpose. Figure 6 shows an example of the word list our class used and Appendix D shows two student poem examples.



Figure 6. Tara Scarola; *Word Poem*; 2021.

Both students on separate occasions expressed to me that they “cannot write, especially creatively.” They were both apprehensive about the poem assignment especially because it was out of their comfort zone; however, the result surprised them. Both students were impressed by their ability to write a poem and to use language that they otherwise wouldn’t have chosen. Both students chose to write more than one poem even though I only asked for one.

Students at first struggle with this idea, but then as they begin writing they have expressed to me that the process becomes easier. They get into a writing “flow.” As they write, they begin to view writing as the stringing together of ideas, and as they move from word to word on the list, they begin to form connections that tell a brief story. Finding connections in otherwise unlike objects often lead to beautiful metaphors and descriptive writing. In this activity, the students are using language that they might not normally use which leads to innovative connections for their writing.

Their homework assignment after this lesson is to create their own list of words. I usually ask them to think of 20 words, and I encourage them to use language that is natural to them; specifically in another language, slang, or words specific to their majors, sports teams, cultural groups, family. I ask students to write two poems based on these words. One poem should be about language, the other poem is up to them. During the next class, students pair up and share the list of words with one partner. I always start my class with a free write, and that day's free write is for the partner to create a poem with a theme of their choice using their partner's word list. The same rule applies—look up any words you don't know—however; it differs because now that the language, in many cases, is so unique to the author, that I tell students to share meanings of words that cannot be defined easily. By doing so, students are learning new terms as well as sharing their own language identity.

I remind students, when thinking of a topic, to choose one type of literacy and focus on a moment when they feel they were becoming or had become literate in that skill – this literacy could be anything, from reading to learning a new language. I remind students that the big question to answer is “What did this moment teach you about communicating in a social way?” I then ask students to think of the communities in which they belong. I use Rich Millington's breakdown of communities to get students to broaden their thoughts. Millington breaks down communities in the following categories:

1. **Interest.** Communities of people who share the same interest or passion.
2. **Action.** Communities of people trying to bring about change.
3. **Place.** Communities of people brought together by geographic boundaries.
4. **Practice.** Communities of people in the same profession or undertake the same activities.
5. **Circumstance.** Communities of people brought together by external events/situations.

In groups, the students will discuss their varying communities that they belong to. For homework, I ask the students to choose one community from each list. Then, list specific language that is unique to the community they chose. Students can bullet the language or write short paragraphs that describe the language, as long as the specific language is used in the narrative. I also ask students to provide a glossary for any terms that will not be known by people not in the community. I show them my example as a guideline. See Appendix E. In my example, the students see the language that I encounter as an educator of English language learners. A term such as “NYSESLAT” may be completely unfamiliar to students; whereas, terms such as “transitioning” or “expanding” may be familiar but not in the context in which I am using them. My language repertoire includes the language one would use when discussing K-12 English language learners. In my glossary, I provided definitions to any terms that are unique to being an ENL teacher. I explain to students that these definitions are what makes the piece completely understandable to anyone outside of the field. This assignment asks students to think of their language repertoires. They find that each community they belong to, whether it be a social or professional one, has its own language.

When students create their glossaries, they are pushed to think about the various terms that are familiar to them that might not be familiar to their peers or me. I also like to create a “common word bank” in which phrases we as a class agree upon are placed alongside a “individual word bank” where students give personal words associated. For example, the word “mother” would go in the “common word bank” then in the personal we have included words such as the Spanish and Portuguese word for mother “madre; mãe” as well as nicknames that are completely unique to an individual and would make no sense

to anyone else; such as “Dragon Lady.” The terms in Spanish and Portuguese will be familiar to individuals who also speak those languages because the terms will be in their language repertoires; however, the nicknames would be unfamiliar to anyone besides the individual. All of these are examples of what is inside an individual’s language repertoire. None of the terms are wrong, however, certain terms would require a “common word” translation in order to be understood.

Moriya states that the “Purpose of art is as a method for reaching the unconscious and tacit information, processing it, and gaining insights that are not easily accessible with words” which is why she starts with art before asking a patient to verbally discuss emotions (24). She offers abstract art as a useful starting part because abstract art gives an individual the freedom to explore an idea. I offer a brief lesson on abstract art to encourage students to continue to think in different approaches to language. In my class, I use art teacher Cindy Ingram’s abstract art lesson in which she introduces students to abstract art through the Bull Series’ by Pablo Picasso and Roy Lichtenstein.

First, the students draw four big rectangles to fill a piece of notebook paper. In the bottom rectangle, students draw a realistic bull as best as they can. Then, in the top rectangle, the students draw a stick figure of a bull—as simplistic as they can. In the middle rectangles, the students then think of their paper as a journey to the simplified bull. How did they get from a realistic bull to a simple one? They fill in the center rectangles with the steps between. After the activity, Ingram describes to students that they were engaging in the process of abstraction— which requires an open, inquiring mind. See Figure 7 for an example.

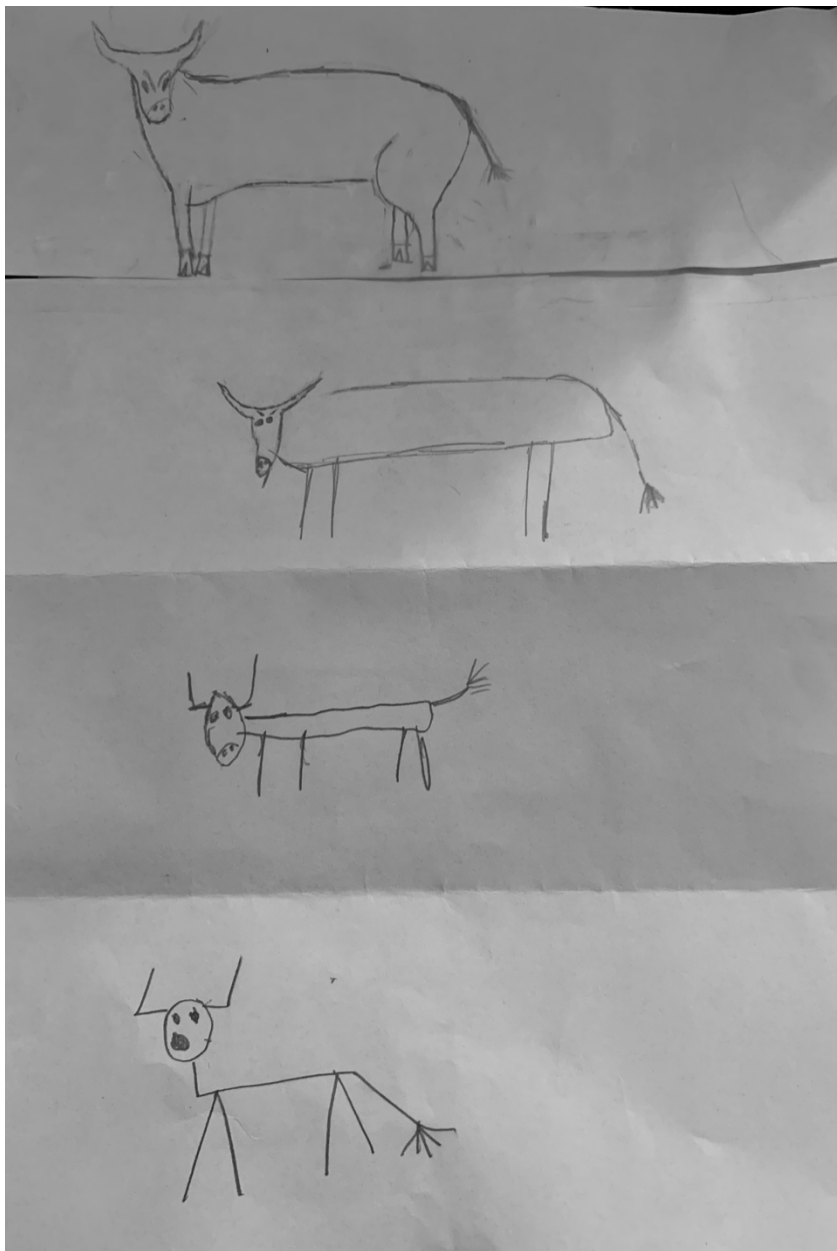


Figure 7. Tara Scarola; *Abstract Bull Drawing*; 2021

After my students complete the in class activity, they are instructed for homework to create an abstract image of their topic. At this point, students have an idea of their topic for their paper. Engaging in this activity strips pressure of conveying a single idea, because the piece, and their creation of the piece, is up for interpretation. It is abstract; therefore, they are given room to explore. We use their constructed abstract images next class, and have a brief walk around of the room. Students hang their images on the wall and walk around with a Post-It note to jot down a few words to explain what they think the piece may be about. They are asked to stick their Post-Its around the pictures. I push them to think in terms of colors, shading, and overall “emotion” of the piece. How do they feel looking at the piece? What jumps out?

I use the discussion that follows to demonstrate that when viewing artwork, each individual might arrive at a different interpretation, which is okay. The same rule applies when reading a work. Sometimes there are multiple ways to understand a text; however, often there are necessary big ideas that most readers or viewers take away from an effective piece. This assignment also demonstrates the necessity of getting across “big” ideas and leaving some room for readers to interpret moments for themselves. This activity is a good place for students to begin to think differently about both expressing ideas and understanding other’s. During these informal assignments, students are encouraged to use their full repertoires because they are thinking of the multitude of ways they use language. They are choosing which languages to use that will most effectively meet the assignment. They are asked to think in terms of language and images and to think about the various responses they come up with. As students pick and choose from their repertoires, they are learning to be navigators of their own language.

For the next step in our unit, I ask students to choose a setting for their piece. Then, for homework they are required to visually interpret the setting. This can be done as a drawing, painting, a series of photographs, or a sketch. The second part of the assignment is to turn in at least two pages of descriptive writing of the setting. Part of this requirement, is for the students to go back to the space—if possible—and spend time thinking there/ taking notes, or sketching what they see/ hear/ feel. If it is not possible for them to go back to the place, I ask them to try and go to a place similar to the one they are writing about—or, to simply remember the place as best as they can.

In class, we then draft a vivid description of this main scene by using the images and memories to stimulate writing. Moriya defines this process as “translation;” because it is the transformation of one form of knowledge into another. Transformation of image into words is different because the transition is from a multidimensional space to a flat, one-dimensional, linear format.

At this point, the students should have a topic, a setting description, and a few themes to play around with while they begin the drafting process. I like to show my students the TedTalk “Reading is a Daring Act” by, artist Laura Boushnak. She traveled to countries including Yemen, Egypt and Tunisia to highlight brave women -- schoolgirls, political activists, 60-year-old moms –who are fighting against the statistics which state these women will never receive an education. In the discussion that follows, I ask my students questions such as “What does literacy mean to the women in the video?”; “What does it mean to ‘gain control over simple daily routines?’” ; “how can these woman ‘control their lives through education?’ ” I then ask students if their definitions of literacy change after watching the video, and if so, what did they change it to?

Before their final papers are due, we have a workshop day. The students meet in groups of about four students and each student individually meets with me for a conference. In their groups, the student whose essay is being discussed must first listen to feedback, silently, without offering any commentary or justifications. They will have a chance to speak however, in order to fully allow the group members to address their thoughts, it is important that the author remains silent in order for authentic feedback to be discussed without the bias of the author's information outside of the text. It is important, too, for the readers' first impression of the text be through the actual text itself. I ask the authors not to give a pitch or even say "this is bad, but I hope you like it" because I want the students to realize how words in a text must stand for themselves in some cases.

Since this is our first peer-review of the semester, I provide guiding questions to help facilitate their discussion. I instruct students to pick one paper to be read first. All group members will read the same paper first. I ask them to first only read the introduction paragraph, then make a note on the paper about what you think the essay will be about. Then I instruct them to read the rest of the essay and jot down reactions to the piece. The person whose essay is being read will be writing questions that he/she wants answered by the group in regard to their writing. Also, it is required to meet with me during this time as well. The group, including the author, will then answer these following questions: What did you like while reading this piece?

- What type of literacy is being discussed? (reading, writing...)
- What is the author's central message?
- Can you identify with the message? How so?

- How did the author's main point become a learning point in navigating a particular social group?
- Where can the author add more sensory language?
- What constructive criticism can you give?

Each group will then run through their answers to the questions. During this time, the author will not speak, just listen and take notes. Lastly, the author will respond to comments/ ask his/her questions to the group

When the student meets with me, I ask them to come prepared with at least one question, one strength they think their writing has, and one area of improvement they feel is needed. I then use these ideas to drive our conversation. After this class, they are expected to do a major revision of their paper based on the conversations they had with their peers and me. The next class the paper will be due. I allow students throughout the semester to turn in papers if they are unhappy with grade as long as they, have a discussion with me about their ideas or questions for a redraft, redraft their paper in some significant way, and turn the paper back in to me at our next class. I allow for this because my main goal is to teach them that writing is a process and a final piece is often not perfected after one or two drafts.

Conclusion

When instructors provide opportunities for students to access and use their language repertoires, innovative writing can occur. In combining translanguaging approaches with neuroscience, educators can create an environment which is conducive to learning and

growth. Students arrive at the classroom with ample background knowledge and, under the right circumstances and environment, can be used as writing topics that are personal, original, and meaningful. This chapter serves as an example of how FYW instructors can create a classroom that is inviting to multilingual students and also one that pushes all students to be critical thinkers.

Too often students are made to think their voice does not have a space in the classroom, or they must conform to fit a certain writing style. By following the examples and ideas given in this chapter, an educator can transform student thinking by making space for individual's voices. While it is not an easy and it involves breaking barriers and breaking comfort zones, demonstrating the ways in which students can use their backgrounds, cultures, and writing styles in the classroom provides for an environment that is conducive to both learning and creativity.

CONCLUSION

This dissertation is meant to build upon previous approaches to teaching writing. It is meant to invite students and educators alike to reconsider their writing practices in order to make room for growth. The research and practice presented is meant to be used in the FYW classroom; however, it is also the kind of practices I wish to see in the K-12 classrooms as well. By incorporating neuroscience with pedagogy, my intention is that students feel empowered by the knowledge of the complexities of the writing brain. In understanding how complex writing is, it is my hope that students will be less likely to give up on writing because, as this dissertation expresses, there are a multitude of practices meant to alleviate the struggling writer by providing instruction throughout the various stages of the writing process.

I understand that there are many hinderances we face as educators; the amount of time in a given semester; curriculum guidelines; the reality that students must be graded, to only name a few, may all be deterrents when thinking of changing the ways we teach. As an English as a New Language (ENL) teacher, I have experienced the pressure many teachers face that come with being an educator. The research presented in this paper is meant to serve as part of a new teacher program that will be included in curriculum as a means of inspiration and guidance when shaping new teachers' approaches to teaching. In beginning with future teachers, it is my hope that the ideas and practices presented will be carried into classrooms.

I have experience both in higher education and in K-12 classrooms, and it is my belief that creativity should be taught and fostered as early elementary school and continued throughout higher education. In providing students with lessons on creativity at

an early age, it is my hope that by the time students enter higher education, they will have a strong understanding of what it means to be creative and be aware of how to tap into these skills. Additionally, educating students about the complexities of their brains is something that I feel should be occurring more in schools. In understanding more about neuroscience, I believe more students will feel empowered to think critically about their approaches to writing because it will become evident that they are in control of their own minds and can work to reshape their thinking about writing. In educating students about creativity and their brains as early as elementary school, students will grow-up understanding how their brains are working to be creative as well as understand the complexities of the writing brain.

The Brain Power Classroom by Dave Beal outlines 9 key neuroscience concepts that are meant to aid students in the classroom. While each of them play a major role for living a healthy, balanced life as well as finding success in a classroom, I want to draw attention to the fact that he states that “addressing students’ unique learning styles through multiple modalities improves their chances to learn successfully” (38). Again we see that students need *unique* approaches to learning, so why should it be any different when it comes to writing?

Throughout my experiences as an ENL teacher, I have worked in Nepal, Italy, Poland Thailand, New York City, and Long Island. I have worked with children who are 4 years old and are still learning their home languages to adults who are lawyers, doctors, or teachers in their native countries and now wish to learn English. I have taught people who are extremely motivated to learn English and I have taught people who do not wish to learn the language. Just as there is no cookie-cutter approach to learning a language, there is no

perfect approach to teaching language. I have found flexibility to be the most effective strategy I have learned while teaching as well as having a desire to keep learning and trying new strategies.

Dr. Peggy Suzuki pushes for a curriculum that is grounded within wellness, and I believe this to be an additional area in which future classrooms should move toward. Suzuki describes wellness as “composed of several parts: physical health and safety; zest for life; meaningful community; and most importantly for educational curricula, *opportunities to play and express oneself creatively*” which provides educators with multiple areas in which to begin incorporating wellness practices into the classroom (14). The lessons and activities provided within this paper are meant to inspire creative thinking and play within classrooms, and I believe there are many benefits to including more wellness practices into the classroom as early as elementary school.

Throughout this dissertation I outline many approaches I, and other educators, use to help students transition from their hectic lives into the active role of being a student in a classroom. It may be helpful to include, along with a daily free write, a quick two minute breathing meditation to help students shut off their busy days and focus on the class ahead. This is important because “when our bodies become tense, our breathing becomes shallow, which inhibits blood flow and prevents oxygen and vital nutrients from entering our brain” which, of course, makes learning difficult (Beal 81). In fact, research shows that “prolonged stress [...] shrinks brain cells in the hippocampus, the region of the brain responsible for memory” so eliminating stress before a class begins may help students remain focused (Beal 61). Mindful breathing aids in “activating the parasympathetic nervous system [...] to balance the levels of stress hormones in the body and brain,” so in

engaging in mindful breathing before a class session might help both the instructor and the students relax a bit before class begins in order to optimize learning (61). Lastly, Beal also encourages students and teachers to shout out “I got this!” or “I can do it!” before beginning a class (81). I encourage this piece of positive psychology in the elementary grade classrooms because it at least will get the students smiling—and, from experience, it does inspire a feeling of productivity when a room of kids are shouting that they can do it.

What I am reiterating in this conclusion by giving the above examples from David Beal is that before learning can occur, the brain needs to feel both safe in its environment and comfortable. We need to know that this classroom is a safe place where learning is occurring, mistakes are made, and growth is happening. This is something that is vital for the instructor to begin establishing on day one. The practices I mention throughout this dissertation are good places to start in making the space for a more creative and community-centered classroom environment.

Along with incorporating creativity in the classroom, more educators should be trained in involving wellness into the classroom. Especially as we face the global pandemic, teachers and students alike may find benefits from an increase of wellness practices. By making space for moments of wellness in the classroom, students are given a chance to learn life-long strategies on coping with stress and anxiety and also may learn effective problem solving skills. Peggy Suzuki states that by building a classroom in which students are being taught how to navigate through difficult assignments will not only benefit academic challenges, but would serve long-term physical benefits, and overall quality of life” because these lessons can be carried into moments outside of the classroom (87).

Appendix

- A. Sonya Huber. *The Backwards Research Guide for Writers: Using Your Life for Reflection, Connection and Inspiration*; 2011.

Worksheet 1: Interest Inventory

- Please answer the following questions about _____.
If you don't know what this person's response would be, give your best guess. There are no wrong answers.
 - After you've finished, circle the three answers you are least sure about.
 - Finally, mark the three answers you are most sure about with a star.
1. This person is most calm when _____.
 2. This person is most agitated by _____.
 3. This person is annoyed by _____.
 4. This person's favorite activity is _____.
 5. This person's favorite possession is _____.
 6. The two or three causes or public issues this person cares about most are _____.
 7. The personal experience that has had the greatest impact on this person is _____.
 8. This person has been heavily influenced by this role model: _____.
 9. This person's "personal style" could best be described as _____.
 10. Something this person doesn't value enough about himself/herself is _____.
 11. Other people tend to value this quality most about this person: _____.
 12. The place you can most regularly find this person is _____.
 13. A place this person would not be caught dead is _____.
 14. This person's musical tastes could be described as _____.
 15. This person's would most like to spend a two-week, all-expenses-paid vacation to _____.
 16. If time and money were not concerns, this person would most like to learn _____.
 17. In conversations, this person is often _____.
 18. This person's favorite childhood activity was (or might have been) _____.
 19. This person often acts this way in a large group: _____.
 20. This person is most likely to laugh at _____.

B. Tara Scarola. Response Questions During Writing Workshop; 2021.

After reading, everyone will respond to these questions:

- What did you like best about the paper?
- Find the strongest paragraph. Why is this the strongest?
- Find the weakest paragraph. Why is this the weakest? How can it be made stronger? What details were missing, or what did you wish were there instead?
- Did introduction match the rest of the paper?

C.

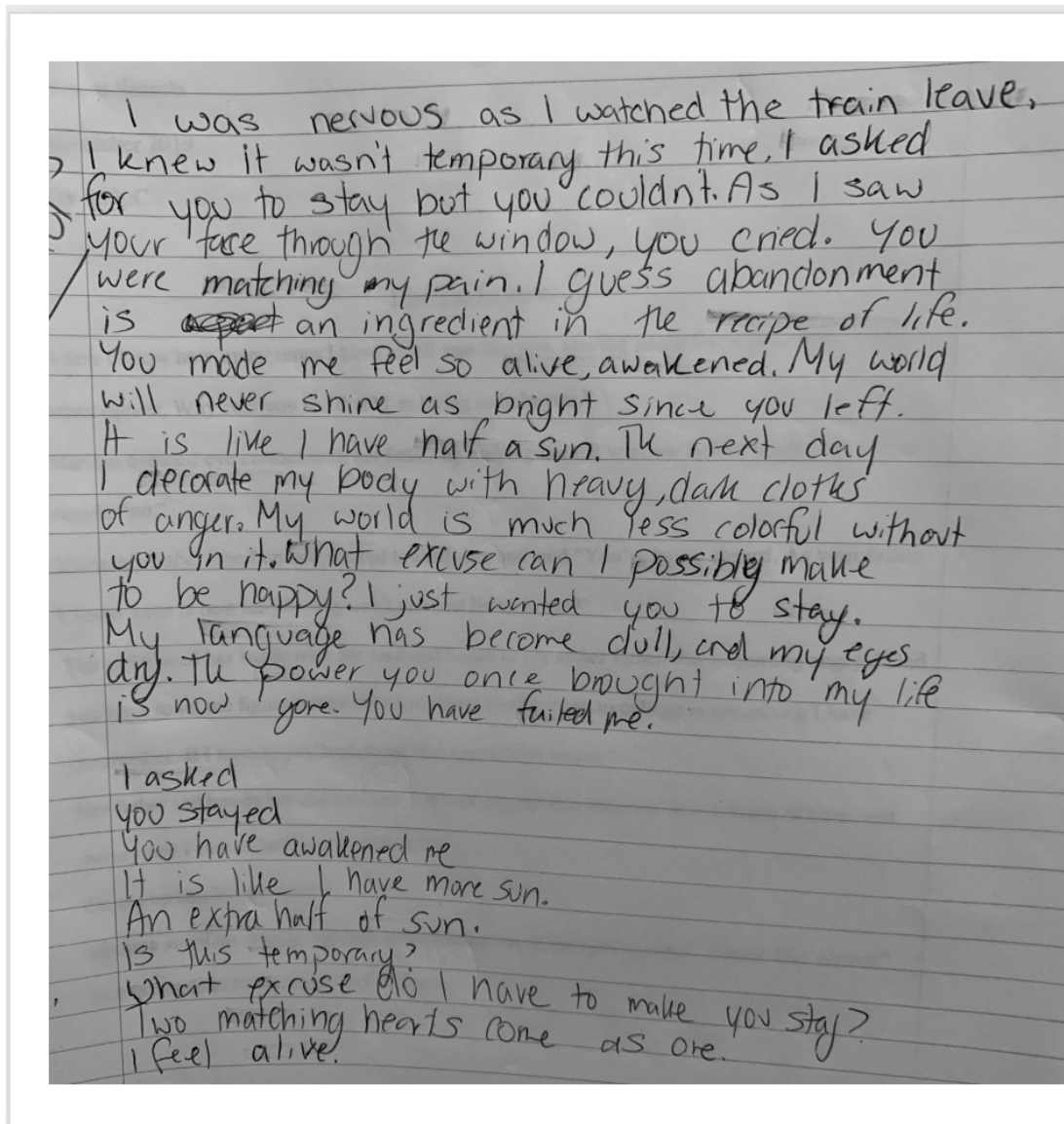
Tara Scarola. *Example of Twenty Moments*; 2021.

1. I saw someone jump off the London bridge
 - a. I felt like I couldn't breathe until he was out of the water.
 - b. When coast guard dragged him out, he told them he did it on a dare for twenty quid.
2. The night of my highschool graduation
 - a. My parents and I drove in separate cars
 - b. I cried on the drive to the restaurant in my car
3. My first concert
 - a. It was a marina and the diamonds concert
 - b. The venue and the surrounding smelled like weed
4. The first traffic ticket I got
 - a. I ran a red light in Virginia because I was crying and driving
 - b. I paid 169 dollar fee
5. When my grandmother died
 - a. I didn't cry until three days after her funeral
 - b. I still have the last she wrote me, but she spelled my name wrong in it
6. When I found my dog
 - a. I was in the desert in Mexico
 - b. She didn't stop following me around, so I kept her
7. First day of college
 - a. My mom and I cried together
 - b. My dad cried
8. The first time I took the subway
 - a. I saw a woman sketch out the people sitting in front of her
 - b. She never showed them her sketch
9. My first time walking the highline
 - a. I ended up being an extra in a play
 - b. I got paid 25 dollars
10. When I worked at Panera
 - a. Mick Jagger came in and I saw him yell at his assistant
 - b. The same day Mick Jagger came in someone stole our box of tips
11. I saw two people fall in love
 - a. 3 am on the London tube, a guy sat next to a girl
 - b. Lizzie invited David to her birthday party and she made dinner plans for the next day
12. Venice
 - a. My cousin pushed me into the water in Venice
 - b. The water was super gross I think it's the reason my eyesight is so bad
13. My fellowship

- a. I got accepted into a fellowship program abroad
 - b. But the I found out I have to do a two week rotation in the urology department at a hospital in serbia
14. The first time I read the absolutist
- a. I cried for twenty minutes

D.

Tara Scarola. *Two Poems Written by Students; 2021.*



I asked for nervousness but instead I feel alive. It is as if something new has been awakened inside of me. When half the sun is up I think about what went wrong. My recipe of life was all wrong. I thought I would live forever not realizing life was only temporary. Although I feel alive I am not living. I walk with no goal and no aim. They asked me to stay as the train left, I never would have thought that the decision to move away would lead to my death. I thought wearing matching socks would bring me luck. My language is one of pain and sorrow, I don't speak anymore. Your powers failed, you tried to save me, I come up with the excuse after excuse to leave you. I'm sorry for what I've done, decorate my body with black tulips so everyone knows that I ~~was~~ lived an unfortunate life.

E. Tara Scarola. *My Job as an ENL Teacher*; 2021.

4). Practice. My job as an ENL Teacher

I teach ENL students in an elementary school in Nassau county. My job is to assist students in the Journey's curriculum. I spend most of my day working with newcomer students. I work with the students to acquire basic language skills that will assist them in navigating their new school and neighborhood. I also push-in to four classrooms. In the classroom I work with two small groups of ENL students, Tier 2, and Tier 3 students. We work on phonics, reading comprehension, and reading strategies. We also incorporate vocabulary into our lessons.

Each year, all ENL students take the NYSESLAT exam. The test evaluates students in the four modalities; listening, reading, writing, and speaking. Depending on how the student preforms, the student will receive a score of Entering, Emerging, Transitioning, Expanding, or Commanding. Students who receive Entering or Emerging will receive two periods of ENL the following school year. Students who receive Transitioning or Expanding will receive one period of ENL the following school year. Students who receive Commanding are entitled to two additional years receiving ENL support; however, those students are considered to have a mastery of the English language.

Glossary

ENL- English as a new Language.

Journeys- A literacy program

Newcomer- a student who just arrived to the country and does not have any English language

Push-in- teach in the classroom teacher's class at a small table with a group of students.

Tier 2- students who receive one period of reading intervention each day.

Tier 3- students who receive two periods of reading intervention each day.

NYSESLAT- New York State English Language Achievement Test

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Vita

Name	<i>Tara Diane Scarola</i>
Baccalaureate Degree	<i>Bachelor of Arts, State University of New York at New Paltz, New Paltz Major: English</i>
Date Graduated	<i>May, 2013</i>
Other Degrees and Certificates	<i>Master of Science, St. John's University, New York Major: TESOL and Childhood Education</i>
Date Graduated	<i>June, 2016</i>