

The Test of Time: Traumatic Stress

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Introduction

William Penn High School (WPHS) currently stands as the only high school in the Colonial School District and the largest high school in the state of Delaware, serving over 2,200 students in grades 9-12. The building consistently enrolls students from New Castle, Delaware City, and Southeast sections of Wilmington. Based on 2019-2020 data provided by the State of Delaware Department of Education, the school's population is composed of students of diverse backgrounds, race, educational levels, and socioeconomic status. As diverse as the student population is, the goal remains simple, every student will graduate prepared for entering the workforce or continuing their education in college.

With a focus on college and career readiness, students enter high school by choosing their academic pathway to graduation. From three college academies (STEM, Business, and Humanities), students choose from twenty unique degree programs ranging from agricultural and culinary arts to international and legal studies. Students are encouraged to participate in authentic vocational programs such as Penn Farm or the Teacher Academy as well as exemplary extracurricular athletics and after-school clubs. The school also offers Advanced Placement (AP) programs for students who strive to take college level courses and a vast selection of electives for students who wish to expand their interests. Students who select the Humanities College and Behavioral Sciences pathway take courses in criminal justice, sociology, and psychology. The capstone course of this pathway for students who are ready and willing is AP Psychology, which this unit is written for. AP Psychology is open as an elective course for students in other college academies as well, allowing the program to be one of the larger AP Programs that the school offers. The AP Psychology program enrolls approximately 60-75 students each year, of varying grades, degree programs, and levels of achievement.

Rationale

William Penn High School serves the largest population of students in the entire state, accepting students from Wilmington to Middletown of all different backgrounds and identities. The truth of the matter is that an overwhelming 60.5% of children in the city of Wilmington, Delaware have one or more Adverse Childhood Experiences (ACES), according to the Child & Adolescent Measurement Initiative¹. This is 12.6% higher than the national estimates that 47.9% of American children have more than one ACE². What does this all mean? The students that we serve at William Penn are less likely to be

engaged in the school setting, less likely to feel safe and supported in our community, and much less likely to demonstrate resilience when faced with a challenge. We need to make trauma visible; to acknowledge it, discuss it, and teach ways to overcome it. The first and best way to start that process is to integrate acknowledged trauma in our curriculum.

This curriculum unit will be written as an extension of our current unit on human development to connect the depth of trauma to how we develop over time. The current unit focuses on four areas of growth and development: cognitive, moral, physical, and psychosocial. During this unit, the focus is on psychological theories such as Piaget's theory of cognitive development and Erik Erikson's theory of psychosocial development. While both target the progression of our thoughts and social behaviors, they fail to include how trauma can impact either one. The goal of this unit will be to deepen student understanding of what affects the growth of the individual mind and body, which very clearly includes traumatic experiences. My hope is that students will be able to use this knowledge to better understand traumas, whether it be their own or others, and how it connects to human thought and behavior – even after the trauma is believed to have subsided.

Prior to this unit, students will need to be exposed to a trauma-informed classroom. In order to build student knowledge of trauma, it is recommended that trauma is brought up earlier than the human development unit. Many of our students will already have had experience with trauma but may not have been able to label it or identify it as such. Giving trauma a name and a space in your classroom allows students to share, reflect, and remain open minded to trauma later. In my own classroom, an introduction to trauma occurs in Unit 2: Biological Basis of Behavior. Trauma has a profound effect on the structure and function of the brain and is closely linked to the sympathetic nervous system. As a result, both physical trauma (i.e. concussions, traumatic brain injury, results of stroke) and psychological trauma are often included in discussions about how the brain develops and what effect that might have on human function. Trauma is also integrated in the subunit of consciousness, where the effects of sleep deprivation, drug use, and addiction are all explored. In future units, the integration and exploration of trauma should be continued, especially in Social Psychology and Abnormal Psychology. By continuing to expose students to traumatic impact throughout the year, the addition of trauma to the unit on human development will come naturally to students.

Students will enter this unit with an understanding of how trauma can impact both the human brain and behaviors. This specific addition to the human development unit will use the above knowledge to enhance student understanding of how trauma is a prevalent and influential factor in how humans develop psychologically, socially, cognitively, and morally over time. At the beginning of this unit, students will be assigned a specific age range or band. They will then be tasked with choosing non-fictional works from various authors, in various media forms. Students will then explore the character's thoughts,

behaviors, and experiences in these books, using our existing theories of human development. Students will be challenged to identify the character's stages of development with concrete examples of their thoughts and behaviors from the text. As an added layer to the depth of the content, students will also be tasked with analyzing why these characters think and act the way they do. Doing so will not only uncover some of the underpinnings of human behavior related to trauma, but also give students the opportunity to reflect and empathize with others.

Objectives

With the completion of this unit, students will be able to identify traumatic experiences and human development milestones through literature. In choosing characters that have unique experiences, students will have opportunities to analyze how trauma influences human thought, behavior, and growth in human development over time. By analyzing the characters experiences, thoughts, and behaviors, students will be able to identify patterns of continuous and intermittent trauma as well as how trauma presents itself in different ways in a variety of different contexts. Together, students will be able to take what they have discovered about their characters to create a trauma-informed continuum of human life and development in the form of a class timeline. The timeline will be able to visually represent the human experience from birth through old age.

Content

Traumatic Stress

Trauma is a deeply distressing and disturbing experience. Believe it or not, most adults will have had felt the devastation of traumatic stress – the physiological effect of these horrific events – at least once in their lifetime. Physical and sexual abuse, combat, witnessing violence, death or suicide of a loved one, parental divorce, prolonged unemployment, natural disasters, mass or singular murders, and issues associated with alcoholism or drug addiction are all examples of traumatic events that can consume the mind and have significant effects on the body³. There are no definite lists of what is and is not a traumatic event, as that trauma is specific to the context and individual it affects. Experiences can differ between individuals, as life experiences are incredibly unique, and the impact of the trauma can depend on a variety of factors.

Typically, traumatic experiences are categorized not by the event itself but by the length of time exposed to the trauma. There are limited-time events such as a severe car accident, sequential stressors like the traumas experienced often by police in the line of duty, and long-lasting exposure to trauma such as familial physical and verbal abuse⁴. These events are usually regarded as individually experienced. However, traumas can

also be collectively shared, like comrades being on the frontlines of war or witnessing the terrorist attacks in New York City on September 11th, 2001. Frankly, the newest collective trauma is currently being experienced around the world: the COVID-19 pandemic. Whatever the traumatic event may be, the reactions and impact to this trauma is both immediate and long-lasting.

Adverse Childhood Experiences (ACEs)

What began as an interest in the correlation between mental health and poor physical health, the Adverse Childhood Experiences (ACEs) questionnaire was designed as a tool to find the relationship between exposure to trauma and health risks one may experience as a result of that trauma. The questionnaire includes questions specifically related to violence, abuse, and growing up with mental health or substance use. Filling out the questionnaire gives you a number, representing how many traumatic experiences you may have had during your lifetime. Those experiences can be a window to resulting mental and physical health risks. During this study, researchers found that ACEs are common, with 61% of adults having one or more ACE and 16% having 4 or more, with females and minority groups at greater risk for a higher ACE score⁵. The numerical representation from the ACEs questionnaire is not intended to label anyone as ‘doomed from the start’ but rather raise awareness to the lifelong impact those ACEs have on our health.

The reality is, as common as ACEs may be, that the more trauma and resulting toxic stress one has experienced can have severe effects on the brain and body. Toxic stress on the brain can alter or hinder important functions and can be harmful in the long run by wearing down the body. ACEs have been found to increase risk of physical health conditions such as heart disease, asthma, kidney disease, stroke, cancer, diabetes, and obesity⁶. In addition, ACEs have been linked to higher risk for mental health conditions such as depression as well as worn cognitive functions like poor decision making and trouble learning⁷. Costing millions in healthcare expenses and potentially adding more traumatic experience from extensive health issues, having one or more ACE also has social and societal consequences. ACEs can influence substance misuse in adulthood, and impact socialization, education, food security, and job opportunities⁸. Traumatic experiences carry on throughout your lifetime, with a range of physical, mental, financial, and social consequences. How those traumas are presented may differ, but the commonalities and patterns are undeniable.

It is worth noting here that we can reduce the effects of ACEs and, in turn, lower our mental and physical health risks associated with those traumatic experiences. By raising

awareness of ACEs, we can effectively begin a preventative approach to reducing these negative effects. It is recommended that we ensure a strong start for children by providing home visitation, preschool enrichment, high quality childcare and education, and connect youth to caring adults through mentoring and after-school programs⁹. It also goes without saying that our society should continue to improve access to prompt and high-quality medical care and opportunity for therapeutic and self-care, given that individuals with more ACEs are at higher risk. Providing individuals and families with appropriate supports allows for stronger bonds, deeper understanding, and a way for families to strengthen their place within their communities.

Mental Health and Diagnosis

As one might assume, experiencing a traumatic event or being exposed to multiple traumas can cause significant changes in mental health and wellness. With higher ACEs may come a higher risk for anxiety, depression, and other stress-related disorders like ADHD, phobias, defiant disorders, and post-traumatic stress disorder (PTSD). In one United States study, 58% of children who were abused suffered from anxiety disorders, 36% from phobic disorders, and 35% from posttraumatic stress disorder¹⁰. With an increased risk of diagnosed psychological disorders, individuals are more prone to exhibiting multiple symptoms of these mental health issues. Children and young adults may experience extreme and debilitating fears, dissociation, amnesia, suicidal thoughts, trouble focusing, and flashbacks or nightmares¹¹. The hope is that children can connect with caring adults and receive appropriate medical and mental health care. However, if trauma is not addressed and resilience is not built over the childhood and young adulthood of one's life, as adults there is an increased chance of being diagnosed with borderline personality disorder, dissociative disorders, eating disorders, and substance abuse¹².

PTSD is a psychological disorder most strongly tied to the experience of a traumatic event. This disorder is characterized by having been exposed to at least one traumatic event, resulting in symptoms such as flashbacks, nightmares, panic attacks, and increased stress and anxiety. Sexual abuse and assault remain the number one cause of PTSD onset in women while combat and witnessing death or physical injury are the top causes for men¹³. Symptoms of PTSD subject the individual to even greater risks and potential traumas, including social decline, higher levels of depression, and a greater risk of suicidal ideations¹⁴. Cognitive factors such as negative thinking patterns and learned helplessness can also contribute to unhealthy behaviors post-trauma. However, posttraumatic reactions are not solely associated with a diagnosis of PTSD. It is also associated with specific phobias, mood and anxiety disorders, and substance abuse, all of

which bring their own psychological and physical symptoms that can interfere in everyday life¹⁵.

Borderline Personality Disorder (BPD) is less common, but still closely associated with exposure to particularly severe trauma. Patients diagnosed with BPD are much more likely to have suffered from severe physical or sexual abuse during early childhood¹⁶. Although not all patients with BPD have suffered from severe abuse, trauma has a much more profound influence on the development of BPD later in life. Van der Kolk concludes that the diagnosis of BPD is a direct function of persistent and chronic fear during childhood¹⁷. The correlation between trauma and the diagnosis of many different psychological disorders shines light on how trauma occurring in childhood can have severe and long-lasting implications for the future.

Cognitive Development

Jean Piaget, leading psychologist in child development, dedicated his life to exploring the minds of children, from thinking to communicating. He believed that our minds build molds and that all new information is integrated into these molds or that these molds change to fit the new information¹⁸. In his studies, he narrowed down the cognitive development of children and young adults into stages; sensorimotor, preoperational, concrete operational, and formal operational. The first stage of development proves to be a critical milestone for traumatized children, who have difficulty interpreting these sensory stimuli. In the second stage of cognitive growth, Piaget discusses the profound impact of pretend play and fantasy on our cognitive development. During this stage, pretend play and fantasy is incredibly important for young children coping with trauma. This becomes a mechanism to escape from reality and may become a safe place to return to later in life. It is in the last two stages of Piaget's theory that adolescents and adults can make sense and meaning of the traumatic events they have experienced.

Piaget's theory of cognitive development is also essential in understanding how children develop through language. His theories of cognitive development overlap with Lev Vygotsky's theory of language development, in which children develop effective thought processes and language through social environments¹⁹. Vygotsky believed that language development was critical to what he called private speech. While Piaget believed that this speech is egocentric and immature, Vygotsky believed this private speech – our inner voice and thoughts – was critical for healthy thinking. If our inner voice speaks kindly about ourselves and the world around us, we can grow and learn much more effectively. Children who are exposed to traumatic effects may have diminished language capabilities, a poor system of communication, and fail to develop a

healthy and helpful inner voice²⁰. Unfortunately, children's learning and language can become negative and disorganized as a result of trauma exposure.

Trauma Exposure and Cognition

Perhaps the largest impact that traumatic stress has on an individual both young and old is the impairment on cognitive functions. Although Piaget's emphasis above was on integration of sensory information to interpret the world, children with severe and chronic trauma have a diminished ability to make sense of and put together all the sensory, emotional, and cognitive information at any given time²¹. Unable to create a cohesive understanding of the information presented to them, individuals who have experienced trauma may be missing or misinterpreting chunks of information from their surroundings. The missing information may also be explained by the significant impairment of memory in individuals exposed to trauma. While individuals exposed to trauma report recurring and vivid memories of traumatic events, they also suffer from memory gaps and difficulty integrating traumatic memories²².

Children and adults exposed to trauma may even be lacking in the language to interpret their world. Individuals who have experienced traumatic stress typically struggle with verbal and conceptual representations of their surroundings and have difficulty with speech in complex situations, instead finding ways to communicate their experiences in their play and actions²³. Undoubtedly, the lack of language paired with the inhibited sensory integration can transform the way individuals perceive the world around them. This can lead to inattention, ignoring sensory input, or being closed off to new information presented to them. It also influences how they interact with their environment, in schools, at home, and in social interactions. Overstimulation and distress without the means to effectively communicate can lead to inattention, ignoring sensory input, or being closed off to new information²⁴. What seems like a child inattentive during school or absent-minded during a conversation with peers may be the behavioral presentation of cognitive challenges resulting from trauma.

Moral Development

During Piaget's formal operational stage, individuals learn how to make sense of abstract concepts like equity, justice, love, and freedom. This is also where adolescents and adults build their moral reasoning. Lawrence Kohlberg, working closely alongside Piaget, developed a moral ladder to explain the three basic stages of morality that he derived from his research. In the first stage of pre-conventional morality, children act in their own self-interest and focus on the rewards and punishments they receive as a result of their

behavior²⁵. Children exposed to trauma might associate rewards with unacceptable behaviors or fail to witness appropriate and fair punishments. In conventional morality, adolescents decide what is right or right based on social order and approval as well as established laws and rules²⁶. Most adults never get to the final stage of morality called postconventional morality. This is the highest level of morality that focuses on ethical principles like the safety and rights of humans, even if that means it goes against popular belief or even against the law²⁷. A key factor to morality is understanding one's own culture and society, as well as your place in that world. Individuals who have experienced traumas may not be able to achieve such high moral reasoning.

The Role of Perpetrating Traumas

Amid trauma, individuals are still able to develop a sense of right and wrong, good and evil. Yet, the conception of what is morally right is not always used as the traumatized individual's own moral compass. What they believe is the right thing to do does not always match their actions. For example, in children who have been exposed to war and violence in Colombia admit stealing and hurting their peers even though they acknowledged this was more the morally right thing to do²⁸. It is often believed that individuals exposed to violence and other traumas can dissociate from one's own reality and participate in moral disengagement as the act is justified. There is stronger evidence supporting the proposal that participating in violence or other morally wrong activities is both a product of and a direct source of trauma²⁹. Whether coerced, forced, or on their own accord, committing crimes or acts that are immoral can be incredibly harmful to one's psyche. In addition, those actions could have been produced by unhealthy coping skills or by an automatic reaction to a previous trauma. It is argued that perpetrating these crimes, or even just acting upon moral beliefs, individuals gain context for what is right and wrong as well as a process for constructing their moral compass³⁰.

Psychosocial Development

Erik Erikson is a pioneer in the way we think about human psychosocial development. Erikson believed that as we develop through stages in our lives, we experience either success or failure – each resulting in different outcomes for our lives. As children, we work through tasks that either facilitate our independence and sense of self or children learn to doubt their abilities. The first stage of development occurs in infancy, up to one year, where caregivers meet the child's basic needs called trust versus mistrust³¹. Given that trauma can occur that early, it is possible that basic human needs are not met, leading to mistrust in relationships later in life. In the next three stages from toddlerhood to childhood, children learn to establish their independence, find freedom in play and

imagination, and enjoy their newfound sense of applying themselves to the social world around them³². If children are unable to explore and gain this independence, children may feel ashamed or doubt their abilities.

Erikson's next stage is identity versus role confusion in adolescence, where teenagers work on refining their identity³³. One key element to social roles and experimentation is to gain a sense of identity and security in one's self. In contrast to non-traumatized children, children exposed to traumatic stress struggle with play and trying out different social roles. Children have a difficult time differentiating reality from fantasy, often increasing the risk of re-traumatization during play times³⁴. This can be carried through adolescence and young adulthood, when many social roles are experienced before settling on a secure sense of self. If the traumas residing in their reality are too overwhelming, it then becomes difficult to identify a true sense of self or put themselves in the mindset of someone else's role. Individuals may, in turn, view themselves as unlovable and weak, attach themselves to unhealthy social roles, and possibly go on to victimize others³⁵. This sense of self is unstable, producing the same unpredictability in their social roles as adults.

From there, Erikson describes three more stages of young to late adulthood called intimacy versus isolation, generativity versus stagnation, and integrity versus despair. In these three stages, adults work to form close relationships, find their sense of purpose, and feel a sense of satisfaction for the life they have lived³⁶. Discussions on the effects of trauma in old age, whether late onset or from childhood trauma, are few and far between. With old age comes a great deal of personal, financial, and social adjustment, as well as traumas such as death of a spouse or feeling of lack of purpose from retirement. These own traumas and adjustments come at a cost to one's mental and physical health in old age. However, when paired with past exposure to traumatic stress, the elderly may have the odds stacked against them. It has been argued that there is a potential for reemergence of posttraumatic stress symptoms or late-onset diagnosis of PTSD due to general cognitive and physical decline, a decrease in coping skills, and an increase in the frequency of potentially traumatizing life events³⁷. The elderly may experience very similar symptoms naturally from the process of old age, making the symptoms of traumas difficult to differentiate. Successful adaptation to these life events includes mourning loss, accepting one's past and present states, reestablishing sense of self and purpose, as well as making meaning of the past through memory and storytelling³⁸. The same actions should be done for coping with both new and old traumas.

Attachment

According to the attachment theory originally created by John Bowlby, it is believed that attachment, or bond, between the mother or caregiver and a newborn child deeply affects the social interactions that that child has throughout their lifetime. How we bond with our parents also determines our behaviors and anxieties throughout our lifetime. It is believed that attachment begins very early on, from the moment the baby has contact with the mother. The mother's body can soothe and stimulate her child by mimicking the heart rate and other physiological functions of the child³⁹. Not only can the caregiver's body allow the child to be soothed during stressful situations, but the child can learn these healthy and controllable physiological reactions to stress for themselves⁴⁰. Without this influence, the child may have trouble regulating their own physiological stress responses. This also presents an issue with mothers and caregivers who, themselves, have poor physiological regulation and stress reactions. Unable to properly regulate their own bodies during stressful times, this may directly impact the attachment and subsequent learning of the child.

In addition to the physiological responses of our caregivers, there are also emotional and social bonds that influence our thoughts and actions from childhood to adulthood. There are four attachment styles in psychology defined by the pioneer psychologist in the human development field, Mary Ainsworth: secure, anxious/avoidant, disorganized, and ambivalent. Secure attachments are the ideal bond between children and their caregiver, with the caregiver being consistent. Therefore, children with secure attachments grow up with a sense of healthy relationships, stress responses, and independence⁴¹. Children without those secure attachments will have trouble with these experiences, often resulting in unhealthy behaviors and thought processes. Avoidant children ignore their distress and fail to confide in others while anxious infants tend to rely on emotion and intense need for relationships⁴². Although children with any type of attachment may experience traumatic stress, the children without a secure attachment are less likely to develop the biological framework or learned skills to know how to cope with trauma, or how to build resilience.

Socioeconomic Status and Race

As adults face adversity stemming from their own childhood trauma, there is an overwhelming cumulative impact on all fronts: physical, psychological, and social. Current research suggests that individuals who are exposed to trauma as children also face risks associated with their socio-economic status later in life, including economic instability and structural disadvantages as adults. Due to lower levels of academic achievement and educational attainment in childhood, individuals exposed to traumas are at higher risk of experiencing the hardships of unemployment, lower income levels, and

financial deficits⁴³. In fact, individuals who report having experienced maltreatment in childhood are twice as likely to fall below the poverty line as adults⁴⁴. We see an interaction and direct correlation here: the more trauma experienced, the higher risk for physical and mental health problems, and less access to socioeconomic resources. Given this key factor, having greater access to socioeconomic resources may allow for frequent and higher quality mental health and medical care, which would greatly benefit the individual who has experienced trauma⁴⁵. Without these resources, adults may be unable to afford or access the care that they need. Improving community, financial, and social supports to individuals who have experienced trauma is imperative in building resilience.

When having a conversation on socioeconomic status, it brings with it a similar conversation on race. There are multiple barriers working against people of color every day in American political, economic, social, educational, justice systems and more. The fact is that people of color are more likely to experience exposure to multiple ACEs, all while fighting a system that was built for the white male. A study done almost two decades ago found that black men had the highest exposure to trauma, with women being doubly at risk of developing PTSD⁴⁶. Imagine if that study was done today, with a current increase in police brutality, growing economic disparity between white and black households, higher rates of poverty, and inadequate access to healthcare during the novel coronavirus at large. The cycle of trauma continues in black and brown communities in our society, due to personal traumas but also due to the societal traumas that are inflicted on them.

Physical Development

As mentioned previously, exposure to a traumatic event heightens the risk of chronic health conditions such as cardiovascular disease, obesity, and stroke. Additional long-term health effects include suppressed immune response, pain, unexplained somatic symptoms, and more frequent and severe illness⁴⁷. That health risk is not limited to the days, months, or even years after a traumatic event. Adults who reported childhood victimization had a worse decline in their physical health over the course of ten years than those who did not experience childhood trauma⁴⁸. It is possible that the decline in health may be due to physical symptoms that arise from a psychological disorder, or from a traumatic event. Those who are diagnosed with panic disorder might experience heart palpitations, for example, or those with PTSD may experience localized or unexplained pain⁴⁹. Trauma to the body is also sustained from traumas such as combat, physical assault, or even self-mutilation. It is evident that traumatic stress has a deep seeded and impactful effect on the physical functioning of our bodies.

Although this information is widely cited in academic journals, it is also worth noting the physical impact on the body resulting from emotional and cognitive changes. Individuals exposed to trauma with a diminished ability to integrate sensory information will not only experience an altered perception of their reality, but also experience changes to their physical sensory limits. Children who have experienced traumatic stress are susceptible to becoming hypersensitive of physical touch, have difficulty localizing physical sensations, and experience impaired pain perception⁵⁰. In addition, those exposed to trauma have reported impaired coordination, balance, and orientation in time and space⁵¹. These problems may contribute to recurring traumatic stress and the slow wear and tear on the physical body.

The Central Nervous System

Trauma not only puts the body at risk but also wears on the brain and nervous system, the most vital for survival and long-term healthy living. By experiencing trauma such as physical abuse, violence, and malnutrition, individuals may obtain physical damage to the brain⁵². The wear and tear on the brain may hinder cognitive function, or even physical functioning, if severe and prolonged. Most times, however, the damage to the brain is not physical trauma but often shaped by the traumatic stress individuals endure. During the first few years of life, when the brain undergoes the most rapid stage of development, traumatic stress can significantly alter brain structure, function, and neural connections⁵³. Changes to the brain during this time can affect a child's cognitive functions, including emotional and informational processing, for years and decades to come.

Markedly is the individual's ability to respond to stressful stimuli. Each part of the brain plays a vital role in interpreting and responding to traumatic events. Activated areas are specialized, fit for preparing your body for stress and helping to recover from it. With exposure to traumatic events, areas of the brain associated with fight or flight responses, or healthy stress responses, can become overstimulated. Often signals in the brain will be interpreted as dangerous, so the body will send alarm signals to the limbic system. Within the limbic system lies the amygdala, responsible for initiating the fight, flight, or freeze reaction, which becomes the body's defense system in response to danger⁵⁴. In an individual who has experienced trauma, these signals may flag environmental stimuli as a threat even when it is not, leading to an instinctual behavioral response. Overstimulation of this system heightens the body's alarm system for anything that may be threatening, dangerous, or reminds the body of previous memories. This stimulation also activates the Hypothalamus-Pituitary-Adrenal (HPA) axis, responsible for hormone secretion and maintenance functions such as eating, sleeping, and temperature regulation. Changes of this nature to the function of the brain also contribute to the disruption in typical stress

hormone secretion in individuals who experience higher levels of traumatic stress⁵⁵. Not only are our brains overstimulated with danger, but our adrenaline is pumping often without proper regulation.

The limbic system and HPA axis response to traumatic stress has a profound effect on the body due to the quick, automatic response. The prefrontal cortex, responsible for higher order cognitive functions, would be unable to make sense of the stimuli before the limbic system reacts if the system becomes overstimulated⁵⁶. In individuals who are exposed to trauma, the prefrontal cortex is one of the last areas of the brain to receive the brain's signals. However, it may prove to be the key to making sense of the stimuli in order to understand what is happening in the environment. Individuals need a sense of safety and security in order to activate the prefrontal cortex, unlocking the ability to make sound decisions, problem solve, and participate in active learning⁵⁷. Being able to integrate and interpret this environmental information would transform individuals' perceptions of the world around them and lead to a stronger sense of security rather than fear.

Classroom Strategies

Modeling

Teacher modeling is an effective strategy for teachers to visually demonstrate their work but also verbally demonstrate their own thinking. Teachers walk through the process of creating their work, while also setting clear expectations and asking students for their input. In this unit, and in best practice, teachers modeling will be consistent throughout the process from annotating to creating the summary cards. This kind of modeling will be essential for students to see a clear example of what they will be creating each step of the way. Teachers can demonstrate what questions to ask while reading and researching, verbally explain how the new concepts apply to the chosen character and create a model for effective summarization. This will benefit students who are visual learners and those who might struggle with some of the tasks, such as what to take notes on or what information to include in the summary, that are assigned for this unit.

Annotating and Note Taking

The Colonial School District has found great success with student annotation while reading a text both on paper and through an online tool called Kami. This is utilized frequently within the high school at all levels, in all departments. Annotation is taught to students in English classes early on as a reflection tool to ask questions, highlight evidence, and to organize student thinking. In this unit, students may be tasked with

reading or researching about their choice of character. Students of all skill levels will have plenty of information to sort through, given that they may have many chapters, hours, or components to search through when analyzing their character development. During annotation, evidence for the four elements of growth and the impact of trauma should be made visibly clear, utilizing highlighters, various colors, subtitles, boldness of font, etc. Students should use annotation to collect their thoughts and reflect on their character.

In this unit, some students may not be able to annotate a written text depending on the choice of literature or media. Given that our Social Studies department has placed an emphasis on providing students with effective note taking skills, students coming into the high school will have a thorough understanding of taking notes in a variety of different contexts and subjects. Students in this unit could be tasked with taking Cornell style notes during this unit, making note of exact locations for evidence and information. Students may make use of titles and subtitles as well, along with completing a brief summary for each section of the literature. The summary that students will create in their Cornell notes can be a strong reference for them when they create their summary cards.

Summary Cards

Summary cards are usually small index sized cards provided for students to summarize what they have read. While typically used for small passages, we are expanding the size and content of our summary cards to include a wider view of character development. Summary cards could be written or typed and presented neatly with at least one picture of their character, their age or age range, and any additional information to represent their identity such as gender identity or cultural background. If going on display, each summary card should be made large enough for students to write their summaries and for other students to read from a farther distance. Summary cards should contain a 2-3 sentence summary for all four areas of development. For example, there should be 2-3 sentences on how this character developed cognitively using the theories and concepts of cognitive development. Inevitably, not all concepts will be used, but rather the concepts and stages that best apply to each character's specific growth. Summary cards are beneficial for students to process and condense what they have learned into one meaningful piece.

Reflection Strategies

There are few reflection strategies that are integrated or utilized for student understanding and engagement throughout this lesson. In the beginning of the lesson, students make use

of the “I notice, I wonder” strategy. This is a strategy that allows students to process the information that they have learned in the content portion of the lesson and make inferences about what is to come. Usually this is used for reading a text, giving space for students to begin thinking more deeply about the characters and storyline. For this implementation, it is used for students to process what has been done in class and to explore the purpose of the lesson. Later in the lesson, students are asked to observe, reflect, analyze, and conclude on their findings during the gallery walk. This strategy has been used in Colonial School District by teachers at the middle school level to assist students in identifying reliable sources and valid information. It has been adapted here to allow students to record their observations and thoughts surrounding the continuity of human development. Student reflection is incredibly important to give students the time and space to think deeply about content and connections.

Classroom Activities

Building Background Knowledge

Building foundational and background knowledge is essential for students prior to beginning this lesson. Since the goal of the lesson is to analyze the impact of trauma on one’s development over time, it is important for students to gather knowledge on what exactly trauma is and the language that we use when discussing traumatic experience. In my course, students coming into the lesson will have already had exposure to trauma during our unit on the Biological Basis of Behavior. During that unit, students explored how trauma impacts the physical body and brain including but not limited to the role of the amygdala in fear responses, the continuous activation of the sympathetic nervous system, and how behaviors change based on physiological arousal. It would be beneficial for students to review this content before introducing the unit on human development. From having students create their own diagrams of the brain and body to an extended response on the impact of trauma on the physical body, the review portion should be suited best to your student and classroom needs.

Students also need a transition from this review of past content to the introduction of new concepts. Our district has emphasized the use of a do-now or warm-up activity to make the start of a class more meaningful. This warmup activity could differ depending on your own district requirements and student needs. One way to engage students early is to provide a short scenario-based prompt in the beginning of class highlighting a ‘case study’ of an individual who has experienced trauma. To allow for greater exposure to different instances of trauma at different ages, it is suggested that there be a variety of different versions of the scenario around the room. It may benefit students to then pair up

and share with a student that has either the same scenario or a different one. Students could share out verbally or written on poster paper. As an added transition, students could be asked a final question: how does their age play a role in their experiences with trauma? Creating a class list of responses to this question may become a useful reference for students later in the lesson.

Project Introduction

Following the warm-up activity, the assignment instructions and purpose for this unit should be provided. Although students will not begin their assignment today, students benefit from previewing the instructions, steps, and final product goal so that they know what to expect in the coming days. An engaging way of previewing assignments for my own classroom has been to utilize the “I notice, I wonder” strategy for a quick prediction. Given that the students have just done an introductory activity on the physical and psychological effects of trauma while also being asked about their age, students may maintain higher levels of engagement if they are asked to complete a prediction of what we will do for our project-based assignment on human development. To liven up the engagement during instructional time, it might be helpful to assign students to small groups – this could be based on location, random number assignment, etc. – to allow them to review the instructions together. Students could also be given the opportunity to share out what the assignment will look like and what steps we need to take to get there.

Students will then be provided the task of step one, to choose a piece of literature via any form of media so long as it has narrative. For example, one may want to explore the adventures of Senua from a video game called Hellblade: Senua’s Sacrifice who suffers from symptoms of severe schizophrenia or one may want to delve into the maturation of Charlotte in the classic children’s book Charlotte’s Web. Implementing a project proposal on paper or on your district’s learning management system would give students time to select their literature and allow for active feedback. As students begin to think about their options, it may be beneficial to offer a brainstorming session toward the end of the class period, complete with questions to probe their thinking. Prompt students to think about their favorite childhood book or a book they have been wanting to read, their favorite characters in TV shows or movies, or even their favorite storyline in a video game. For added brainstorming, have students write down their ideas on a sheet of paper for an exit ticket for you to review and add your own feedback.

Content Integration

The next few days should be dedicated to student learning and mastery of content related to human development in the beginning half of each class. Moral, cognitive,

psychosocial, and physical development are typically the main subcategories to the human development unit of the psychology curriculum. From moral dilemmas to a show and tell of puzzles, toys, and symbols for cognitive development, there are many strategies to teaching this content. Scenarios could also be utilized while teaching psychosocial development, as each scenario could be a negative or positive outcome of Erikson's Psychosocial Stages. Regardless of the teaching strategies here, trauma and traumatic experiences should be integrated into your content at this time. This is the new piece to the human development puzzle. Students could have the opportunity to reflect on the ACEs survey and study, relating it back to age and human development. Students should be given a platform to analyze what traumatic factors can be as well as make inferences on how those traumas would impact thoughts and behaviors. Ultimately, all content should be demonstrated to students in a way that shows them how trauma can influence many different individuals in so many ways. In doing so, this will make it easier for them to begin to see connections between their chosen character, trauma, and their development.

Character Analysis

Given that the project has been introduced and students should have an idea of which piece of literature they would like to focus on, students should be given time to read, view, or complete research on their character and narrative. For a ninety minute class, my students have seemed to enjoy a split class time, where there is a set amount of time in the first half of each class for content and activities while the second half of each class is dedicated to student reading and research for their character analysis. As students read, students should keep in mind that trauma is integral to their character's growth, thinking, and behaviors, rather than it being a separate entity. Students should track the four areas of development; physical, psychosocial, moral, and cognitive – in addition to any evidence of trauma or behavior and thought changes due to traumatic experience.

To show students a strong example of what you are expecting from them, model your own thought process verbally and visually by working on a piece of your own project in front of the class. For a short but classic read, *Where The Wild Things Are* by Maurice Sendak would be a great option. There are plenty out there! Read the book aloud as a class and model how to annotate the text along the way. Each day add more annotation and notes pertaining to that area of content discussed that day. This modeling also creates a goal for students and sets milestones throughout the project. It may also be beneficial here to discuss some of the author's own traumas and how that trauma is expressed in his storytelling. This would lead to deeper level thinking and understanding of trauma in multiple developmental contexts.

Depending on your student's progress and needs, a half or whole class period should be dedicated to students creating their summary cards. Ultimately, the summary card could have the characters identifying information and 10-15 sentences on their personal development. Students should work on these summary cards individually, using their annotations and note sheets to summarize on what they have learned about their characters development in each of the four areas of development as well as the impacts of their traumatic experiences. Summary cards could then be placed on a larger classroom timeline, which can truly span a considerable length of the wall(s). Students should be tasked with placing their summary cards in the correct place on the timeline according to age, and watch the timeline come to life!

Timeline and Gallery Walk

Before a gallery walk of the timeline, students can be given the opportunity to share a little about their character, the growth in all developmental areas, as well as more about how their traumatic experiences have impacted their character's choices, thoughts, and behaviors. Having additional time to find some patterns, trends, similarities, or even inconsistencies or differences between their characters' growth and the other characters that their group presented might be beneficial for deeper learning. Students can then share out any of their ideas or discussion points as well as to keep these ideas and discussion points in mind for when they complete their gallery walk.

With so many characters and experiences, students should be challenged to find patterns of human development and growth over time. Students could be asked to observe what they see in the timeline, reflect on their thoughts about the character timeline, and analyze any patterns or non-patterns for human development. It is best practice that students have a task and goal while they walk through the larger than life timeline. This would also be a great time to participate in the gallery walk yourself, asking students questions about their character summary cards or about what they have observed in the timeline. Students could be given a chance to look over their observations in order to come up with any conclusions or final thoughts they have on human development, either individually, with a partner, or a small group. As a bonus, review that class list from the warmup activity and create a new class list of conclusions on human development. To close out the lesson, have a small group share out or even Socratic seminar: How do people develop over time? How does trauma impact human development? As an end to the lesson, ask students to write a reflection on what they have learned about the continuum of human life.

Bibliography for Student Resources

Sendak, Maurice. *Where the Wild Things Are*. Random House Children's Publish, 2015.

This book is suggested for either teacher or student use during the lesson. It is an easy to read, classic children's book that includes trauma within the storytelling but can also be used to analyze how trauma has impacted the author in adulthood.

Bibliography for Investigated Readings

"Adverse Childhood Experiences (ACEs)." Centers for Disease Control and Prevention, April 3, 2020. <https://www.cdc.gov/violenceprevention/acestudy/index.html>.

Multiple sources created by the CDC report the true statistics and findings from the ACEs study. This source was utilized to paint a more specific and measurable picture of the impact of traumatic stress on our population.

Aarts, Petra G. H. and Wybrand Op den Velde. 1996. "Prior Traumatization and the Process of Aging: Theory and Clinical Implications." In *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*; edited by Bessel A. van der Kolk, Alexander C. McFarlane and Lars Weisaeth, 359-377, The Guilford Press, New York, NY.

This article became the missing 'aging' piece to this curriculum unit on human development. While many other articles focused on children, this article was important for including the traumas that the elderly have experienced and may be currently experiencing.

"Building Your Resilience." American Psychological Association, 2012. <https://www.apa.org/topics/resilience>.

This source was useful for basic information on resilience and how resilience is built from trauma and adversity. An easy read, this article was utilized for its simple explanations of what resilience is, isn't, and how to become resilient.

Enlow, Michelle Bosquet, Byron Egeland, Emily A. Blood, Robert O. Wright, and Rosalind J. Wright. 2012. "Interpersonal Trauma Exposure and Cognitive Development in Children to Age 8 Years: A Longitudinal Study." *Journal of Epidemiology and Community Health* 66 (11): 1005-1010.

As a psychological study on interpersonal trauma exposure and cognition, this journal article is one of the first of its kind. While the results are fascinating, the

discussion within this study shine light on the connection between both cognitive and physical impairments experienced by individuals exposed to trauma.

McFarlane, Alexander C. and Giovanni de Girolamo. 1996. "The Nature of Traumatic Stressors and the Epidemiology of Posttraumatic Reactions." In *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*; edited by Bessel A. van der Kolk, Alexander C. McFarlane and Lars Weisaeth, 129-154, The Guilford Press, New York, NY.

This publication helped greatly with defining trauma and highlighting the connection between traumatic stress and the diagnosis of PTSD. The article also helped define the symptoms and prevalence of this disorder.

McFarlane, Alexander C. and Rachel A. Yehuda. 1996. "Resilience, Vulnerability, and the Course of Posttraumatic Reactions." In *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*; edited by Bessel A. van der Kolk, Alexander C. McFarlane and Lars Weisaeth, 155-181, The Guilford Press, New York, NY.

This article described the abundance of symptoms that individuals exposed to trauma may experience over the course of their lifetime. This included both the physical and psychological effects.

Miller, Shyanne. "Digging Deeper: The Shocking Pervasiveness of ACEs and Trauma among Delaware Students." Rodel Digging Deeper The Shocking pervasiveness of ACEs and Trauma among Delaware Students Comments, June 7, 2017.
<http://rodelde.org/digging-deeper-the-shocking-pervasiveness-of-aces-and-trauma-among-delaware-students/>.

This article was essential in understanding data collection on adverse childhood experiences in the state of Delaware. It provided statistical data along with a short analysis of that data to make more sense of the impact that traumatic stress has on our student population.

Mock, Steven E., and Susan M. Arai. "Childhood Trauma and Chronic Illness in Adulthood: Mental Health and Socioeconomic Status as Explanatory Factors and Buffers." *Frontiers in Psychology* 1 (2011).

This study was an excellent source to explain the social perspective on trauma. The discussion and findings highlighted the cumulative physical, cognitive, and socioeconomic impact on individuals exposed to trauma.

Myers, David G., and C. Nathan DeWall. *Myers' Psychology for the AP Course*. 3rd ed. New York, NY: Bedford, Freeman & Worth High School Publishers, 2018.

This AP Psychology textbook was essential in reviewing content that is taught and reviewed in many standard high school psychology courses. Reviewing the content here is imperative for successful integration of traumatic stress into the existing unit on human development.

Pausch, Randy, and Jeffrey Zaslow. "The Elephant in the Room." Essay. In *The Last Lecture*, 17. New York: Hyperion, 2008.

This source was used for a direct quote, applicable to trauma and resilience. The quote uses a metaphor that is similar and can easily instill the idea of changing our odds in the face of adversity.

Streeck-Fischer, Annette, and Bessel A. van der Kolk. "Down Will Come Baby, Cradle and All: Diagnostic and Therapeutic Implications of Chronic Trauma on Child Development." *Australian & New Zealand Journal of Psychiatry* 34, no. 6 (2000): 903–18.

This source was imperative to a wholistic understanding of the impact of traumatic stress on children and young adults. A lengthy article, the author encompasses plenty of research, statistics, and theory on childhood development. The sections on attachment, brain development, learning, and social development were of importance in this curriculum unit.

van der Kolk, Bessel A. 1996. "The Complexity of Adaptation to Trauma: Self-Regulation, Stimulus Discrimination, and Characterological Development." In *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*; edited by Bessel A. van der Kolk, Alexander C. McFarlane and Lars Weisaeth, 182-213, The Guilford Press, New York, NY.

This article was utilized for its section on trauma in character development, as it focuses on the development of interpersonal, social, and cognitive skills. It also played a strong role in highlighting the development of Borderline Personality Disorder.

van der Kolk, Bessel A. 1996. "Trauma and Memory." In *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*; edited by Bessel A. van der Kolk, Alexander C. McFarlane and Lars Weisaeth, 279-302, The Guilford Press, New York, NY.

This publication went in-depth with how trauma influences different types of memory. It was useful to help add an extra layer of depth to the cognitive impacts of traumatic stress on individuals.

Wainryb, Cecilia. "'and so they Ordered Me to Kill a Person': Conceptualizing the Impacts of Child Soldiering on the Development of Moral Agency." *Human Development* 54, no. 5 (11, 2011): 273-300.

This source had some eye-opening first accounts of children and young adults who experienced both trauma and violence. The author explains the misconceptions of trauma and violence as well as how both can influence one another.

Appendix A: Implementing District Standards

Currently, the AP Psychology program uses the Delaware State Standards for Social Studies to better create cross-curricular content, assessments, and student understanding. Within the Delaware State Standards, there are branches of economic, history, civic, and geography standards targeting major concepts and skills that all social studies students should learn and develop at each grade level. This unit will align with History Standard One 9-12a: Students will analyze historical materials to trace the development of an idea or trend across space or over a prolonged period in order to explain patterns of historical continuity and change. In exploring traumas in an individual's life and inferring how those traumas will continue to change one's thoughts and behaviors, students will be able to trace speckles of those experiences throughout the character's history.

We also align our curriculum with the Common Core State Standards (CCSS) in Literacy for History and Social Studies, which promote literacy skills with identifying key ideas and details, analyzing the craft and structure of a text, as well as meaningful integrating of knowledge and ideas. This unit will specifically align with CCSS Literacy Standard 3 for Grades 11-12: Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain. Throughout the unit, students will be challenged to evaluate what the characters are experiencing and how their behaviors are indicative of or reactive to what they've experienced. In addition, not all experiences will be explicitly stated, causing students to acknowledge those spaces or gaps in the reader's knowledge as well as infer what these characters are expressing.

Appendix B: Curriculum in a Virtual or Hybrid Setting

This unit is designed for the traditional, face-to-face classroom setting. With an unprecedented pandemic continuing throughout the country, it is necessary to consider how this unit could be adapted for both completely virtual and hybrid settings as well. Our district uses Schoology as the learning management system for students to complete assignments, engage in resources, and receive updates from the teacher. Although there are other learning management systems that districts use, I will be referring to abilities we have as educators specifically on Schoology.

The beginning of this unit allows students to think about the content and task at hand individually and with collaborative groups with a warm-up activity and preview of their assignment. It is noted that the warm-up activity could be a scenario-based prompt about the unique traumas that individuals may experience. In a virtual setting, this warm-up activity could be modified as a discussion post on Schoology or other learning management system. A discussion post also allows for a prompt and individual thought from each student. In addition, it would be beneficial to add a collaboration rule that students should thoughtfully respond to at least two of their pairs. To review the assignment and think about the task at hand, small groups could be formed via breakout rooms on Zoom or on another video chat feature. If this is not possible, a video of the teacher explaining the assignment and walking through each task would be a helpful form of modeling. A chat could be formed through programs like Voxer, Talking Points, or Remind for additional support with the assignment.

Within this unit, there are suggestions for teaching new content related to human development and trauma. For this curriculum unit, it is incredibly important for students to learn about the ACEs study, trauma, and the four types of development. Teaching styles vary, but there are some basic strategies for engaging students that may apply across all learning environments. These could include breaking content into chunks, providing visuals, modeling with hands-on demonstrations, engaging in online learning activities, and allowing students autonomy and choice. Students may enjoy utilizing idea boards, like Google's JamBoard, to gather student ideas or organize new concepts. Worksheets are also applicable in an online setting, as students may work individually or even collaborate on one document together. Some have also found great success in interactive whiteboards for teaching new content.

The character analysis and timeline project discussed in this unit serve as an application of the content to an independent study of characters in literature. Traditionally, students would be able to submit their project proposal on paper as an exit ticket, have in person research time, and have four walls to create the ultimate character analysis timeline that all students would help to create. In a hybrid setting, individual workspaces should be set up within the classroom to allow for comfortable, yet safe, independent reading and research time. Students adding to the timeline may still do so at a more organized pace. An option for the gallery walk may be to create a booklet containing printed pictures of the timeline so that it can be closely read within their workspace. In a virtual setting, it may be beneficial to create the project proposal as a Schoology discussion post or quiz with an extended response to monitor student response and provide feedback. The character analysis can be modeled in the virtual classroom, with the teacher reading aloud with visual representations on the screen. Modeling should still occur by sharing the screen and demonstrating teacher thinking and connections to content. Summary cards and a timeline could still be created using the online tool that works best for your classroom. For example, each student could have one Google Slide to

add to the timeline. Have students share out to create a student-led presentation as a gallery walk. Creately is also a free online timeline and diagram creator that students can all edit and contribute to, or students could add to a digital media album on their learning management system.

Notes

¹ Shyanne Miller. “Digging Deeper: The Shocking Pervasiveness of ACEs and Trauma among Delaware Students.”

² Ibid.

³ Steven E. Mock and Susan M. Arai. *Frontiers in Psychology*, 2.

⁴ Alexander C. McFarlane and Giovanni de Girolamo, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 132-133.

⁵ Centers for Disease Control and Prevention, “Adverse Childhood Experiences (ACEs).”

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 905.

¹¹ Ibid, 905.

¹² Ibid, 906.

¹³ Alexander C. McFarlane and Giovanni de Girolamo, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 135.

¹⁴ Alexander C. McFarlane and Rachel A. Yehuda, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 164-168.

¹⁵ Ibid, 160.

¹⁶ Bessel A van der Kolk, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 201.

¹⁷ Ibid, 202.

¹⁸ David G. Myers and C. Nathan DeWall, *Myers' Psychology for the AP Course*, 498-499.

¹⁹ Ibid, 503-504.

²⁰ Ibid, 504.

²¹ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 903, 911-912.

²² Bessel A van der Kolk, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 282-287.

²³ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 912.

²⁴ Ibid, 912.

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- ²⁵ David G. Myers and C. Nathan DeWall, *Myers' Psychology for the AP Course*, 535-536.
- ²⁶ Ibid, 535-536.
- ²⁷ Ibid, 535-536.
- ²⁸ Cecilia Wainryb, *Human Development*, 5.
- ²⁹ Ibid, 13-14.
- ³⁰ Ibid, 18-21.
- ³¹ David G. Myers and C. Nathan DeWall, *Myers' Psychology for the AP Course*, 539-541.
- ³² Ibid, 539-541.
- ³³ Ibid, 539-541.
- ³⁴ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 912.
- ³⁵ Bessel A van der Kolk, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 196-199.
- ³⁶ David G. Myers and C. Nathan DeWall, *Myers' Psychology for the AP Course*, 539-541.
- ³⁷ Petra G. H. Aarts and Wybrand Op den Velde, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 364-367.
- ³⁸ Ibid, 368.
- ³⁹ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 906.
- ⁴⁰ Ibid, 906-907.
- ⁴¹ Ibid, 907.
- ⁴² Ibid, 907.
- ⁴³ Steven E. Mock and Susan M. Arai. *Frontiers in Psychology*, 2.
- ⁴⁴ Ibid, 2.
- ⁴⁵ Ibid, 4.
- ⁴⁶ Alexander C. McFarlane and Giovanni de Girolamo, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*; 135.
- ⁴⁷ Steven E. Mock and Susan M. Arai. *Frontiers in Psychology*, 1.
- ⁴⁸ Ibid, 1.
- ⁴⁹ Alexander C. McFarlane and Rachel A. Yehuda, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, 165.
- ⁵⁰ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 905-914.
- ⁵¹ Ibid, 905-914.
- ⁵² Michelle Bosquet Enlow, et. al, *Journal of Epidemiology and Community Health*, 6-7.
- ⁵³ Ibid, 1.
- ⁵⁴ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 908.
- ⁵⁵ Michelle Bosquet Enlow, et. al, *Journal of Epidemiology and Community Health*, 6-7.

⁵⁶ Annette Streeck-Fischer and Bessel A. van der Kolk, *Australian & New Zealand Journal of Psychiatry*, 908.

⁵⁷ *Ibid*, 908.