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LIFELONG LEARNING & MINDSETS: TWO CRITICAL COMPONENTS TO FURTHER
YOUR THINKING AND LEARNING

by

ANDREW CASTAGNA

©

SYNTHESIS*

MASTER OF ARTS

CRITICAL AND CREATIVE THINKING

UNIVERSITY OF MASSACHUSETTS BOSTON

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Advisor: Robert Ricketts

* The Synthesis can take a variety of forms, from a position paper to curriculum or professional development workshop to an original contribution in the creative arts or writing. The expectation is that students use their Synthesis to show how they have integrated knowledge, tools, experience, and support gained in the program so as to prepare themselves to be constructive, reflective agents of change in work, education, social movements, science, creative arts, or other endeavors.

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I want to thank the coaches, professors, and mentors I have had throughout my life thus far. They all saw something in me that I did not see in myself. They pushed me to challenge myself whether it was on the field or in the classroom. I realize the qualities they saw in me were my ability to outwork others, grit, and perseverance. The Critical and Creative Master program also challenged me to use and refine those skills to think critically about what kind of listener, thinker, and practitioner I aspire to be.

ABSTRACT

Pursuing something new can seem overwhelming due to the amount of time, effort, and practice it may take, but the journey can be just as rewarding as the destination, and every step taken towards it is a step closer to achieving it. With dedication and perseverance, anything is possible. Investing in oneself can lead to personal and professional growth, which can result in improved confidence and skills. It can also present opportunities. Through 6 years of researching, understanding, and learning about personal growth within the Critical and Creative Thinking program at the University of Massachusetts Boston, I have come to realize that by investing in yourself you can enhance your skills, knowledge, and overall outlook on life. I am presenting a lifelong learning model that can serve as a valuable tool for individuals seeking to maximize their greatest potential. Specifically, I am looking to reach people who are open-minded, interested in self-help, and growth for my first phase. To break it down further I plan to start with friends, family, and colleagues within Higher Education (young adults and young professionals). This model will include strategies for self-reflection, goal-setting, and continuous learning to help individuals develop a growth mindset to achieve their desired outcomes. The model is available for viewing online at my personal website.¹

¹ <https://sites.google.com/view/life-long-learning-cct/home?authuser=0>

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Introduction

In the context of this paper, I will be using common terms known within the field of psychology and sociology such as critical and creative thinking, fostering a growth mindset, self-reflection or evaluation, personal and professional development, and lifelong learning. Although these might be common terms, it is necessary to clarify some of the terminologies and key concepts. The concept of "*Growing Your Own Forest*" will be used to refer to the collection of skills, capacities, dispositions, and values that represent the more general outcomes of learning.

Individuals with a *growth mindset*, who are engaged in *lifelong learning*, actively engage in critical and creative thinking, reflecting on their own learning and experiences, evaluating their progress, and working on their personal and professional development. The cultivation of a growth mindset encourages them to embrace challenges, to view failures as opportunities for learning, and to persist in their efforts to improve their skills and knowledge. A more detailed explanation on the growth mindset will be provided later in the paper.

As individuals gain more experience and become more capable practitioners, the interplay between learning and employability can contribute to the refinement of their "professional capabilities", as argued by Beckett and Mulcahy chapter 13 (Hager & Holland, 2006). This includes not only cognitive skills, but also other attributes such as communication, adaptability, leadership, and ethical decision-making. These individuals actively engage in self-reflection and evaluation, continuously seeking feedback and assessing their own performance to identify areas for improvement and enable them to take action for personal and professional development.

The concept of lifelong learning is central to the cultivation of a growth mindset and the development of generic and discipline-specific attributes. Individuals with a growth mindset

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view learning as a continuous process that extends beyond formal education and throughout their personal and professional lives. They actively seek out opportunities to learn, adapt to new challenges, and apply their knowledge and skills in different contexts. Lifelong learning becomes a mindset and a way of life, driving personal and professional growth and development.

Fostering a growth mindset and promoting critical and creative thinking are integral to cultivating generic and discipline-specific attributes. Research supports the idea that individuals who embrace a growth mindset and engage in lifelong learning are more likely to succeed in their personal and professional endeavors, adapt to changing circumstances, and continuously improve their knowledge, skills, and capabilities; Te Wiata, chapter 12; Beckett & Mulcahy, chapter 13 (Hager & Holland, 2006). Throughout the paper, I try to synthesize multiple concepts and models such as theory of intelligence, human development, life-long learning, and mindsets and to simplify them, so they are easier to understand and applicable to a person's personal or professional life. Points of intersections between critical thinking and mindsets will be identified and how they fit in the journey of life-long learning. I will also propose my current Life-long Learner Model (Grow Your Own Forest) at this point and how to use it to effect positive change throughout life. Again, at this point in my work I am focusing on those who are open-minded, interested in self-help, and growth. To break it down further I plan to start with friends, family, and colleagues within higher education (young adults and young professionals). Addressing my model to other populations will be in the next phase of my work.

[My conceptual model of lifelong learning]

Grow Your Own Forest

A conceptual model for lifelong learning

To reach the best version of yourself isn't a goal, it's a continuous journey and the pursuit of growing, learning, and evolving into a preferred future state



SEEDS •

These are original thoughts or lines of inquiry or curiosity.



ROOTS •

These are your values and views across multiple domains. This is where you define your core skills and dispositions.



TRUNK •

Represents your learned knowledge or core principles acquired over time, allowing you to have a strong understanding and basis.



LEAVES & BRANCHES •

The branches act as the different situations you may engage with that topic. We can think of leaves as the individual tidbits we use in everyday conversation surrounding that topic. They can also provide protection.

Andrew Castagna 2023

(see Appendix A, inspired by 611 Seminar for Critical Thinking)

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Proposition Statement: Increasing Your intellect, skills, or understanding of a topic can be improved by deliberate practice, effort, and repetition.

What this Model is Not

It might be helpful to clearly state what not to expect in this model.

This is not a quick fix to a problem

- Although aspects of this model can produce immediate changes, this is meant to dig deep into a problem and effect positive change over a longer period of time.

This is not to be used in a malicious way.

- Although I cannot control who uses this model, it is not meant to reenforce negative behaviors or thoughts to cause harm.

This is not the only way you can increase intellect, skills, or the understanding of a topic.

- There are other methods and frameworks that can be used to help accomplish life-long learning. You need to find what works for you even if it means taking this model and tweaking it to work for your specific needs.

What does the model do

This model is meant to help nurture, grow, and improve how one moves throughout life. It is also meant to produce positive outcomes. In the model of “Growing Your Own Forest”, I try to take complex concepts or ideas around life-long learning and mindsets and simplify them, so that they are easier to understand and make them applicable to a person's personal or professional life.

You are learning and growing every day in some capacity so why not be intentional about cultivating your own life-long learning journey. By using critical and creative thinking accompanied with a growth mindset, you will be able to identify what you are currently good at and what you might want to improve. To grow your forest, you will need to work through an

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intervention called reaching “The Sweet Spot” (See Appendix B) which leads you through a mindset check to identify different competencies, skills, or ways of being you would like to move towards. At the end of your mindset intervention, you will have created a comprehensive action plan to reach a preferred future state. Each plan will aid in growing your forest.

[Mapping out each section]

Think of each tree, shrub, or plant as a unique topic/domain.

Prep work for growing your forest:

1. Reach a flow-like state
2. An open mind and a willingness to be vulnerable with yourself.
3. A willingness to embrace a growth mindset

Before planting a theoretical forest, laying down the proper soil is part of the prep work needed. It is important to be in the right frame of mind. There are many proven methods to help reach the proper headspace such as free writing and meditation to name a few. In positive psychology, a practice and concept called “Flow” which is “a state in which people are so involved in an activity that nothing else seems to matter; the experience is so enjoyable that people will continue to do it even at great cost, for the sheer sake of doing it” (Csikszentmihalyi, Abuhamdeh, Nakamura, 2014). As you reach that state, it is important to remember to embrace a growth mindset. As mentioned earlier, embracing a growth mindset is essential and involves cultivating a mindset that is open to new challenges, learning, and growth. This requires seeing challenges and setbacks as opportunities to learn and grow, rather than as failures. It also involves focusing on the process of learning rather than just the outcome, and adopting strategies such as self-reflection, risk-taking, and seeking feedback.

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By prepping the mind, it enriches the soil and cultivates an environment for growth and success. It is encouraged to reach a flow-like state and embrace a growth mindset at any point while moving through the sweet spot intervention which will allow the ability to focus in on one line of inquiry and critically think of ways to improve.

Seeds: These are the original thoughts, lines of inquiry, or curiosity around a topic. The most fundamental part of growing a forest is having seeds. These can be thought of as positive or growth seeds. Based on common knowledge it is known when a seed is planted it will grow (given the right conditions). Each of these seeds can produce a different plant such as a shrub, herb, tree, vine, weed, etc., and as such each thought is a seed that can manifest into reality. A positive seed can show up at almost any stage of life. According to Piaget's Cognitive Development Theory (Figure 1.0) states at "around age 11 children can think about hypothetical situations and various possibilities, like situations that do not exist yet, may never exist, or might be unrealistic and fantastical. Also, children can use hypothetical-deductive reasoning, which allows them to test hypotheses and draw conclusions from the results" (Fox, Riconscente, 2008). By theorizing, that could be the potential earliest a positive seed can form.

Piaget's Stages of Cognitive Development

Stage	Age range	What happens at this stage?
Sensorimotor	0-2 years old	Coordination of senses with motor responses, sensory curiosity about the world. Language used for demands and cataloguing. Object permanence is developed.
Preoperational	2-7 years old	Symbolic thinking, use of proper syntax and grammar to express concepts. Imagination and intuition are strong, but complex abstract thoughts are still difficult. Conservation is developed.
Concrete Operational	7-11 years old	Concepts attached to concrete situations. Time, space, and quantity are understood and can be applied, but not as independent concepts.
Formal Operational	11 years old and older	Theoretical, hypothetical, and counterfactual thinking. Abstract logic and reasoning. Strategy and planning become possible. Concepts learned in one context can be applied to another.

Figure 1.0

Although we are subconsciously and consciously creating our own thoughts and decisions every day, positive seeds can be created by diving deep into the self-reflection process. At that point it might be clear which seed(s) to pick and to plant. These learning opportunities that are planted, then start to manifest, and “roots” can take form.

The roots: These are your initial values and views across multiple domains. This is where you define your core skills and dispositions.

As time passes and knowledge is gained, you may forget why you believed in something or valued certain things, but it is important to do self-reflection. Metacognitive questioning is a great tool to use and by asking questions such as “why do we like something”, “What do I value”, “What do I specifically want to learn or accomplish” are great starting points to figure out the current situation, position, or stance an individual might have. Flavell's work on metacognition can help tease out these answers creating a strong and resilient root system.

The trunk: of the tree represents your learned knowledge or core principles acquired over time, allowing you to have a strong understanding and basis. This is also where you create strong

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thinking habits. As you move through Piaget theory of cognitive development your tree grows and becomes stronger.

Branches and Leaves: Generally, the branches and leaves are an extension of the trunk and the most visible part. The branches act as the different situations you may engage with that topic. A new branch signifies new avenues for participation surrounding the topic, which may lead to new ideas or thoughts. Leaves act as shade or protection from the elements. Leaves also are seasonal and when they fall they provide mulch for the tree as they break down and enter the soil as nutrients for the tree to absorb in its next season. We can think of leaves as the individual tidbits we use in everyday conversation surrounding that topic. They can also provide protection.

Conclusion to the model

Once again growing your forest does not happen overnight and is a continuous journey. Working through this model is similar. Constantly working and growing is not sustainable, and like trees, there are seasons of growth and seasons of rest. By using this model as a guide over time, you can cultivate a growth mindset and set yourself on a path towards achieving your preferred future states and realizing your full potential.

Further development, Acknowledgement, and Limitations around this model

Points of tension: When we have a negative thought about ourselves, it does not just come out of nowhere. These thoughts start with a deeply held belief system. Our beliefs or automatic thoughts have been forming from childhood and through past experiences and consistent thoughts over time. We then create a cycle that can lead to staying in a pattern of negativity without recognizing opportunities for positive growth and change. Sometimes we let others influence our thinking and can plant an imperfect or negative seed.

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Cognitive capacity can also affect the growth of your forest because it impacts your ability to process and retain new information. Individuals with a higher cognitive capacity may be able to learn and retain new skills more easily, whereas those with lower cognitive capacity may have a harder time learning and retaining new information.

However, it is important to note that for most individuals, cognitive capacity is not fixed and can be improved with practice and effort. By consistently seeking out opportunities to learn and challenging yourself to develop new skills, you can strengthen your cognitive capacity and improve your ability to learn and grow.

Additionally, the growth of your forest also depends on the type of trees you choose to plant and the resources you provide for them. Just as certain trees may require specific types of soil or irrigation, different types of learning opportunities may be better suited to your individual cognitive capacity and learning style. By selecting the right learning opportunities and providing the necessary support and resources, you can help your forest (and your cognitive capacity) to grow and thrive.

Environmental factors affect your forest. For example information overload can be seen as a type of pollution or stress on your trees. If your forest is receiving too much water or nutrients, it can become overwhelmed and weakened, just like if you are trying to learn too much at once, it can become harder to process and retain new information effectively.

Therefore, it is important to be mindful of the amount and type of information we are exposed to, so that we can avoid overwhelming and can focus on learning and growing in a more effective and sustainable way. This could involve strategies such as taking breaks from technology, limiting distractions, and selecting learning opportunities that are tailored to your cognitive capacity and learning style. By doing so, you can reduce information overload and foster a more

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focused and productive learning environment, allowing your forest (and your cognitive capacity) to grow and thrive over time.

In life we may be put into a new environment such as a job, or location, or even a relationship. This transition can affect your forest too. As we go through changes in life, we can be compared to trees that require rest to conserve and replenish energy. It is like the end of a season, and we may even face relocation, which can take a while for our roots to settle and find sustenance. During this phase, we may feel vulnerable and need to prioritize self-care to ensure the survival of our roots, which will eventually allow us to flourish and bear fruit in a new season. Staying true to your WHY and values is important to remember during this period. According to (Arndt, 1985) metaphors are partial truths and incomplete models. No single metaphor can capture the whole of a selected aspect of reality in its full complexity. Adopting a metaphorical view of science means adopting a pluralistic perspective.

Why is all this important to me and my journey

Throughout my journey in the CCT program, I have taken great interest in learning about my ability to grow and develop my mind. The early understanding of the growth mindset drew me into this area allowing me to open my mind and believe that through practice, and critical thinking, I too can grow and develop. During my preliminary research at the beginning of the program, I did not think this would manifest into more of a lifestyle. Specifically, I have become intrigued with the understanding of intelligence. Through reading and research of theories and concepts, I found it to be overwhelming and complex, but the underlying message I learned was that the growth in a person's intelligence can come in many forms.

In my inquiry about intellect and one's intelligence I first wanted to know what information was already known and what were the theories behind it. In many fields, such as

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philosophy and science, the topic of human intelligence is very controversial. According to many, a change in environment may have caused a chemical change in the brain allowing those who were able to adapt to the environment. Fast forward many decades later of the mind evolving brings us to some of the early theories of what intelligence was, but the word intelligence was created later on. According to Plato, Socrates used terms like wisdom claiming that he underestimated his knowledge about a subject matter. Although he may have known more than the common man he was cognizant of the fact that there were many things he didn't know. Socrates also believed that knowledge is the most valuable thing in life. However, he thought that it is better to seek knowledge and be conscious of your ignorance than to claim knowledge that you do not know.

Fast forward once again, and the theory of mind was developed. This theory states that we as humans can understand the different states we go through such as knowledge, emotion, interests, etc., but each are unique to each human. Once established we can look into contemporary theories about intelligence. Many philosophers were fascinated by intelligence and how we inquire about it. There are numerous methods and ideas about this topic, but I would like to point out two theories that interested me the most.

The first one was Tribrachic Theory of Intelligence coined by Robert Sternberg who is a leading psychologist in his field. He took a more cognitive approach to the topic and believed that intelligence could be broken into 3 parts:

Sternberg's "Successful Intelligence"

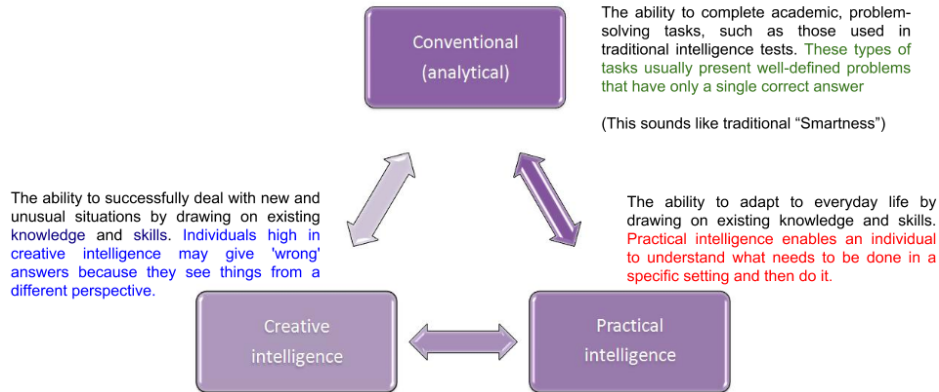


Figure 1.1

Sternberg's theory explains to us that intelligence is not one generalized ability that someone might possess like Alfred Binet did when he invented the "IQ test." I agree with Sternberg's simplified theory of intelligence, but I believe we can drill down further. I think these three types of intelligence should be "the three main pillars of intelligence." This is why I also like Howard Gardner's eight kinds of intelligence.

Howard Gardner is another leading psychologist in the field who studied and now works at the Harvard Graduate School. His most recognized work is with human intelligence where he created the theory of multiple intelligence. His work explained that humans process information in all kinds of ways and these ways are all independent of one another.

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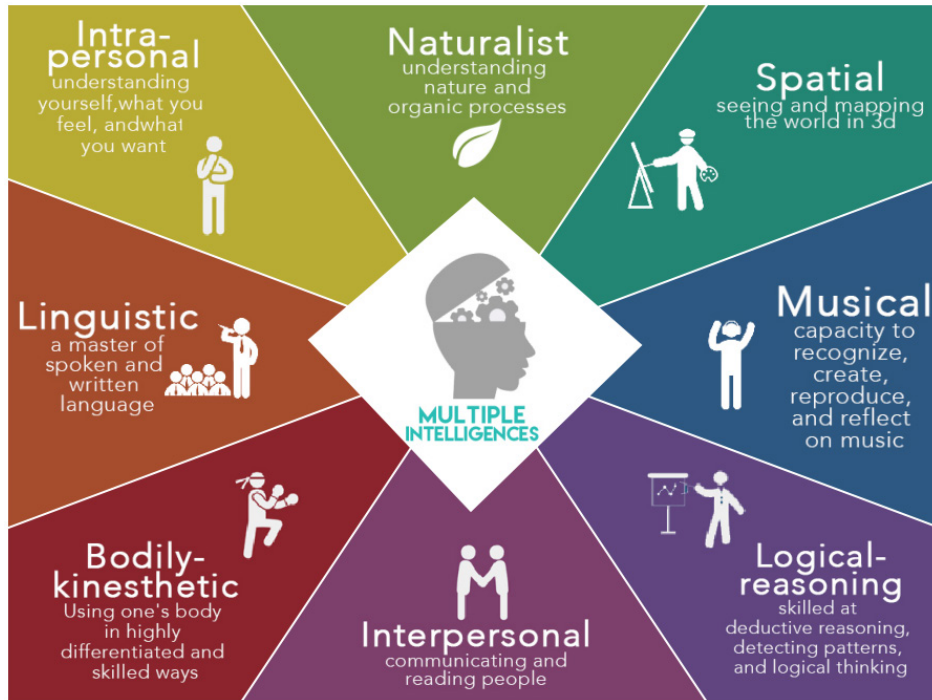


Figure 1.2

Like Sternberg, Gardner challenged Binet's work and the traditional notion of intelligence. I believe that both of these theories can be combined, whereas Gardner's different types serve as subcategories under Sternberg's theory. After studying and learning more about what can be considered as intelligence I then wanted to know if humans can grow their intelligence. As I mentioned prior, I am a firm believer in the growth mindset theory coined by Carol Dweck.

Carol Dweck, who is a leading psychologist in her field, has taught at many prestigious universities around the country. Her most notable work is on human intelligence. Carol Dweck has done extensive research in this area and found that people view intelligence and learning in two different ways. An individual either has a "growth mindset" or a "fixed mindset."

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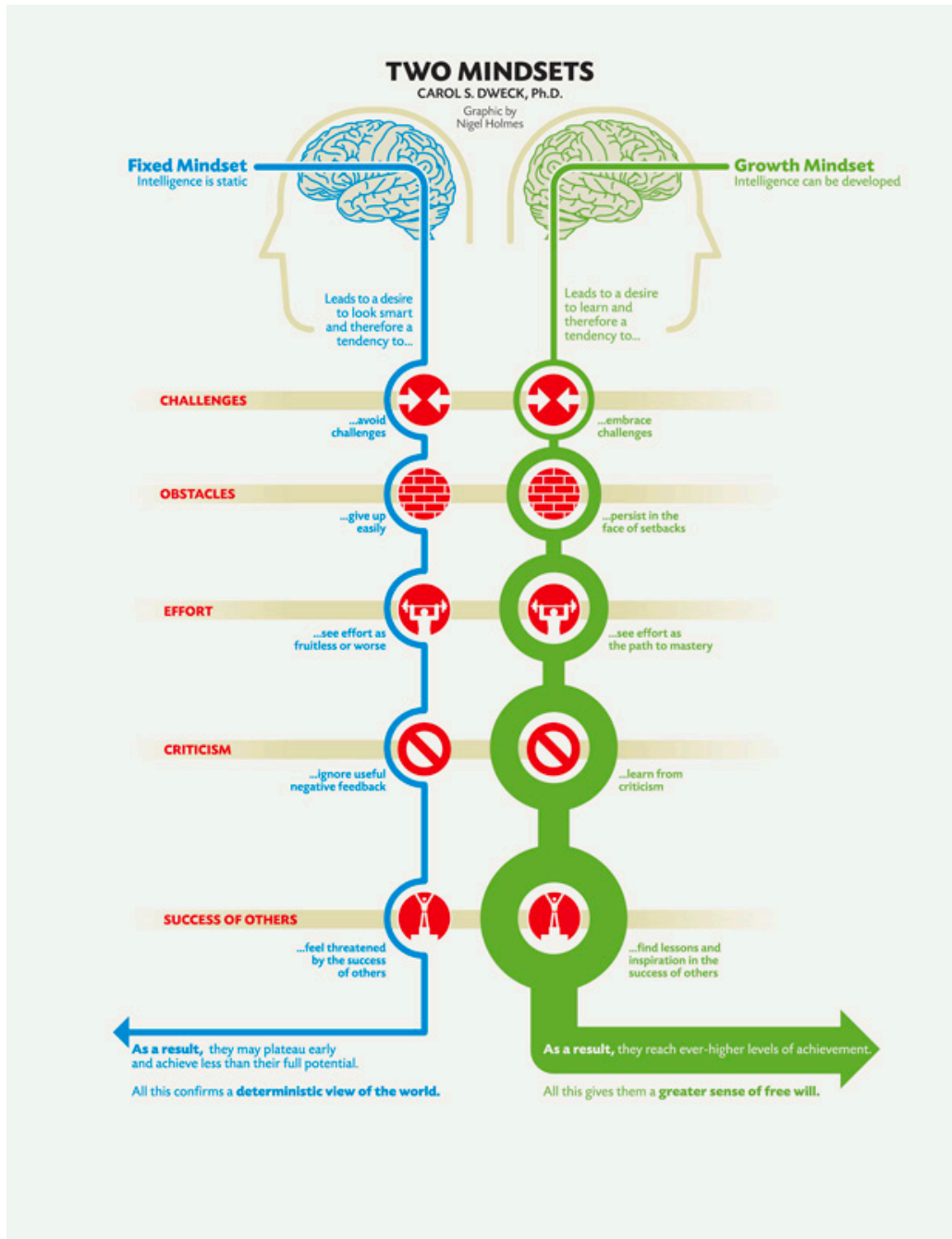


Figure 1.3

In her studies, she concluded that humans who can cultivate a growth mindset could grow their intelligence. Dweck and colleagues (2007) conducted a study on the effects of mindset on academic achievement among students. They found that students who had a growth mindset had higher academic achievement than those who had a fixed mindset. Yeager and Dweck (2012)

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conducted a study on the impact of a growth mindset intervention on high school students. They found that students who received the intervention, showed improvements in grades, attendance, and academic behavior.

It is also important to cultivate a belief in one's own ability to learn and grow, and to view challenges as opportunities for growth and learning. Blackwell and colleagues (2007) conducted a study on the impact of mindset on academic achievement among college students. They found that students who had a growth mindset were more likely to persist through academic challenges and achieve higher grades. By embracing a growth mindset, individuals can continually improve their skills and knowledge in any area of interest, leading to greater satisfaction and fulfillment in life.

Developing a growth mindset is an ongoing process that requires consistent effort and practice. However, with persistence and dedication, individuals can continue to cultivate a growth mindset and achieve their full potential. These studies along with others suggest that developing a growth mindset can have significant positive effects on academic achievement, personal growth, and professional development (Dweck et al., 2007; Yeager & Dweck, 2012; Haimovitz et al., 2011; Blackwell et al., 2007).

Furthermore, she adds/clarifies that everyone does not fit under one or the other, but instead someone could have a mix of both. She believes that you can have a growth mindset in some areas but not in others, which leaves me to think she would agree with Sternberg and Gardner that humans process information in all kinds of ways and these ways are all independent of one another. In addition, through a colleague of hers, she also found out that people are not fully practicing/teaching towards a growth mindset, creating a “false growth mindset”. They quickly realized that educators were faced with a choice: Are you an enlightened person who

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fosters students' well-being or are you an unenlightened person, with a fixed mindset, who undermines them? So, of course, many claimed the growth-mindset identity. But the path toward a growth mindset is a journey, not a proclamation (Dweck 2015). Likewise, parents who endorse a growth mindset, but react to their children's mistakes as though they are problematic, can be more harmful than helpful to their children. In these cases, their children develop more of a fixed mindset about their intelligence. Dweck writes let's legitimize the growth mindset. Let's acknowledge that (1) we're all a mixture of fixed and growth mindsets, (2) we will probably always be, and (3) if we want to move closer to a growth mindset in our thoughts and practices, we need to stay in touch with our fixed-mindset thoughts and deeds (Dweck 2015). All this research and understanding of intellect and how a growth mindset works has helped me evaluate my journey of growth and development.

Connecting this to my journey

Throughout my life, I have always worked hard and persevered through many obstacles. One of the most significant barriers that I have been trying to take control of is my learning disability. During the third grade, I was diagnosed with a learning disability (LD), but I was too young to understand what that meant. I did not know all of the obstacles and challenges associated with this disability. During that point in my life, I was told by almost everyone, teachers, classmates, etc. that I didn't learn as fast as my peers. I remember thinking that I was stupid, or something was wrong with me. Throughout middle school, I was still trying to understand my disability and how to work with it and not against it. I came to realize I needed to work harder and think smarter than the average student. If I wanted to succeed, I knew I needed to stick to this motto. I believe that this was one of my earliest unconscious moves from a fixed mindset to a growth mindset. At the beginning of 7th grade, I began taking regular academic

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classes which made me feel accomplished. Then by high school, I had a firm understanding of my disability and how to work with it and become successful in school and life. I started beginning to think that I can grow my knowledge and competencies. A tool that helped me to succeed was my ability to visualize and think about what I wanted to accomplish. I find when I write down my ideas I can visualize the path needed to succeed. Another tool I found helpful was setting reasonable goals and doing self-evaluations. I also found sports to be a positive outlet for me.

Some psychologists may say that youth sports do not positively help in the development of a child. Instead, they say that a child can develop aggressive traits like bullying and the need to dominate their opponents on and off the field (Price-Mitchell, Marilyn, 2012). For me this was not the case. Although I struggled in school, I found myself to excel in whatever sport I tried with very little practice. Along with my youth career, I strengthened and developed my teamwork skills, self-confidence, resiliency, and moral character. One specific example I recall from high school is when I was on the basketball team senior year. I was on the team all four years but got minimal playing time. I was also an outdoor track athlete, but never ran indoor track because it was the same season as basketball, so half-way through senior year my track coach sat me down and told me how I had a gift for running that the team really needed me. He told me instead of “being first team all bench in basketball come run indoor track and be first team all-state”. And sure enough I joined the team and became first team all-state in the 4 X 800. I will say I kept a positive attitude for so many years in basketball and I believe that attributed to my resiliency. Making that choice was not easy, but again this was another example of mindset shift. My athletic development and personal development did not stop there, I took my brains and talent to college.

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In college, I had more freedom to make my own decisions and had the opportunity to put everything I learned and developed to the test. I found myself analyzing many challenges and searching for solutions. I believe this was the second milestone in my cognitive development. The campus culture had one particular problem that racked my brain. Although we were a small private school and I loved the culture, many students made comments such as “there is nothing to do here” or “this place is lame.” I saw a need and wanted to solve this problem. So, I began brainstorming with a friend on how we could change the negative views on the culture and promote a more positive one. After countless meetings and approvals, I became the president of a new club on campus called the Compass Games. I was confident that if we provided the students with more engaging activities, those comments would dissipate. My goal for the club was to create a living-learning community to bolster school spirit, student engagement, and retention. I designed and planned events throughout the school year to increase student participation and pride. By not giving in to what other people thought, I took the path less traveled and presented a successful solution to a campus-wide problem. Looking back at college, I unconsciously continued to foster a growth mindset whether it was in sports or school.

Fast forward to now where I am a working, full-time professional and soon I will be graduating with a Masters degree. I have acquired new skills and enhanced many others. As I mentioned previously, I am grateful for the external motivators who played a role in my journey thus far. I would not have been able to get to this point if it were not for my parents and the select few mentors who pushed me and made me realize I could grow and achieve anything through practice and the determination. I have learned that to grow and develop you need to step outside of your comfort zone and be willing to fail and use that as an opportunity to learn. After

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evaluating my personal and educational life so far, I agree with Gardner and Sternberg on their theories of intelligence. Based on Sternberg's approach I believe that I am a person who has creative and practical intelligence. If I want to drill down further, I would use Gardner's theory and say that I worked towards having a strong kinesthetic sense as well as possessing strong interpersonal, and Intrapersonal skills. Out of those, I would like to agree with Mills and say intrapersonal intelligence is critical when navigating through life. I would then like to use Carol's framework and say with practice and the right mindset I can improve on the other types of intelligence that may be weak. As Socrates said, "There is a lot that I do not know". I also think that, even though according to these definitions I may be intelligent, there is always room to learn and grow. By being a lifelong learner, I believe that you can always improve on all types of intelligence, and I look forward to the road ahead of me.

Additional Research That Led Me To This Point

Earlier I wrote about cognitive development and metacognition, but I would like to further explain how that has helped me. I also briefly mentioned that Socrates was one of the first individuals to speak about the concept of thinking about thinking. Flavell focused on learning about how and what were the differences in cognitive monitoring across various stages of childhood and adolescence (Moritz et al., 2018). Flavell identifies four main classes that interact in complex ways: (a) metacognitive knowledge, (b) metacognitive experiences, (c) metacognitive goals (or tasks), and (d) metacognitive actions (or strategies) (Flavell 1979). Metacognitive knowledge is described as the world knowledge or beliefs an individual possesses (Flavell 1979). He also emphasizes understanding cognition (something you see, something you hear, something you communicate, something you think about, etc.). Young children or adolescents go through trial and error because most of them might fail to understand something

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or someone. They might not have any coherent representation or misunderstanding/understanding incorrectly. It is up to the individual to determine how well they know something and realize that their level of understanding may not be as accurate as their understanding of it later in life.

Metacognitive experiences are described as items of metacognitive knowledge that have entered consciousness (Flavell, 1979). Flavell suggests that many of these experiences occur in situations that require a high demand of thinking like a job or school. There is a bit of overlap with metacognitive knowledge and experiences because it can lead to new knowledge or understanding. A result of that process could affect someone's cognitive or metacognitive goals and actions (adding to it, deleting it, or revising it). Moreover, the experiences can activate thinking around metacognitive strategies and the most effective strategy to reach their preferred outcomes. Another well-known psychologist, Carol Dweck, was fascinated with the cognitive development of young children and adolescences. She focused her research on the mindset of an individual.

Although metacognition and mindset are not the same, I have identified similarities and differences. Metacognition is thinking about thinking, and the Growth Mindset is thinking about your learning. Both are processes, and some believe that you can improve your thinking or learning through practice and effort—our mindsets about learning and thinking to impact our outcomes. I propose that an individual with a growth mindset is more likely to engage in metacognitive thinking. If a person is engaging in metacognition, they are cognitively aware they want to improve or expand their cognitive thinking. In the growth mindset, you embrace challenges and persist in the face of setbacks; therefore, focus on more useful questions like "how can I do this better" or "why isn't this working," which is a metacognitive process. The

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potential answers to those questions could lead to innovative ideas that would manifest into different cognitive strategies. It is evaluating these strategies to find out the most effective one, thus making it metacognitive. By fostering a growth mindset, the individual can approach learning as not just a cognitive process but a metacognitive process.

I had trouble identifying the differences between the mindset and metacognition. The most obvious one is what I stated earlier: metacognition is thinking about your thinking, whereas the growth mindset is thinking about your learning. Another difference and a bit of a stretch is the concept of failure. I did not find much research on failure during metacognition, whereas the fixed mindset talks about avoiding challenges, giving up easily, and a fear of failure. Although it's hard to make a connection between the fixed mindset and metacognition, Flavell did mention that "like any other body of knowledge children acquire, it can be inaccurate, can fail to be activated when needed, can fail to have much or any influence when activated, and can fail to have a beneficial or adaptive effect when influential" (Flavell, 1979).

Another important area to talk about is human development and how that plays into life-long learning. The transition and stages of human development are the foundation and beginning steps in learning how humans think. Many theories talk about milestones or landmarks that identify major changes in one's human development. Erikson and Maslow's work in development is slightly different but helps illustrate the progressions. They all agree that it starts very early in life and trails off around adulthood. Erikson took Freud's model and expanded it by adding four more stages to complete the life cycle making a total of eight stages of human development.

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Stage	Basic Conflict	Important Events	Key Questions to be answered	Outcome
Infancy (0 to 18 months)	Trust vs. Mistrust	Feeding/ Comfort	Is my world safe?	Children develop a sense of trust when caregivers provide reliability, care and affection. A lack of this will lead to mistrust.
Early Childhood (2 to 3)	Autonomy vs. Shame and Doubt	Toilet Training/ Dressing	Can I do things by myself or need I always rely on others?	Children need to develop a sense of personal control over physical skills and a sense of independence. Success leads to feeling of autonomy, failure results in feelings of shame and doubt.
Preschool (3 to 5)	Initiative vs. Guilt	Exploration/ Play	Am I good or bad?	Children need to begin asserting control and power over the environment. Success in this state leads to a sense of purpose. Children who try to exert too much power experience disapproval, resulting in a sense of guilt.
School Age (6 to 11)	Industry vs. Inferiority	School/ Activities	How can I be good?	Children need to cope with new social and academic demands. Success leads to a sense of competence, while failure results in feeling of inferiority.
Adolescence (12 to 18)	Identity vs. Role Confusion	Social Relationships/ Identity	Who am I and where am I going?	Teens need to develop a sense of self and personal identity. Success leads to an ability to stay true to yourself, while failure leads to role confusion and a weak sense of self.
Young Adult (19 to 40)	Intimacy vs. Isolation	Intimate Relationships	Am I loved and wanted?	Young adults need to form intimate, loving relationships with other people. Success leads to strong relationships, while failure results in loneliness and isolation.
Middle Adulthood (40 to 65)	Generativity vs. Stagnation	Work and Parenthood	Will I provide something of real value?	Adults need to create or nurture things that will outlast them, often by having children or creating a positive change that benefits other people. Success leads to feelings of usefulness and accomplishment, while failure results in shallow involvement in the world.
Maturity (65 to death)	Ego Identity vs. Despair	Reflection on life	Have I lived a full life?	Older adults need to look back on life and feel a sense of fulfillment. Success at this state leads to a feeling of wisdom, while failure results in regret, bitterness, and despair.

Figure 1.4

He expanded on each stage and concentrated on the general encounter between the child and the social world (Crain, 2010.). Erikson believes that you must achieve a good measure of success at each stage before going on to the next, if not, it could cause developmental holes in their growth and learning causing problems later in life (Johnson, 1995.) Erikson emphasizes that the first few stages are crucial in one's development, because it lays the groundwork on how the person matures. Maslow also had similar thoughts in his theory of hierarchy of needs. He states that an individual must fulfill lower and more basic needs before attempting to fulfill higher (more advanced) ones (Atkins, 2016.) Unlike Erikson, Maslow believed the middle of his hierarchy of needs could be applied to many situations and could happen at any time regardless of what stage in life you are. These transitions and needs help build a foundation for one's life at an early age. A strong foundation can benefit you during adolescence through adulthood stage. These stages

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are when an individual begins to explore and activate their minds based on many factors. Erikson states that by this time the individual is molding their sense of identity and decision making.

The decision-making process in adolescence plays an important role in the development of a persons thinking. Other factors that play a role in a young adult are their environment and social interactions. They are taking in information, processing it and having the ability to adjust their behavior to meet contextual demands (Steinbeis 2016.) As one moves further along in their development, they acquire more cognitive control. During that stage, it is up to the individual to make a decision that affects them positively, negatively. The mindset around these decisions also shapes us as humans.

What is my mindset, and how do I use metacognition to grow? Through the understanding and practice of mindfulness and cultivating a growth mindset, I am able to think differently and grow my intelligence. Usually, when I encounter a challenge or difficult situation, both my mindset and metacognitive thinking are initiated. A large majority of the time, I embrace challenges and say to myself, “Yes! I can take on this challenge!” I then move into the stage of metacognitive knowledge by thinking about what I already know or make connections to other challenges I have faced. Once I establish my understanding of the matter, I then ask metacognitive questions such as, “How I can take this on” or “What strategies or resources do I need to solve this?” Although I consider myself to have a growth mindset, I have noticed on a few occasions where I possessed a fixed mindset. To further refine my skills of cultivating a growth mindset and activate the metacognitive process, I try to apply this work to my personal and professional life. In Appendix A you will find a real life example of using my mindset worksheet to create a plan to move from critical thinking to critical doing.

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Conclusion

In conclusion, investing in oneself and fostering a growth mindset can lead to significant personal and professional growth. The cultivation of a growth mindset encourages individuals to embrace challenges, view failures as opportunities for learning, and persist in their efforts to improve their skills and knowledge. Lifelong learning becomes a mindset and a way of life, driving personal and professional growth and development. The presented "Growing Your Own Forest" lifelong learning model can serve as a valuable tool for individuals seeking to maximize their greatest potential. It includes strategies for self-reflection, goal-setting, and continuous learning to help individuals develop a growth mindset to achieve their desired outcomes. By sharing my work with friends, family, and colleagues within higher education I hope to inspire others to become a practitioner of lifelong learning so they also can grow within their personal and professional lives.

How CCT Influenced Me

This program has strengthened my knowledge and skills, I have gained valuable tools and experiences that allow me to make effective changes in my personal and professional life. The most valuable part of the program is how immediate I was able to apply these skills and know knowledge to everyday real-world situations. The four classes that truly shaped my thinking along this journey were 601 Critical Thinking, 603 Foundations of Philosophical Thought, 655 Metacognition, and 611 Seminar on Critical Thinking.

CRCRTH 601: Critical Thinking taught by Peter Taylor was the first course I took in the program. The course description states “This course explores issues about the nature and techniques of critical thought, viewed as a way to establish a reliable basis for our claims, beliefs, and attitudes about the world. We explore multiple perspectives, placing established

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facts, theories, and practices in tension with alternatives to see how things could be otherwise. Views about observation and interpretation, reasoning and inference, valuing and judging, and the production of knowledge in its social context are considered. Special attention is given to translating what is learned into strategies, materials, and interventions for use in students' own educational and professional settings". This was the first time I was hearing and understanding terms such as critical or creative thinking. After rereading my course notes and final paper I realized that the concept of the forest emerged. Here is an excerpt from my final paper in that class "In my continuous journey of becoming a critical and creative thinker I would like to introduce a concept/metaphor for this journey. Building off of activity 3 on metaphors I will be using the metaphor of "being a forest". Like a forest there is many different plant species, this will represent the different topics I come to learn about. When learning more information about a topic I will refer to my "[1]treeing/plant" metaphor I discussed in activity 3. In building my forest I will be taking what I have learned in this class and applying it to my personal and professional life."

CRCRTH 603: Foundations of Philosophical Thought was where I took a deep dive into the question "what is intelligence" and can you improve your intelligence. By reading and learning about intelligence through theories like Sternberg's "successful Intelligence" and Howard Gardner's eight kinds of intelligence I was better able to understand what it means to be intelligent. Learning more helped me connect this work to Carol Dweck's work on fixed and growth mindset which is also about human and cognitive development.

CRCRTH 655: Metacognition was another eye-opening course for me. I understood the concept of self-reflection, but thinking about your thinking was another level. I realized that I did not critically think about how I think and why I think that way. Exploring metacognitive

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questioning to think deeper about your thinking was very helpful as I started narrowing down my overall topic I wanted to pursue for my capstone.

CRCRTH 611: Seminar on Critical Thinking was just the class I needed at that time. it was by far the biggest influence in my CCT journey as we had the creative freedom to make, break, and rebuild different systems and models. It was in the class I started formulating this idea of a lifelong learning model and connected it back to a metaphor I used in my first CCT class of growing your forest.

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APPENDIX A: CONCEPTUAL MODEL OF LIFELONG LEARNING

Seminar in Critical Thinking: Design for Living Complexities | CRCRTH 611, Andrew Castagna, Assignment 13: Designing to Deliver

This example shows how someone can use critical and creative thinking to evaluate, create, and setup a plan for practice to grow and learn.

Here is the website link <https://sites.google.com/view/life-long-learning-cct/home?authuser=0>

Self-reflection

This is a running list that will always be in my self-reflection section.

What do I like/value
<ul style="list-style-type: none">• The ocean, travel, sports, family, friends, animals, nature• the feeling of excitement, fulfillment, validated, loved, needed, memorable moments• Education, learning, growing, teaching, mentoring• Integrity, loyalty, hard work, resilience, continuous improvement

Define Something

Some of my preferred future states (no particular order).

1. Reading daily
2. Extensive vocabulary and able to articulate my thoughts into spoken words
3. Master thinking and reading retention strategies to further my knowledge in various topics

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4. Play a song on my saxophone by just hearing it
5. Reach a high-level of self-actualization
6. Having Family of my own
7. Financially comfortable
8. My top overall well-being (physical, mental, spiritual)

Some of these can be worked on simultaneously, but I am going to create a plan for practice of mastery for one specific preferred future state. This plan for practice or outline can then be replicated and used for any of my preferred future states.

I am going to create a plan for “playing a song on my saxophone by just hearing it”.

Discovery and defining WHY

There is initial research that will need to be done to fully understand and expand on the point in the solution & implementation section.

The “WHY”- I think I was always drawn to music and found it fascinating that an instrument can produce different sounds and when combined could result in different tones making music. I was also told as a child that because of the difficulties I had reading it would be even more difficult learning to play an instrument, therefore I should pick up another hobby. Now that I am older I would like to take on that challenge. I didn't then, but now I think playing an instrument is a great way to express your individuality and creativity. Also, learning to play the saxophone is similar to the process of critical thinking, because through practice, effort, and consistency you can improve and work towards a state of mastery. Additionally, I think playing an instrument is so cool and it would be even cooler to play it for a crowd. Lastly, I think the thrill of learning and progressing over time excites me the most, but the most rewarding would be to reach my preferred future state of “being able to play a song by just listening to it”.

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Solution & Implementation

** Disclaimer more research needs to be done to expand on some of these points.

Here is where the real planning begins. The most critical part is minimizing or closing the creative tension gap, which for me is making the jump from critical thinking to critical doing. Throughout this process there will be a great deal of trial and error, micro testing, and re-evaluating.

What should my timeline look like/leverage points?

-2 years

-Before graduating from CCT

-Before I get married

-Before I turn 30

Discipline

-Reasonable schedule

Here are some realistic scheduling solutions that are flexible. Key factor is staying consistent.

5 hours or 5 sessions a month (if I do more, great)

- This can be broken down in many different ways. I am thinking of 3 different categories: history, listening/tutorials, practice. During each session or increment of time can be spent on any of these categories, but should have a balance.
- Set reasonable and attainable benchmarks, play 3 notes, play the chorus ... etc

-Playing

Key factor practice, practice, practice

Allow myself to make mistakes and learn from them. If I get the urge or sugar rush to play in a particular moment I should play. Even if I don't have my saxophone, try closing my eyes and

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picture myself playing (visualizing). These would be forms of micro testing. If I'm playing for a while because I reach the state of flow (that's great!!), I need to only stay there for a short time and then remind myself to step back and take a break. I will need to learn and practice techniques that will help in the process for example, breathing, finger placement, long notes etc.

These steps could be broken down even further.

-Tools & Resources

Youtube is going to be my best friend. I might take a few beginner lessons to make sure I have a strong grasp of the fundamentals to prevent bad habits.

I also think it will be beneficial to join different communities, listening to podcasts??, or watch live shows when possible. My second-best friend will be the video recordings I make. Very similar to watching "game film" I will be able to analyse what I'm doing and self critique my work. The videos will also help me log my progress.

There might be potential equipment as needed.

I will need to Find one or two sax players I like and then study them or one song...

- Right now I like a more electronic sounding sax playing

- How am I going to hold myself accountable

Use an application on my phone to set up the schedule, track progress, etc. Apps to look into

- Strides
- Way of life
- Goals on track

I need to establish a routine to create a habit. _

-further accountability

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Share my plan with close family members or friends and ask them to check in with me. Who are they?

- Uncle Steve, who plays drums and the guitar as a hobby
- Doug James, family friend who got the saxophone for me
- Taylor, best friend who plays the drums
- My mother and father
- Bobby Ricketts as a celebrity guest

What happens if I veer off track??

- Still working on this (another mindset check or refer to my WHY)

What are some potential sacrifices??

- Less time on the phone
- Less time watching shows and movies
- Less time at work (work life balance)

Making connections

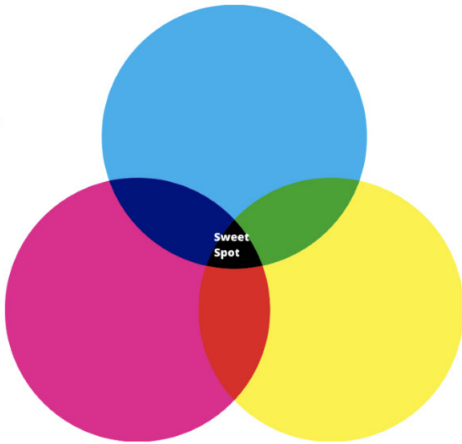
I would like to explore different avenues of participation like I mentioned earlier such as joining different communities specifically for playing the saxophone, reaching out to saxophonists, and others. I would also like to add this to my website to help others and myself.

APPENDIX B: MINDSET CHECKLIST

The Sweet Spot

A mindset check

The diagram can help you sort out what you're passionate about leading to a greater sense of self-awareness. It will also challenge you to critically think about how you would work towards reaching a "Preferred Future State". Ultimately, the purpose is to start actively growing your forest and contribute to your journey as a lifelong learner.



- **What do you like**
- **What do you want to accomplish**
- **Discovery**
- **Define**
- **Plan for practice**
- **Implementation**

<p>What do you like/value _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Things to consider: This is an opportunity to self-reflect. This can be a running list</p> <p>Notes:</p>
<p>What do you want to accomplish _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Things to consider: This might be where you get specific and come up with a preferred future state or skill you would like to improve on.</p> <p>Notes:</p>
<p>Discover & Define your WHY _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Things to consider: This is where you think about what you already know and your position or mindset in the matter. You should also dig deeper and ask "why" you want to reach that state</p> <p>Notes:</p>
<p>Plan for practice & Implementation _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Things to consider: Closing the creative tension gap, making the jump from critical thinking to critical doing. Throughout this process, there will be a great deal of trial and error, micro testing, and re-evaluating.</p> <p>Notes:</p>

Figure 1.0

<https://quizlet.com/453138484/jean-piagets-cognitive-development-theory-diagram/>

Figure 1.1

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Johnson, John, et al. "Mahalo.ne.Trash." *Newton's Cannonball*,
mahalonotrash.blogspot.com/2013/12/intelligence-in-astronomy-what-is.html.

Figure 1.2

"Which of 8 Types of Intelligence Do You Possess?" *Namastest*, 15 May 2018,
namastest.net/which-of-8-types-of-intelligence-do-you-possess/.

Figure 1.3

Popova, Maria. "Fixed vs. Growth: The Two Basic Mindsets That Shape Our Lives." *Brain Pickings*, 18 Sept. 2015, www.brainpickings.org/2014/01/29/carol-dweck-mindset/.

Figure 1.4

<https://www.shelleyklammer.com/post/stages-of-human-development>

4. Stress Reduction

Many people will experience heightened levels of stress at certain points in their lives. With increasing responsibility, new living situations, constant change, and the overwhelming presence of digital and social media, feelings of instability can lead to stress, anxiety, and even panic.

Practicing mindfulness may help to anchor you in the present, where you can observe your thoughts and feelings without chasing them and without assigning judgment or attaching emotions to them. In this way, mindfulness is a tool that has been shown to reduce stress, manage symptoms of anxiety, and allow people to live in the present moment with more ease.

Researchers reviewed more than 200 studies of mindfulness among healthy people and found mindfulness-based therapy was especially effective for reducing stress, anxiety and depression. Mindfulness can also help treat people with specific problems including depression, pain, smoking and addiction.

- American Psychological Association. (2019, October 30). Mindfulness meditation: A research-proven way to reduce stress.

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5. The Breath

The Breath is everything. If we are not breathing, we are not living. When experiencing feelings of anxiety, it is common to find you are holding your breath or taking shallow breaths. The physical impacts of holding or restricting your breath can symptoms of anxiety and panic, whereas controlling your breath through various exercises can have a calming, anxiety-reducing effect.

Deep breathing increases the supply of oxygen to your brain and stimulates the parasympathetic nervous system, which promotes a state of calmness. Breathing techniques help you feel connected to your body—it brings your awareness away from the worries in your head and quiets your mind.

- The American Institute of Stress. (2012, August 10). Take a Deep Breath.

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6. Stress Reduction Exercises

I invite you to try practice some of the breathing exercises in the following section. If you are able to, read the written instructions first, and then follow the steps as you color the illustrations. If you practice these breathing exercises regularly, you will have a resource to call upon whenever you are experiencing heightened levels of stress.

These methods are not quick fixes to mental health issues, but they can be effective tools to help manage and reduce symptoms of stress, anxiety, and panic.



Mindfulness

*Breath is the bridge which connects life to consciousness,
which unites your body to your thoughts.
Whenever your mind becomes scattered,
use your breath as the means to take hold of your mind again.*

-Thich Nhat Hanh
The Miracle of Mindfulness: An Introduction to the Practice of Meditation

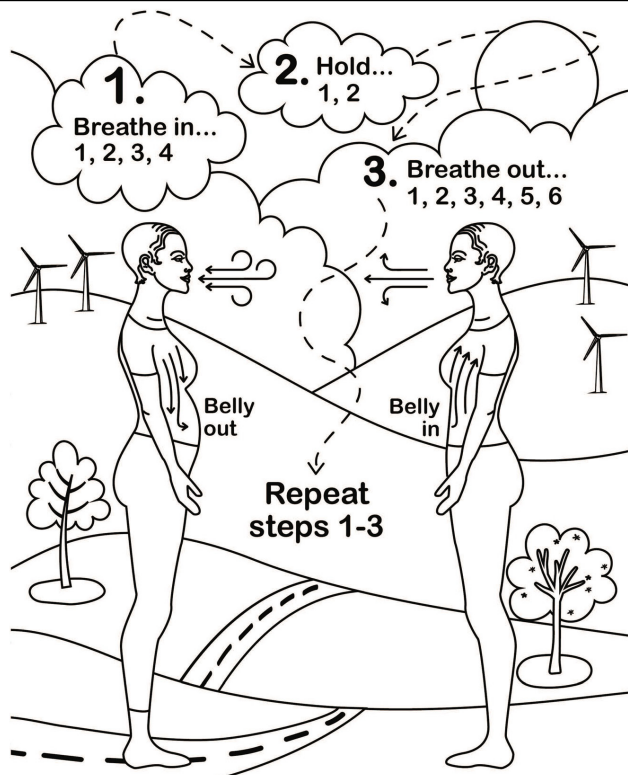
6. Stress Reduction Exercises

4-2-6 Breathing

4-2-6 breathing is something you can consider a "rescue" breathing method that can be in times of stress to quickly increase the supply of oxygen to the blood and bring about feelings of relaxation. This can also be practiced when you are more relaxed, so the exercise can be recalled at will.

1. Inhale deeply and slowly count to 4, expanding your belly as you do so
2. Hold that breath for a count of 2
3. Slowly exhale though your mouth for a count of 6

Repeat steps 1-3 for 3 to 5 minutes.



6. Stress Reduction Exercises

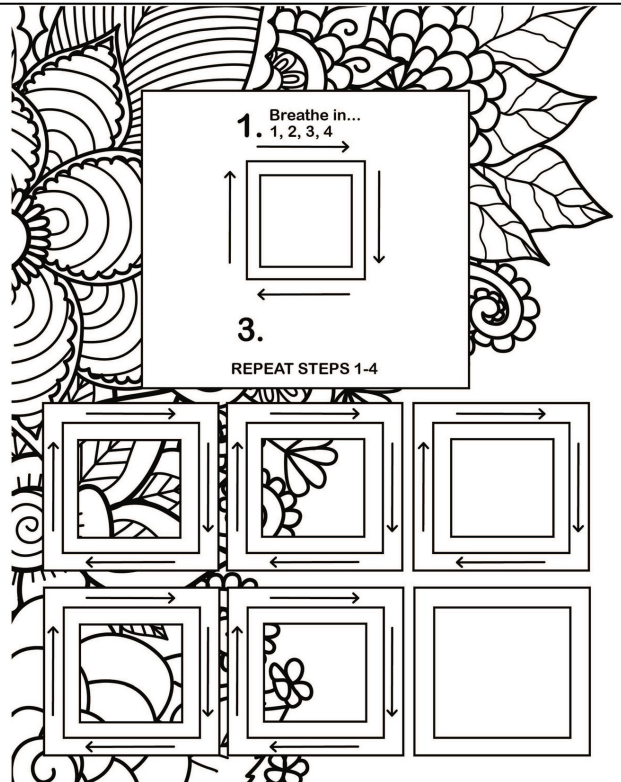
Box Breathing

Box breathing is sometimes also referred to as square breathing. It is an exercise that can help you slow down and gain control of your breathing. It works by distracting your mind as you count to four, calming your nervous system, and decreasing stress in your body.

1. Inhale steadily to a count of 4
2. Hold that breath for a count of 4
3. Exhale steadily to a count of 4
4. Hold that breath for a count of 4

Repeat steps 1-4 for 3-5 minutes.

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6. Stress Reduction Exercises

Mindful Breathing

Mindfulness meditation involves focusing on your breathing and bringing your attention to the present without allowing your mind to drift to the past or future. Engaging in mindfulness breathing exercises serves the same purpose, which can help ease your anxiety.

One mindfulness breathing exercise to try involves choosing a calming focus, including a sound (“om”), positive word (“peace”), or phrase (“breathe in calm, breathe out tension”) to repeat silently as you inhale or exhale.

Let go and relax. If you notice that your mind has drifted, take a deep breath and gently return your attention to the present.

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7. A New Way of Thinking

.....

The introduction to mindfulness and sample exercises in this coloring book prototype offer a sampling of what is contained in formal Mindfulness-Based Stress Reduction (MBSR) program.

I hope this book has planted a seed that practicing mindfulness can lead to a new way of thinking that puts the power of managing symptoms of stress, anxiety, and panic into your own capacity. Please find resources on the following page to help you continue to explore mindfulness.

Please send feedback on your experience with this coloring book to the following email address:
billiecharles@gmail.com

"Mindfulness increases the awareness of the Nature of the Mind. If we learn to Control our Mind and Listen to our Souls we can consciously choose to be Joyful instead of sad, Peaceful and Loving, Alert and Relaxed.
- Natasa Pantovic Nui, *Mindful Being*

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8. Free Online Resources

.....

American Mindfulness Research Association

The American Mindfulness Research Association was founded in 2013 and is a website that brings together the latest research in Mindfulness.
<https://goamra.org>

East Coast Mindfulness

Online mindfulness programs for living authentic, healthy, happy lives.
<https://www.eastcoastmindfulness.com/>

Free Mindfulness:

A website which gathers resources from a community of mindfulness practitioners. There is a "free resources" section with mindfulness practices to download.
<http://www.freemindfulness.org>

Greater Good Magazine Science-Based Insights for Meaningful Life

Greater Good magazine turns scientific research into stories, tips, and tools for a happier life and a more compassionate society. Within their library, there is a wealth of information and articles on the topic of mindfulness.
<https://greatergood.berkeley.edu/>

Mindful Communications

Mindful Communications is dedicated to sharing the gifts of mindfulness through content, training, courses, and directories—helping people enjoy better health, foster more caring relationships, and cultivate a more compassionate society.
<https://www.mindful.org/>

Pocket Mindfulness

Pocket Mindfulness is a website to help others learn about, understand and apply mindfulness in everyday life.
<http://www.pocketmindfulness.com>

UCLA Mindful Awareness Research Center (MARC)

The mission of the Mindful Awareness Research Center (MARC) is to foster mindful awareness across the lifespan through education and research to promote well-being and a more compassionate society.
<https://www.uclahealth.org/programs/marc>

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