

Adverse Adolescent Experiences, Psychological Trauma, and the Impact on Management of Educational Learning

Gerasimos Kalogeratos*

Department of Management Science and Technology, University of Patras, Patras, Greece
gkalogeratos@upatras.gr

Eleni Anastasopoulou

Elementary school of Agios Vasileios, Patras, Greece
elenianastasopoulou_@hotmail.com

Angeliki Tsagri

Elementary School of Vlachopoulo, Messinia, Greece
tsagriangeliki@gmail.com

Chrysostomos Tseremegklis

40th Elementary School of Patras, Patras, Greece
chrisostomos@sch.gr

Antigoni Kriparopoulou

Experimental Elementary School of University of Patras, Patras, Greece
antikrip@gmail.com

*Corresponding Author: E-mail: gkalogeratos@upatras.gr

Abstract

This study investigates the complex correlation between Adverse Adolescent Experiences (AAEs), psychological trauma, and their subsequent impact on the learning process in adolescents. The primary aim of this study is to understand how traumatic experiences affect essential cognitive functions vital for learning, including memory, concentration, and problem-solving abilities. In educational contexts, we analyze how trauma can present itself, specifically in emotional dysregulation, anxiety, depression, and behavioral issues, all of which can impede academic engagement and success. This study underscores the significance of trauma-informed educational approaches through a comprehensive analysis of existing literature and empirical research. These practices are specifically tailored to acknowledge and address the unique needs of adolescents who have undergone trauma, fostering a safe and supportive learning environment. This study also examines the importance of integrating comprehensive mental health support into educational systems, specifically focusing on how it positively affects affected adolescents' resilience and academic achievements. Further future implications can provide valuable insights for educators, policymakers, and mental health professionals to develop effective strategies that promote the academic and personal growth of adolescents who have experienced adverse and traumatic events.

Keywords: *Psychological Trauma, Adverse Experiences, Adolescents, Educational Management, Educators, Learning Environment*

1. Introduction

Recently, there has been a growing interest among mental health experts and clinicians in examining Adverse Childhood Experiences (ACEs) and their effects on the mental and physical well-being of individuals. ACEs, short for Adverse Childhood Experiences, refer to incidents occurring within the first 18 years of a person's life that can lead to the development of psychological trauma. Adverse Childhood Experiences (ACEs) refer to negative events during childhood, including abuse, neglect, and family dysfunction (Felliti et al., 1998). Different cultural, social, and environmental factors influence these experiences. These factors have a global impact on young individuals' mental and physical well-being. (Alhowaymel et al., 2021; WHO, 2020).

The majority of ACE research has predominantly concentrated on retrospective studies carried out in adults, specifically exploring the correlation with notable mental health conditions such as substance abuse, depression, anxiety, and suicide attempts (Felitti et al., 2019). Furthermore, these studies have investigated the correlation between ACEs and physical health issues, such as cardiovascular diseases and obesity (Kovács-Tóth et al., 2021). Lately, there has been an increasing emphasis on examining the impacts of Adverse Childhood Experiences (ACEs) during the early stages of life, specifically childhood and adolescence. These studies have demonstrated that Adverse Childhood Experiences pose a substantial risk to the physical well-being and mental health of young individuals. Boullier and Blair (2018) argued that adverse childhood experiences (ACEs) can cause long-lasting damage to the developing brain and disrupt the functioning of the immune and neuroendocrinological systems. As a result, young individuals are more vulnerable to chronic physical and mental illnesses. According to multiple scholars (Elmore & Crouch, 2020; Finkelhor et al., 2015; Lew & Xian, 2019; 2021), despite being in its nascent phase, research on adolescents has produced valuable insights into the correlation between adverse childhood experiences and mental and physical disorders. These disorders encompass the simultaneous presence of depressive and anxiety disorders, inclinations towards suicide, substance abuse, and obesity. It is important to emphasize that the connection between ACEs and the development of anxiety symptoms in adolescence has only been investigated in a solitary cross-sectional study in the worldwide literature (Chi et al., 2022).

Adverse Adolescent Experiences (AAEs) and psychological trauma can significantly impact the educational development of young individuals. Adverse Childhood Experiences (ACEs) refer to traumatic events occurring during adolescence, including abuse, neglect, dysfunctional family dynamics, and exposure to violence and extreme adversity. These encounters can lead to psychological trauma, characterized by emotional, psychological, and physical responses to highly distressing or unsettling events.

The effect of such experiences on learning is substantial. Adolescents who have undergone traumatic experiences often demonstrate difficulties in concentration, memory retention, and problem-solving, all of which are crucial cognitive skills for the process of learning. In addition, individuals with this condition may exhibit emotional dysregulation, including symptoms such as anxiety, depression, or heightened aggression. These symptoms can impede their ability to engage in educational settings effectively (Oikonomou et al., 2023). In addition, trauma can affect the growth of the brain, explicitly affecting areas responsible for cognitive functions and the control of emotions (Halkiopoulou et al., 2023).

These challenges emphasize the need to employ educational strategies that consider the influence of trauma. These involve understanding, recognizing, and responding to the effects of different types of trauma. Teachers and educators should create safe and supportive learning environments that address the specific needs of traumatized adolescents and facilitate their resilience in overcoming challenges (Gkintoni et al., 2023). In addition, integrating mental health support within educational settings can have a pivotal impact on addressing the psychological needs of these adolescents, thereby enhancing their academic performance. To create successful educational strategies that enhance the well-being and academic achievement of individuals who have undergone Adverse Adolescent Experiences and psychological trauma, it is crucial to acknowledge and comprehend the effects of these experiences (Gkintoni et al., 2023).

2. Conceptual Approach to Trauma

Mental Trauma is the disruptive breakdown of the mental organ caused by a single or repeated negative experience, which profoundly impacts the individual's cognitive functions - such as thoughts, memories, and emotions - making it challenging to comprehend and confront the experience. This leads to feelings of terror, extreme fear, and helplessness.

Freud (1896) was the first to introduce the concept of Psychic Trauma in his work "The Etiology of Hysteria." He connected early traumatic events, particularly sexual abuse, to different psychiatric manifestations. Freud posited that the emotional, cognitive, and behavioral symptoms exhibited by his hysterical patients were symbolic reenactments of their traumatic childhood experiences. In his later work, "Three Studies in the Theory of Sexuality," Freud (1906) examined the neurotic symptoms of his patients and concluded that they were primarily caused by childhood fantasies and misinterpretations of events rather than the events themselves (Freud, 1906; Danese, 2019).

Nevertheless, studies on the detrimental effects of Adverse Childhood Experiences in the form of Trauma have persistently persisted, establishing Trauma as a crucial determinant in psychopathology. Renowned trauma researcher vanDerKolk (1987) identified six key factors that, when combined, can impact an individual's ability to adapt to Trauma: The factors that contribute to the impact of a traumatic experience include: 1) the intensity of the traumatic event, 2) the person's inherent genetic tendencies, 3) the person's stage of development during the traumatic event, 4) the presence of a supportive social network in the person's life, 5) previous traumatic experiences, and 6) the person's temperament before the traumatic event.

Psychological Trauma, in the context of childhood and adolescence, is commonly referred to as childhood or early Trauma. Childhood Trauma is defined as the psychological impact of one or more traumatic events that a child undergoes from infancy until the age of 18 (Bishop et al., 2014). Throughout this expansive phase of development, children and adolescents experience swift and ongoing advancements in their psychobiological, cognitive, mental, social, and emotional capacities. However, integrating the central system has yet to be fully accomplished. As a result, there is a higher likelihood of improper mental and psycho-emotional handling of adverse events at their source, leading to the emergence of mental and physical ailments. This is a crucial characteristic of Childhood Trauma.

Spinazzola and colleagues (2005) proposed the idea of Complex Trauma as a potential subcategory of Trauma. Compound Trauma is the experience of being exposed to multiple or long-lasting traumatic events that hurt development. These events are typically interpersonal and often occur during the early stages of life. These instances of harm take place within the childcare system and encompass instances

of physical, emotional, and educational neglect, as well as child abuse, starting from early childhood (Gkintoni, 2023). According to vanDerKolk (2005), if adverse events are repetitive or complex, then the child is more likely to experience severe long-term mental and physical illnesses because of mental Trauma (vanDerKolk, 2005).

In the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders, DSM-V (APA, 2013), an event is classified as Trauma when an individual is subjected to actual or potential death, severe harm, or sexual violence through one or more of the following means:

- 1) When an individual has a firsthand experience of the event(s).
- 2) when he directly observes the occurrence or incidents that transpire to other individuals.
- 3) upon discovering that the occurrence or occurrences occurred to a relative or intimate acquaintance.
- 4) When subjected to repeated or intense exposure to distressing aspects of the traumatic event(s).

Instances of trauma exposure encompass various forms of maltreatment such as physical, emotional, and sexual abuse, neglect, natural calamities, severe accidents, warfare, mass violence, and the abrupt bereavement of a cherished individual.

3. Clinical Effects of ACEs with Emphasis on Adolescence

The trajectory of children's development towards a mentally and physically healthy adulthood is primarily influenced by the caliber of their childhood experiences. Over the past two decades, numerous global and interdisciplinary studies have demonstrated that childhood experiences marked by adversity are linked to negative consequences in adulthood. Felitti and colleagues' (1998) influential study examined the effects of Adverse Childhood Experiences (ACEs) on adult health. The study found that more than half of the participants had encountered at least one adverse experience during their childhood. As adults, these individuals faced a range of physical and mental health issues, including smoking, alcoholism, substance abuse, cancer, depression, suicidal thoughts, severe obesity, and liver problems (Alhowaymel et al., 2020). Subsequent research on children and adolescents has demonstrated that Adverse Childhood Experiences have a detrimental and substantial impact on behavior and mental and physical health (Merrick et al., 2018).

In the previous edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, APA, 2000), the most common diagnosis following a psychodramatic event or events was Posttraumatic Stress Disorder (PTSD). This diagnosis was categorized under Anxiety Disorders due to the significant overlap in symptoms with other anxiety disorders (Friedman, 2013). In the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders, DSM-V (APA, 2013), Trauma-Related Disorders and Stress Disorders are categorized as a distinct group of disorders. These disorders encompass conditions in which the presence of a traumatic or stressful event is a specific requirement for diagnosis. Trauma and Stress Disorders are classified into the following categories: The five disorders mentioned are: 1) Reactive Attachment Disorder, 2) Disinhibited Social Engagement Disorder, 3) Posttraumatic Stress Disorder (PTSD), 4) Acute Stress Disorder, and 5) Adjustment Disorders (APA, 2013).

According to the DSM-5 (APA, 2013), there is a significant range of clinical differences in the psychological distress that an individual undergoes after being exposed to a traumatic or stressful event. Occasionally, the symptoms can be comprehended within the framework of an anxiety or phobia disorder. Nevertheless, a significant proportion of individuals who experience a traumatic or stressful event exhibit a phenotype characterized by symptoms of distress, anhedonia, disengagement, or

externalizing anger and aggression rather than anxiety or phobia. Furthermore, the clinical presentation may encompass a conglomeration of the symptoms above, either accompanied or unaccompanied by manifestations of anxiety or fear. Particularly during childhood and adolescence, the symptoms can manifest in the following manner:

- 1) Children between the ages of 6 and 12 may exhibit symptoms such as withdrawal, distraction, disruptive behavior, sleep disturbances, irritability, emotional instability, anger, sadness, anxiety, difficulties adjusting to school, and feelings of guilt.
- 2) Adolescents may experience various psychological and behavioral manifestations following a traumatic event, such as reliving the event through flashbacks, having nightmares, displaying emotional instability, encountering difficulties in academic performance, exhibiting externalizing problems, experiencing depression, reporting physical symptoms, and withdrawing from social interactions.

Within the World Health Organization's International Classification System of Mental Disorders, known as ICD-11 (WHO, 2018), a novel diagnosis has been recognized: Complex Posttraumatic Stress Disorder (C-PTSD) is a condition that arises from the occurrence of numerous, recurring, and frequent interpersonal traumas that individuals have endured during their childhood. Maercker et al. (2013) found that the symptoms of PTSD can be grouped into three clusters. The first cluster involves experiencing the traumatic event again in the present. The second cluster involves avoiding anything that reminds one of the Trauma. The third cluster involves constantly feeling a sense of danger and being overly alert. In addition to the core symptom clusters of PTSD, Complex Posttraumatic Stress Disorder (C-PTSD) encompasses symptomatology associated with "disruptions in self-organization," namely emotional dysregulation, negative self-image, and disturbances in interpersonal relationships. Furthermore, studies have demonstrated that repeated and prolonged exposure to potentially traumatic experiences in childhood can result in intricate and enduring medical and psychological impairments, acquired powerlessness, and overwhelming emotional suffering (Davidson & McEwen, 2012). Adverse Childhood Experiences, such as abuse, neglect, and other traumatic events, have a detrimental effect on early attachment relationships, mainly when the individual responsible for the abuse is the primary caregiver. When children face rejection and insecurity, their trust in others may become fragmented, and their perception of themselves and the world may become distorted (Dye, 2018).

Adverse Childhood Experiences have been associated with neurological deficits in memory and information processing. This is because they cause significant alterations in the hypothalamus-pituitary-adrenal axis and the neuroendocrine system responsible for regulating stress (Nemeroff, 2004). The Hypothalamus – pituitary–adrenal (HPA) axis can be excessively or insufficiently stimulated due to prolonged or intense stress, leading to elevated or reduced cortisol levels. This hormone then interacts with cognitive and physiological processes, including immunity and inflammation. Excessive or insufficient production of cortisol negatively impacts the neuroplasticity of a child's developing brain. The dysregulation of glucocorticoid signaling hinders the typical development of brain structures involved in stress regulation and the child's complex sensory, language, cognitive, and emotional functions; because of Adverse Childhood Experiences, the brain's normal development, and dysfunction cause a discrepancy between biological age and developmental age (Dye, 2018).

Moreover, individuals who have experienced adverse childhood trauma often exhibit psychiatric comorbidity, and the impact on their mental well-being is enduring and enduring (Dye, 2018). According to Condly (2006), traumatic events have a significant impact not only due to the immediate harm they cause but also because they require individuals to reassess their perception of themselves and the world over a long period (Condly, 2006). Retrospective studies in adults have demonstrated a strong correlation between Adverse Childhood Experiences and various negative outcomes such as substance

abuse, depressive disorders, PTSD and mood disorders, anxiety disorders, self-injurious behaviors and eating disorders, attachment disorders, behavioral disorders, personality disorders, aggression, crime, and suicidal behavior (Briere & Scott, 2006; Enoch, 2011; Gilbert et al., 2009; McLaughlin et al., 2012). Simultaneously, children and adolescents who have endured numerous traumatic experiences for an extended period may exhibit a diverse range of clinical symptoms, including amnesia, hypermnnesia, dissociative experiences, nightmares, distressing flashbacks, challenges in attention regulation, hyperactivity, irritability, academic difficulties, feelings of fear and helplessness, and heightened vigilance (Arbeau et al., 2017). As a result, children and teenagers who experience high levels of Trauma, abuse, and other difficulties often meet the criteria outlined in the DSM-V (APA, 2013) for various diagnoses. These may include Oppositional Defiant Disorder, Attention-Deficit/Hyperactivity Disorder (ADHD), Posttraumatic Stress Disorder, Conduct Disorder, Anxiety Disorders, Communication Disorders, and Reactive Attachment Disorder. However, it is essential to note that each diagnosis only partially captures the full range of problems in their relationships and self-regulation. It is crucial to note that over the past two decades, numerous researchers have contended that the DSM-5 (APA, 2013) lacks a psychiatric diagnosis that effectively encompasses the extensive impact of Trauma on children and adolescents (D'Andrea et al., 2012; vanderKolk 2005). To address this deficiency, the critical researcher of Psychological Trauma, vanDerKolk (2005), has proposed a new diagnostic category called Developmental Trauma Disorder (DTD). This is because he believes that the diagnosis of Posttraumatic Stress Disorder (PTSD) is inadequate in capturing the full range of adverse psychological effects experienced by children and adolescents who have had traumatic childhood experiences.

VanDerKolk (2005) states that psychological Trauma not only has negative impacts on the emotional and cognitive development of children but also hinders their neurological development. Children and adolescents may have distorted thoughts about themselves, others, and their surroundings, leading to negative beliefs about themselves and their future. They may also expect to be traumatized again in the future and feel that they lack care and protection from others. Hence, individuals in their childhood and teenage years who have experienced psychological Trauma exhibit significant challenges in regulating their emotions, impairments in their social interactions, diminished ability to focus, and enduring psychological hardships that persist into adulthood (VanderKolk, 2017).

4. Adverse Adolescent Experiences and Learning Process

The learning process of adolescents is significantly affected by psychological trauma and adverse events they experience. Studies have shown that individuals who have had negative experiences during their childhood and adolescence are more prone to encountering physical and mental health issues, substance abuse, and engaging in risky behaviors during adulthood (Othman & Essau, 2019). Moreover, research has shown that childhood maltreatment has a significant effect on the fear circuitry and internalizing symptoms in late adolescence (Gkintoni et al., 2021b). Specifically, females are more susceptible to developing internalizing disorders such as anxiety and depression as a result of maltreatment (Herringa et al., 2013). Research conducted by Andersen et al. (2021) has shown that negative experiences during adolescence can interact with adversity experienced in early childhood, thereby impacting future development in a problematic manner. The correlation between adverse childhood experiences and mental health issues in adolescents has been emphasized, particularly in cases where severe adverse experiences are associated with mental health problems (Haavet et al., 2010).

Furthermore, researchers have examined the influence of childhood adversities and stressful war experiences on the mental well-being of adolescents after the war. This research highlights the significance of comprehending the distinct effects of these experiences (Okello et al., 2014). It is crucial

to acknowledge the subjective nature of teaching and learning within the context of the learning process, as they constitute a social subjective configuration (Antonopoulou et al., 2021c; Antonopoulou et al., 2022b; Halkiopoulos et al., 2021b; Hernández, 2022). Motivation has been recognized as a determinant that can impact the learning process (Dipa, 2021; Giannoulis et al., 2022a; Giannoulis et al., 2022b; Gkintoni & Dimakos, 2022; Gkintoni et al., 2023c; Sortwell et al., 2023; Tzachrista et al., 2023). Evaluating and monitoring learning are essential to the learning process (Gkintoni et al., 2021a; Halkiopoulos et al., 2022; Pratiwi et al., 2021). The impact of the timing of adversity on the adjustment of adolescents and young adults has been emphasized, explicitly highlighting the enduring effects of early adversity on their adjustment (Gkintoni & al., 2021c; Kiff et al., 2012).

Moreover, the learning process has been defined as both a cognitive process and a metacognitive process involving actively monitoring and regulating the learning process (Antonopoulou et al., 2022a; Tang, 2019, Antonopoulou et al., 2023). To summarize, negative experiences during adolescence and psychological trauma have been demonstrated to significantly affect the process of acquiring knowledge. It is essential to comprehend the combined impact of negative experiences, the connection between childhood and adolescent hardship, and the subjective nature of the learning process in order to effectively address the obstacles that adolescents encounter in their educational path (Gkintoni et al., 2022a).

Within leadership development, it has been observed that adverse experiences play a significant role in shaping the growth of individuals as leaders. Specifically, these experiences help individuals overcome challenging crucible situations and acquire the essential skills required for effective leadership (Chance, 2021). Furthermore, the importance of examining adolescents' perspectives on leadership has been emphasized. This is because comprehending the behavior of adolescent leaders can predict their future acquisition and application of leadership skills in adulthood (Antonopoulou et al., 2021d; Archard, 2013). Furthermore, studies have demonstrated that trait anxiety and openness to experiences can influence the quantity and range of leadership experiences, suggesting that negative experiences can affect the development of leadership skills (Popper & Amit, 2009). Social factors and environmental influences also influence adolescent learning and decision-making processes (Gkintoni et al., 2021d). Computational mechanisms and social influences significantly impact the developmental changes in learning, particularly in childhood and adolescence (Antonopoulou, 2023c; Bolenz et al., 2017).

Moreover, the correlation between coach leadership and the favorable developmental experiences of teenage soccer players emphasizes the significance of extracurricular activities and coaching in promoting educational experiences and acquiring life skills among adolescents (Vella et al., 2013). The negative experiences that occur during adolescence can profoundly impact how individuals learn and develop their leadership skills. These experiences can influence how people think and feel, their decision-making ability, and their development of essential leadership skills. Gaining insight into the impact of negative experiences on adolescents is essential for creating interventions and support systems that foster favorable learning experiences and cultivate leadership skills during this pivotal stage of development.

Furthermore, studies have emphasized the capacity of negative experiences to cultivate subsequent resilience, leading to mental health and overall well-being benefits (Gkintoni & Ortiz, 2023). The study was conducted by Seery et al. in 2010. Nevertheless, the existing body of literature fails to adequately address the consequences of collective traumas on the development of leaders despite the substantial occurrence of traumatic events worldwide (Tcholakian et al., 2019). Moreover, the significance of trauma in leadership socialization has been recognized as a promising domain for exploring the concepts of resilience and personal development as crucial competencies in leadership (Antonopoulou et al., 2020; Antonopoulou et al., 2021a; Arnold et al., 2018; Gkintoni et al., 2022b). Research on posttraumatic growth among displaced community leaders has yielded valuable insights into rebuilding

disrupted lives and cultivating prosocial leadership qualities (Antonopoulou et al., 2019; Uy & Okubo, 2018).

Additionally, researchers have investigated the connection between rainstorm-related encounters and posttraumatic stress disorder (PTSD) in adolescents who have experienced natural disasters. This research emphasizes the significant role that traumatic experiences play as a risk factor for developing PTSD (Ben-xian & Zhou, 2016). Gaining insight into the correlation between negative experiences during adolescence, psychological trauma, and leadership abilities is essential for effectively addressing the potential effects of trauma on the development of leadership skills and resilience (Antonopoulou et al., 2021b; Gkinton et al., 2023). These findings emphasize the significance of considering the impact of trauma on the formation of leadership abilities and the potential for personal growth after experiencing trauma in the development of leadership (Antonopoulou, 2023a; Antonopoulou, 2023b). Furthermore, the examination of the emotional well-being of individuals who have encountered negative experiences during their teenage years and psychological trauma is a crucial field of research. Studies have demonstrated that trauma can result in emotional dysregulation, which impairs the capacity to control and express emotions effectively (Andersson et al., 2022; Kroska et al., 2018). Moreover, research has emphasized the effect of trauma on emotional well-being, demonstrating that emotional abuse and neglect can have a substantial impact on emotional regulation and the development of internalizing symptoms in adolescents (Trucco et al., 2023; Malhi et al., 2019). The study conducted by Ashrafi et al. (2021) examined the connection between childhood trauma and difficulties in regulating emotions. The research emphasized the role of emotion regulation in mediating the relationship between attachment styles, childhood trauma, and self-harming behaviors in adolescents.

Finally, researchers have examined the therapeutic effects of dance therapy on individuals who have experienced psychological trauma, revealing insights into the potential advantages of dance therapy in alleviating emotional distress caused by trauma (Tomaszewski et al., 2022). Moreover, researchers have investigated the connection between trauma, posttraumatic stress disorder (PTSD), and individuals from different ethnic and racial backgrounds. They have highlighted the significance of comprehending the effects of racism and cultural competence in dealing with the emotional aftermath of traumatic events (Ford, 2008). Gaining insight into the emotional ramifications of negative experiences during adolescence and psychological trauma is essential in order to devise efficacious interventions and support networks for individuals who have undergone trauma. These findings emphasize the necessity of trauma-informed strategies that target emotional dysregulation and enhance emotional well-being in individuals who have encountered adverse experiences and psychological trauma.

5. Trauma's Impact on Cognitive and Emotional Functioning

Contemporary research in educational psychology is increasingly recognizing the significant influence of psychological trauma on both learning and behavior within school environments. Exposure to abuse, neglect, or witnessing violence can cause psychological trauma, which can have a profound impact on a child's cognitive, emotional, and social growth. These disruptions can appear as challenges in focusing, retaining information, and managing emotions, all essential for successful learning. Zhang et al. (2023) emphasize that the incidence of such trauma is remarkably elevated, with approximately 25% of students encountering some trauma prior to reaching adulthood. This highlights the necessity of implementing trauma-informed approaches in educational administration. The cognitive effects of trauma on learners are extensively documented. Students who have experienced trauma frequently display diminished working memory, compromised focus, and challenges in assimilating novel information. Psychologically, these students may encounter escalated levels of anxiety, depression, or emotional detachment, which can impact their level of involvement and drive in the educational setting.

The neuroscientific study by Lee and Park (2021) demonstrates that trauma can modify the neural architecture associated with learning and memory, specifically the hippocampus and prefrontal cortex. This study establishes a biological foundation for the documented academic difficulties experienced by students who have experienced trauma.

6. Trauma-Informed Approaches in Educational Management

Addressing the needs of students who have experienced trauma necessitates a change in educational administration tactics. According to Kimberg and Wheeler (2019), trauma-informed approaches encompass the establishment of secure, nurturing, and consistent learning settings that recognize and confront the effects of trauma. This involves providing educators with the necessary training to identify trauma symptoms and respond suitably. The Resilience and Emotional Support Training (REST) model, created by Rodriguez-Planas and De Balanzo (2023), has demonstrated the potential to augment teacher readiness and student assistance, resulting in enhanced academic and behavioral results. Although research has increased, there remains a need for further implementation and evaluation of trauma-informed educational practices. According to Cruz (2023), it is recommended that future research prioritize longitudinal studies in order to evaluate the long-term efficacy of these approaches. Furthermore, it is imperative to conduct research that is more comprehensive and takes into account a wide range of cultural and socio-economic backgrounds when examining trauma experiences and responses. Ultimately, it is crucial to comprehend and tackle psychological trauma in order to manage education successfully. This requires ongoing research and the development of innovative educational practices that take trauma into account.

7. Conclusion

Overall, the complex relationship between Adverse Adolescent Experiences (AAEs), psychological trauma, and their influence on the learning process is a substantial and intricate matter within the realms of education and psychology. Adverse childhood experiences (AAEs), which range from abuse to exposure to violence, lead to the development of psychological trauma. This trauma, in turn, hurts the cognitive and emotional functioning of adolescents. This impact is evident in multiple ways, such as challenges in focusing, retaining information, solving problems, and managing emotions, all essential for successful learning. The results of this discussion emphasize the immediate requirement for trauma-informed strategies in educational environments. These approaches not only recognize the distinct difficulties experienced by traumatized teenagers but also aim to establish a caring and encouraging atmosphere that can promote education and personal development. This entails instructing educators to identify and address behaviors associated with trauma, as well as incorporating mental health assistance within schools to offer a comprehensive approach to meeting the educational requirements of these students. Moreover, the conversation emphasizes the significance of timely intervention and the delivery of suitable support services. By promptly addressing the consequences of trauma, there is an increased likelihood of minimizing its enduring repercussions on the educational attainment and holistic growth of adolescents. Essentially, it is crucial to comprehend the significant influence of Adverse Childhood Experiences (AAEs) and psychological trauma on the process of learning. It requires a collaborative endeavor from educators, mental health experts, and policymakers to create and execute strategies that address the academic requirements of traumatized adolescents while also promoting their emotional and psychological welfare. These endeavors guarantee that every student, irrespective of their background and experiences, has equitable chances to excel and flourish in their educational endeavors.

References

- [1] Allowaymel, F., Kalmakis, K., & Jacelon, C. (2021). Developing the Concept of Adverse Childhood Experiences: A Global Perspective. *Journal of Pediatric Nursing*, 56, 18–23. <https://doi.org/10.1016/j.pedn.2020.10.004>
- [2] Andersen, S. H., Steinberg, L., & Belsky, J. (2021). Beyond early years versus adolescence: the interactive effect of adversity in both periods on life-course development.. *Developmental Psychology*, 57(11), 1958-1967. <https://doi.org/10.1037/dev0001247>
- [3] Andersson, H., Aspeqvist, E., Dahlström, Ö., Svedin, C. G., Jönsson, L., Landberg, Å., ... & Zetterqvist, M. (2022). Emotional dysregulation and trauma symptoms mediate the relationship between childhood abuse and nonsuicidal self-injury in adolescents. *Frontiers in Psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.897081>
- [4] Antonopoulou, H. (2023a). Building up Leadership Skills in Vulnerable Social Groups. Case Study in Bipolar Disorder and Psychoeducation Contribution. *Technium Business and Management*, 6, 70–79. <https://doi.org/10.47577/business.v6i.9718>
- [5] Antonopoulou, H. (2023b). Evolutionary Features of Personality Research and Leadership Traits. A Comprehensive Analysis. *Technium Business and Management*, 6, 58–69. <https://doi.org/10.47577/business.v6i.9717>
- [6] Antonopoulou, H., Giannoulis, A., Theodorakopoulos, L., & Halkiopoulos, C. (2022a). Socio-Cognitive Awareness of Inmates through an Encrypted Innovative Educational Platform. *International Journal of Learning, Teaching and Educational Research*, 21(9), 52–75. <https://doi.org/10.26803/ijlter.21.9.4>
- [7] Antonopoulou, H., Halkiopoulos, C., Gkintoni, E. (2023c). Educational Neuroscience and its Contribution to Math Learning. *Technium Education and Humanities Journal* <https://doi.org/10.47577/teh.v4i.8237>
- [8] Antonopoulou, H., Halkiopoulos, C., Barlou, O., & Beligiannis, G. N. (2021a). Transformational Leadership and Digital Skills in Higher Education Institutes: During the COVID-19 Pandemic. *Emerging Science Journal*, 5(1), pp.1–15. DOI:10.28991/esj-2021-01252.
- [9] Antonopoulou, H., Halkiopoulos, C., Barlou, O., & Beligiannis, G. N. (2021b). Associations between Traditional and Digital Leadership in Academic Environment: During the COVID-19 Pandemic. *Emerging Science Journal*, 5(4), pp.405–428. DOI:10.28991/esj-2021-01286
- [10] Antonopoulou, H., Halkiopoulos, C., Barlou, O., & Beligiannis, G. (2021d). DIGITAL LEADER AND TRANSFORMATIONAL LEADERSHIP IN HIGHER EDUCATION. *INTED Proceedings*. <https://doi.org/10.21125/inted.2021.2005>
- [11] Antonopoulou, H., Halkiopoulos, C., Barlou, O., Beligiannis, G. (2020). Leadership Types and Digital Leadership in Higher Education: Behavioural Data Analysis from University of Patras in Greece. *International Journal of Learning, Teaching and Educational Research*, 19 (4), pp.110-129. DOI:10.26803/ijlter.19.4.8
- [12] Antonopoulou, H., Halkiopoulos, C., Barlou, O., Beligiannis, G. (2019). Transition from Educational Leadership to e-Leadership: A Data Analysis Report from TEI of Western Greece. *International Journal of Learning, Teaching and Educational Research*, 18 (9), pp.238-255. DOI:10.26803/ijlter.18.9.13
- [13] Antonopoulou, H., Halkiopoulos, C., Gkintoni, E., Katsibelis, A. (2022b). Application of Gamification Tools for Identification of Neurocognitive and Social Function in Distance Learning Education. *International Journal of Learning, Teaching and Educational Research*, 21(5), 367–400. doi:10.26803/ijlter.21.5.19
- [14] Antonopoulou, H., Katsibelis, A., Halkiopoulos, C. (2021c). Cognitive Parameters Detection via Gamification in Online Primary Education During Covid-19. 15th Annual International Technology, Education and Development Conference (INTED2021), 8-10 March, Valencia, Spain. *INTED2021 Proceedings*, pp. 9625-9632. DOI:10.21125/inted.2021.2007
- [15] Archard, N. (2013). Adolescent leadership. *Educational Management Administration & Leadership*, 41(3), 336-351. <https://doi.org/10.1177/1741143212474804>
- [16] Arnold, N. W., Osanloo, A. F., Guillaume, R. O., Boske, C., & Miller-Tomlinson, W. (2018). The role of trauma in leadership socialization. *Journal of School Leadership*, 28(6), 718-741. <https://doi.org/10.1177/105268461802800602>

- [17] Ashrafi, E., Karami, J., & Nasori, M. (2021). The mediating role of difficulties in emotion regulation in the correlation between attachment styles and childhood trauma with self-harming behaviors in adolescents. *Journal of Kermanshah University of Medical Sciences*, 25(4). <https://doi.org/10.5812/jkums.119094>
- [18] Ben-xian, Y. and Zhou, X. (2016). Understanding the relationship between rainstorm-related experiences and PTSD among Chinese adolescents after rainstorm disaster: the roles of rumination and social support. *Frontiers in Psychology*, 7. <https://doi.org/10.3389/fpsyg.2016.01407>
- [19] Bishop, M., Rosenstein, D., Bakelaar, S., & Seedat, S. (2014). An analysis of early developmental trauma in social anxiety disorder and posttraumatic stress disorder. *Annals of General Psychiatry*, 13(1), 16. <https://doi.org/10.1186/1744-859X-13-16>
- [20] Bolenz, F., Reiter, A., & Eppinger, B. (2017). Developmental changes in learning: computational mechanisms and social influences. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.02048>
- [21] Boullier, M., & Blair, M. (2018). Adverse childhood experiences. *Paediatrics and Child Health*, 28(3), 132–137. <https://doi.org/10.1016/j.paed.2017.12.008>
- [22] Briere, J., & Scott, C. (2006). Biology and psychopharmacology of trauma. In J. Briere & C. Scott (Eds.), *Principles of trauma therapy: A guide to symptoms, evaluation, and treatment* (pp. 185–229). Thousand Oaks, CA: Sage.
- [23] Chance, N. (2021). A phenomenological inquiry into the influence of crucible experiences on the leadership development of black women in higher education senior leadership. *Educational Management Administration & Leadership*, 49(4), 601–623. <https://doi.org/10.1177/17411432211019417>
- [24] Chi, X., Jiang, W., Guo, T., Hall, D. L., Luberto, C. M., & Zou, L. (2022). Relationship between adverse childhood experiences and anxiety symptoms among Chinese adolescents: The role of self-compassion and social support. *Current Psychology*. <https://doi.org/10.1007/s12144-021-02534-5>
- [25] Condly, S. J. (2006). Resilience in children: A review of literature with implications for education. *Urban Education*, 41(3), 211–236. doi:10.1177/0042085906287902
- [26] Cruz, D. (2023). Attachment, Existential Psychology, and Developmental Trauma. *Developmental Trauma*, 37–57. <https://doi.org/10.4324/9781003304715-3>
- [27] Danese, A. (2020). Annual Research Review: Rethinking childhood trauma—new research directions for measurement, study design and analytical strategies. *Journal of Child Psychology and Psychiatry*, 61(3), 236–250. <https://doi.org/10.1111/jcpp.13160>
- [28] Davidson, R. J., & McEwen, B. S. (2012). Social influences on neuroplasticity: Stress and interventions to promote well-being. *Nature Neuroscience*, 15(5), 689–695. <https://doi.org/10.1038/nn.3093>
- [29] Dipa, P. S. (2021). Motivation as contributing factor that impacts teaching excellence in learning. *The Art of Teaching English as a Foreign Language*, 2(2), 84–88. <https://doi.org/10.36663/tatefl.v2i2.108>
- [30] Dye, H. (2018). The impact and long-term effects of childhood trauma. *Journal of Human Behavior in the Social Environment*, 28(3), 381–392. <https://doi.org/10.1080/10911359.2018.1435328>
- [31] Elmore, A. L., & Crouch, E. (2020). The Association of Adverse Childhood Experiences With Anxiety and Depression for Children and Youth, 8 to 17 Years of Age. *Academic Pediatrics*, 20(5), 600–608. <https://doi.org/10.1016/j.acap.2020.02.012>
- [32] Enoch, M. A. (2011). The role of early life stress as a predictor for alcohol and drug dependence. *Psychopharmacology (Berlin)*, 214(1), 17–31.
- [33] Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245–258. [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8)
- [34] Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (2019). REPRINT OF: Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 56(6), 774–786. <https://doi.org/10.1016/j.amepre.2019.04.001>

- [35] Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2015). A revised inventory of Adverse Childhood Experiences. *Child Abuse & Neglect*, 48, 13–21. <https://doi.org/10.1016/j.chiabu.2015.07.011>
- [36] Ford, J. D. (2008). Trauma, posttraumatic stress disorder, and ethnoracial minorities: toward diversity and cultural competence in principles and practices.. *Clinical Psychology: Science and Practice*, 15(1), 62-67. <https://doi.org/10.1111/j.1468-2850.2008.00110.x>
- [37] Freud, S. (1906). The part played by sexuality in the aetiology of the neuroses..., *S.E.*, 7:271-279.
- [38] Friedman, M. J. (2013). Finalizing PTSD in DSM-5: Getting here from there and where to go next. *Journal of Traumatic Stress*, 26(5), 548–556. <https://doi.org/10.1002/jts.21840>
- [39] Giannoulis, A., Theodorakopoulos, L., & Antonopoulou, H. (2022a). Learning in second-chance schools during covid-19 case study: legal framework and distance learning platforms in greek prison. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4132811>
- [40] Giannoulis, H. Antonopoulou, C. Halkiopoulos (2022b) EDUCATIONAL LEARNING METHODS WITH GAMIFICATION ASPECTS FOR INMATES DURING PANDEMIC, *EDULEARN22 Proceedings*, pp. 5746-5751
- [41] Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high income countries. *Lancet*, 373, 68–81.
- [42] Gkintoni, E., Telonis, G., Halkiopoulos, C., & Boutsinas, B. (2023). Quality of Life and Health Tourism: A Conceptual Roadmap of Enhancing Cognition and Well-Being. *Springer Proceedings in Business and Economics*, 651–666. https://doi.org/10.1007/978-3-031-26829-8_41
- [43] Gkintoni, E. (2023). Clinical neuropsychological characteristics of bipolar disorder, with a focus on cognitive and linguistic pattern: a conceptual analysis. *F1000Research*, 12, 1235. <https://doi.org/10.12688/f1000research.141599.1>
- [44] Gkintoni, E., & Ortiz, P. S. (2023). Neuropsychology of Generalized Anxiety Disorder in Clinical Setting: A Systematic Evaluation. *Healthcare*, 11(17), 2446. <https://doi.org/10.3390/healthcare11172446>
- [45] Gkintoni, E., Antonopoulou, H., & Halkiopoulos, C. (2023). Emotional Neuroscience and Learning. An Overview. *Technium Social Sciences Journal*, 39, 421–429. <https://doi.org/10.47577/tssj.v39i1.8076>
- [46] Gkintoni, E., Boutsinas, B., Kourkoutas, E. (2022a). Developmental Trauma and Neurocognition in Young Adults. 14th Annual International Conference on Education and New Learning Technologies, 4th – 6th July, Mallorca, Spain. DOI:10.21125/edulearn.2022.1332
- [47] Gkintoni, E., Dimakos, I. (2022). An Overview of Cognitive Neuroscience in Education. 14th Annual International Conference on Education and New Learning Technologies, 4th – 6th July, Mallorca, Spain. DOI:10.21125/edulearn.2022.1343
- [48] Gkintoni, E., Dimakos, I., Halkiopoulos, C., Antonopoulou, H. (2023c). Contribution of Neuroscience to Educational Praxis: A Systematic Review. *Emerging Science Journal. Emerging Science Journal. Special Issue "Current Issues, Trends, and New Ideas in Education"* DOI: 10.28991/ESJ-2023-SIED2-012
- [49] Gkintoni, E., Halkiopoulos, C., Antonopoulou, H. (2022b). Neuroleadership an Asset in Educational Settings: An Overview. *Emerging Science Journal. Emerging Science Journal*, 6(4), 893–904. DOI:10.28991/esj-2022-06-04-016
- [50] Gkintoni, E., Halkiopoulos, C., Antonopoulou, H., & Koutsopoulou, I. (2021d). Neurocognitive Behavior Analysis of Sexting Phenomenon in Young Adults. *Technium Social Sciences Journal*, 24, 400–410. <https://doi.org/10.47577/tssj.v24i1.4732>
- [51] Gkintoni, E., Halkiopoulos, C., Antonopoulou, H., & Petropoulos, N. (2021a). Gamification of Neuropsychological Tools as a Multi-Sensory Approach to Education. *Stroop’s Paradigm. Technium Romanian Journal of Applied Sciences and Technology*, 3(8), 92–102. <https://doi.org/10.47577/technium.v3i8.4798>
- [52] Gkintoni, E., Halkiopoulos, C., Dimakos, I., & Nikolaou, G. (2023). Emotional Intelligence as Indicator for Effective Academic Achievement within the School Setting: A Comprehensive Conceptual Analysis. <https://doi.org/10.20944/preprints202310.2029.v2>
- [53] Gkintoni, E., Koutsopoulou, I., Antonopoulou, H., Christopoulos, P. (2021b). Consequences of the COVID-19 Pandemic on Greek Students’ Mental Health: Quality of Life and Trauma Stressful Events Correlation. 14th Annual International Conference of Education, Research and Innovation, 8th-10th November, Seville Spain. DOI:10.21125/iceri.2021.0663

- [54] Gkintoni, E., Meintani, P.M., Dimakos, I. (2021c). Neurocognitive and Emotional Parameters in Learning and Education Process. 14th Annual International Conference of Education, Research and Innovation, 8th- 10th November, Seville, Spain. DOI:10.21125/iceri.2021.0659
- [55] Haavet, O. R., Sagatun, Å., & Lien, L. (2010). Adolescents' adverse experiences and mental health in a prospective perspective. *Scandinavian Journal of Public Health*, 39(1), 58-63. <https://doi.org/10.1177/1403494810375491>
- [56] Halkiopoulos C., Antonopoulou, H., Gkintoni E., Giannoukou I. (2021b). An Expert System for Recommendation Tourist Destinations: An Innovative Approach of Digital Marketing and Decision-Making Process. *International Journal of Innovative Science and Research Technology*, 6(4), pp.398-404. ISSN: 2456-2165
- [57] Halkiopoulos, C., Antonopoulou, H., Gkintoni, E., & Aroutzidis, A. S. (2022). Neuromarketing as an indicator of cognitive consumer behavior in decision-making process of tourism destination—an overview. *Transcending Borders in Tourism Through Innovation and Cultural Heritage*, 679-697. https://doi.org/10.1007/978-3-030-92491-1_41
- [58] Halkiopoulos, C., Gkintoni, E., & Antonopoulou, H. (2023). Neuroeducation and Artistic Expression. An Overview from the Biopsychology Viewpoint. *Technium Education and Humanities*, 3(1), 38–49. <https://doi.org/10.47577/teh.v3i1.8235>
- [59] Hernández, W. G. (2022). The teaching-learning process or the teaching process and the learning process. *Culture & Psychology*, 1354067X2210976. <https://doi.org/10.1177/1354067x221097610>
- [60] Herringa, R. J., Birn, R. M., Ruttle, P. L., Burghy, C. A., Stodola, D. E., Davidson, R. J., ... & Essex, M. J. (2013). Childhood maltreatment is associated with altered fear circuitry and increased internalizing symptoms by late adolescence. *Proceedings of the National Academy of Sciences*, 110(47), 19119-19124. <https://doi.org/10.1073/pnas.1310766110>
- [61] Kiff, C. J., Cortes, R. C., Lengua, L. J., Kosterman, R., Hawkins, J. D., & Mason, W. A. (2012). Effects of timing of adversity on adolescent and young adult adjustment. *Journal of Research on Adolescence*, 22(2), 284-300. <https://doi.org/10.1111/j.1532-7795.2012.00781.x>
- [62] Kimberg, L., & Wheeler, M. (2019). Trauma and Trauma-Informed Care. *Trauma-Informed Healthcare Approaches*, 25–56. https://doi.org/10.1007/978-3-030-04342-1_2
- [63] Kovács-Tóth, B., Oláh, B., Papp, G., & Szabó, I. K. (2021). Assessing adverse childhood experiences, social, emotional, and behavioral symptoms, and subjective health complaints among Hungarian adolescents. *Child and Adolescent Psychiatry and Mental Health*, 15(1), 12. <https://doi.org/10.1186/s13034-021-00365-7>
- [64] Kroska, E. B., Miller, M. L., Roche, A. I., Kroska, S. K., & O'Hara, M. W. (2018). Effects of traumatic experiences on obsessive-compulsive and internalizing symptoms: the role of avoidance and mindfulness. *Journal of Affective Disorders*, 225, 326-336. <https://doi.org/10.1016/j.jad.2017.08.039>
- [65] Lee, M., & Park, K.-H. (2021). Overgeneral Memory in Depression: differences in with or without history of trauma, negative mood, and functional impairment. *Korean Association For Learner-Centered Curriculum And Instruction*, 21(5), 403–417. <https://doi.org/10.22251/jlcci.2021.21.5.403>
- [66] Lew, D., & Xian, H. (2019). Identifying Distinct Latent Classes of Adverse Childhood Experiences Among US Children and Their Relationship with Childhood Internalizing Disorders. *Child Psychiatry and Human Development*, 50(4), 668–680. <https://doi.org/10.1007/s10578-019-00871-y>
- [67] Maercker, A., Brewin, C. R., Bryant, R. A., Cloitre, M., van Ommeren, M., Jones, L. M., Humayan, A., Kagee, A., Llosa, A. E., Rousseau, C., Somasundaram, D. J., Souza, R., Suzuki, Y., Weissbecker, I., Wessely, S. C., First, M. B., & Reed, G. M. (2013). Diagnosis and classification of disorders specifically associated with stress: Proposals for ICD-11. *World Psychiatry: Official Journal of the World Psychiatric Association (WPA)*, 12(3), 198–206. <https://doi.org/10.1002/wps.20057>
- [68] Malhi, G. S., Das, P., Outhred, T., Irwin, L., Gessler, D., Bwabi, Z., ... & Mannie, Z. (2019). The effects of childhood trauma on adolescent hippocampal subfields. *Australian & New Zealand Journal of Psychiatry*, 53(5), 447-457. <https://doi.org/10.1177/0004867418824021>
- [69] McLaughlin, K. A., Greif Green, J., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2012). Childhood adversities and first onset of psychiatric disorders in a national sample of US adolescents. *Archives of General Psychiatry*, 69(11), 1151–1160. <https://doi.org/10.1001/archgenpsychiatry.2011.2277>

- [70] Merrick, M. T., Ford, D. C., Ports, K. A., & Guinn, A. S. (2018). Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatrics*, 172(11), 1038–1044. <https://doi.org/10.1001/jamapediatrics.2018.2537>
- [71] Nemeroff, C. B. (2004). Neurobiological consequences of childhood trauma. *The Journal of Clinical Psychiatry*, 65 Suppl 1, 18–28.
- [72] Oikonomou, V., Gkintoni, E., Halkiopoulou, C., & Karademas, E. (2023). Quality of Life and Incidence of Clinical Signs and Symptoms among Caregivers of Person with Mental Disorder. <https://doi.org/10.20944/preprints202312.1109.v2>
- [73] Okello, J., Schryver, M. D., Musisi, S., Broekaert, E., & Derluyn, I. (2014). Differential roles of childhood adversities and stressful war experiences in the development of mental health symptoms in post-war adolescents in northern uganda. *BMC Psychiatry*, 14(1). <https://doi.org/10.1186/s12888-014-0260-5>
- [74] Othman, S. and Essau, C. A. (2019). Adolescent health risk behaviors and mental health: evidence from the malaysian national health and morbidity survey 2017. *Asia Pacific Journal of Public Health*, 31(8_suppl), 6S-7S. <https://doi.org/10.1177/1010539519887322>
- [75] Popper, M. and Amit, K. (2009). Attachment and leader's development via experiences. *The Leadership Quarterly*, 20(5), 749-763. <https://doi.org/10.1016/j.leaqua.2009.06.005>
- [76] Pratiwi, T. I., Winingsih, E., & Adhe, K. R. (2021). An analytical survey on the learning performance of the lecturers at the faculty of education. *Proceedings of the International Joint Conference on Arts and Humanities 2021 (IJCAH 2021)*. <https://doi.org/10.2991/assehr.k.211223.185>
- [77] Rodriguez-Planas, N., & De Balanzo Joue, R. (2023). Resilience-Thinking Training for College Students [dataset]. In *AEA Randomized Controlled Trials*. American Economic Association. <https://doi.org/10.1257/rct.10927>
- [78] Seery, M. D., Holman, E. A., & Silver, R. C. (2010). Whatever does not kill us: cumulative lifetime adversity, vulnerability, and resilience.. *Journal of Personality and Social Psychology*, 99(6), 1025-1041. <https://doi.org/10.1037/a0021344>
- [79] Sortwell, A., Evgenia , G., Zagarella, S., Granacher , U., Forte, P., Ferraz , R., Ramirez-Campillo, R., Carter-Thuillier, B., Konukman, F., Nouri , A., Bentley, B., Marandi, P. and Jemni , M. (2023) “Making neuroscience a priority in Initial Teacher Education curricula: a call for bridging the gap between research and future practices in the classroom”, *Neuroscience Research Notes*, 6(4), pp. 266.1–266.7. doi: 10.31117/neuroscim.v6i4.266.
- [80] Spinazzola, J., Ford, J., Zucker, M., van der Kolk, B., Silva, S., Smith, S., & Blaustein, M. (2005). Survey Evaluates: Complex Trauma Exposure, Outcome, and Intervention Among Children and Adolescents. *Psychiatric Annals*, 35, 433–439. <https://doi.org/10.3928/00485713-20050501-09>
- [81] Tang, L. (2019). On improving learning ability of students with english learning disabilities by using metacognitive strategies. *DEStech Transactions on Economics, Business and Management*, (icaem). <https://doi.org/10.12783/dtem/icaem2019/31099>
- [82] Tcholakian, L. A., Khapova, S. N., Loo, E. v. d., & Lehman, R. H. (2019). Collective traumas and the development of leader values: a currently omitted, but increasingly urgent, research area. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.01009>
- [83] Tomaszewski, C., Belot, R., Essadek, A., Onumba-Bessonnet, H., & Clesse, C. (2022). Therapeutic impact of dance therapy on adult individuals with psychological trauma: a systematic review.. <https://doi.org/10.1101/2022.10.27.22281614>
- [84] Trucco, E. M., Fava, N. M., Villar, M. G., & Kumar, M. (2023). Social isolation during the covid-19 pandemic impacts the link between child abuse and adolescent internalizing problems. *Journal of Youth and Adolescence*, 52(6), 1313-1324. <https://doi.org/10.1007/s10964-023-01775-w>
- [85] Tzachrista, M., Gkintoni, E., & Halkiopoulou, C. (2023). Neurocognitive Profile of Creativity in Improving Academic Performance—A Scoping Review. *Education Sciences*, 13(11), 1127. <https://doi.org/10.3390/educsci13111127>
- [86] Uy, K. K. and Okubo, Y. (2018). Reassembling a shattered life: a study of posttraumatic growth in displaced cambodian community leaders.. *Asian American Journal of Psychology*, 9(1), 47-61. <https://doi.org/10.1037/aap0000111>
- [87] Van der Kolk, B. A. (1987). *Psychological Trauma*, Washington. DC: American Psychiatric.

- [88] Van der Kolk, B. A. (2005). Developmental Trauma Disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, 35(5), 401–408. <https://doi.org/10.3928/00485713-20050501-06>
- [89] Van der Kolk, B. A. (2017). Developmental Trauma Disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, 35(5), 401–408.
- [90] Vella, S. A., Oades, L. G., & Crowe, T. P. (2013). The relationship between coach leadership, the coach–athlete relationship, team success, and the positive developmental experiences of adolescent soccer players. *Physical Education & Sport Pedagogy*, 18(5), 549–561. <https://doi.org/10.1080/17408989.2012.726976>
- [91] WHO. (2018). Adverse Childhood Experiences International Questionnaire (ACE-IQ). Retrieved February 4, 2015, from http://www.who.int/violence_injury_prevention/violence/activities/adverse_childhood_experiences/en/
- [92] Zhang, Z. Z., & Marshall, A. D. (2023). Developmental Timing of Trauma Exposure Relative to Puberty and Violent Behavior in Adulthood. *Journal of Aggression, Maltreatment & Trauma*, 32(12), 1726–1743. <https://doi.org/10.1080/10926771.2023.2241024>