



Exploring the relationship between Adverse Childhood Experiences and Learning Strategies in Students

¹**Nishtha Rastogi**, BA + MA int. Clinical Psychology, Amity University

²**Dr. Annie Khanam**, Assistant Professor I, Amity University

Abstract

This study explores the relationship between Adverse Childhood experiences and learning strategies among students. ACEs are traumatic and challenging such as abuse, family disruptions and neglect that occur during childhood from the age of 0 to 17 years. These early experiences can leave a lasting mark on how individuals approach life and learning. These *ACEs* experiences are known to affect mental, emotional and physical well-being of an individual throughout their life. This study focuses on how these experiences affects their *learning strategies*. The aim of this study is to understand whether students with higher ACE scores develop distinct ways of studying, such as deep learning which is where students engage meaningfully with the material or surface learning in which students focus on passing tests without deeper understanding. Data was collected from 200 participants. This study used Pearson's correlation analysis and found a strong positive relationship of ($r = 0.996$) between ACE scores and learning strategies. Which suggests that students with higher *ACEs* tend to adopt unique approaches to learning. The findings indicate that some students might use deep

learning to make sense of their past experiences, while others might turn to surface learning due to emotional exhaustion.

Keywords: *Adverse Childhood experiences, trauma, learning strategies, academic, deep and surface learning.*

INTRODUCTION

Adverse Childhood Experiences (ACEs) encompass various traumatic events or adverse conditions that occur during a child's formative years, from birth to age 17. These experiences, including abuse, neglect, and household dysfunction, can profoundly impact an individual's development, affecting both mental and physical health well into adulthood. Research indicates that ACEs can contribute to a range of psychological and physical health issues, such as chronic conditions, mental health disorders, and substance use challenges. These issues, while often treatable, can have lasting effects on an individual's ability to thrive and may require long-term management or intervention (Centers for Disease Control , 2024)

Children's brains are highly impressionable, with early experiences playing a critical role in shaping cognitive and emotional development. Much like a sponge, children absorb information from their environment, learning through interactions with caregivers, family members, and peers. For instance, they acquire motor skills, like holding a spoon or riding a bicycle, by observing and practicing in a supportive environment. When children encounter negative experiences, like a minor fall, they may adapt by becoming more cautious. However, ACEs—often beyond a child's control—expose them to severe risks that they cannot mitigate alone. Examples of ACEs include the loss of a loved one, experiences of abuse, and exposure to household dysfunction, all of which can disrupt normal developmental pathways and leave lasting effects on health and behavior (Cleveland Clinic, 2024).

The long-term impact of ACEs on an individual's health and well-being is significant. Research has shown that exposure to ACEs can lead to various psychological issues, including anxiety, depression, post-traumatic stress disorder, behavioral challenges, and even suicidal ideation. These experiences can create a chronic stress response in children, altering brain development and affecting their ability to manage stress as they grow. This heightened stress reactivity can compromise academic achievement, social relationships, and overall mental resilience (Cleveland Clinic, 2024).

Trauma is often described as a response to a deeply distressing or disturbing event that overwhelms an individual's ability to cope, leading to feelings of helplessness and a diminished sense of self. It may have a lasting impact on an individual's emotional, psychological, and physical well-being. During a traumatic event, a person may feel intense fear, vulnerability, or terror. Trauma can result from direct experiences, such as accidents or abuse, but may also be triggered by indirect exposure, like witnessing an incident or even hearing about it from others. For example, hearing about a traumatic event in the news or experiencing the loss of a loved one can provoke symptoms of trauma, leading to flashbacks and other long-term effects (Daniel, 2024).

It's crucial to understand that trauma is subjective what one individual experience as traumatic may not affect another in the same way. Factors such as resilience, support systems, and personal coping mechanisms play a vital role in how trauma impacts an individual. Additionally, trauma can result from a broad spectrum of events, from severe instances like natural disasters, violence, and war to more personal adversities, like parental separation, bullying, and the loss of close family members. Each of these events holds the potential to disrupt a child's sense of safety and stability, which are fundamental for healthy development (Farrington & Woodward, 2024)

ACEs can be categorized into three main types: abuse, neglect, and household dysfunction. Abuse includes emotional, physical, and sexual abuse. Emotional abuse might involve criticism or rejection that damages a child's self-worth, while physical abuse involves inflicting physical harm, and sexual abuse includes any form of unwanted sexual contact or exposure. Neglect, on the other hand, can be either emotional or physical. Emotional neglect involves failing to provide affection, support, or attention, while physical neglect might include failing to meet basic needs like food, shelter, or medical care. Finally, household dysfunction includes factors like parental substance abuse, mental illness, domestic violence, and divorce, all of which can create an unstable and fearful environment for a child (Felitti, Anda, & Nordenber, 1998).

Learning strategies are the techniques students employ to understand, retain, and apply new knowledge. These strategies help in determining how students approach their academic work, with significant implications for their overall educational success. The Revised Study Process Questionnaire (R-SPQ-2F) categorizes learning approaches into two main types: surface learning and deep learning. Surface learning focuses on memorizing just enough information to pass a test, with little emphasis on understanding the material. This method often involves cramming information and may provide short-term success but rarely results in long-term knowledge retention. In contrast, deep learning emphasizes a thorough comprehension of the subject matter. Deep learners actively engage with the material, ask questions, draw connections, and apply what they learn in meaningful ways. This approach not only supports academic achievement but also enhances critical thinking and problem-solving skills that are valuable beyond the classroom (Biggs, Kember, & Leung, 2001).

The effectiveness of these learning strategies is evident: students who utilize deep learning techniques tend to perform better academically, retain knowledge longer, and are better prepared for complex challenges. In contrast, students who rely on surface learning may

succeed in passing exams but often struggle with understanding complex ideas and may have to relearn material later. Thus, understanding and applying effective learning strategies is essential for both academic success and personal development. By encouraging deep learning approaches, educators can help students build a strong foundation of knowledge and skills that will support lifelong learning (Zhao & Liu, 2022).

The relationship between ACEs and learning strategies is an important area of study, as childhood adversity can profoundly influence educational outcomes. Children exposed to ACEs often experience chronic stress, which may impair cognitive functions essential for learning, such as memory, attention, and problem-solving. This "survival mode" response can hinder their ability to focus, engage with peers, and cope with academic demands. Students affected by ACEs may appear withdrawn, overly dependent, or reactive in classroom settings, behaviors that disrupt learning and limit academic progress. Such children may struggle to utilize effective learning strategies, instead focusing on short-term survival, which affects their educational and social development (Graduate Programs for Educators, 2020).

Furthermore, ACEs have been associated with negative educational outcomes like higher rates of absenteeism, lower academic performance, and decreased likelihood of pursuing higher education. Recognizing the impact of ACEs on learning underscores the importance of fostering a supportive educational environment. Schools can play a critical role in mitigating these effects by promoting strong student-teacher relationships, creating safe spaces, and providing resources to help students cope with adversity. By addressing the unique needs of students affected by ACEs, educators can enhance resilience and improve academic and social outcomes, helping to break the cycle of adversity and support positive, long-term growth (Webb, Miller , & Stockbridge, 2022).

Addressing the broad impact of ACEs on education through targeted interventions, policies, and support systems is crucial. By understanding the diverse challenges these students face, educational professionals and policymakers can design strategies that foster resilience, enhance academic success, and improve long-term social and economic well-being.

REVIEW OF LITERATURE

Adverse Childhood Experiences

The study aimed to assist educators and personnel in early childhood programs, such as Head Start, in establishing trauma-informed classrooms for children aged 0-5. 56 employees participated in training aimed at addressing the trauma and stress experienced by educators and children. Following the training, participants offered ideas for enhancing the support networks in their classrooms and felt better equipped to comprehend and manage trauma in young children (Price, et al., 2023).

The study examined the impact of adverse childhood experiences (ACEs) on the educational outcomes of adolescents in Manitoba, Canada. Data were collected from 1002 students. The findings revealed that students with ACEs were more likely to be suspended from school, have lower grades, and miss school often. This study emphasizes the need of managing childhood trauma in order to improve adolescents' academic performance (Tufescu, et al., 2022).

The study examined the impact of particular childhood adversities on school participation in students aged 6 to 17, utilizing data from the National Survey of Children's Health. According to the study, students from low-income homes were less likely to finish their homework or show interest in their studies, while students with an incarcerated parent were more likely to repeat a grade. According to the findings, policy have to concentrate on

lowering family stress and assisting pupils in achieving better academic results (Webb, Miller, & Stockbridge, 2022)

Researchers investigated the relationship between ACEs and young adult outcomes in scoping research. The study examined 42 publications and focused on the frequency of drug abuse and mental health problems among young adults who had experiences ACE exposure. The study emphasized that in order to fully comprehend the effects of ACEs longitudinal and mixed method studies are essential (Park, Lee, & Han, 2021).

Researchers conducted a systematic review and meta-analysis of 96 studies that utilized the CDC-Kaiser ACE scale to measure health outcomes. They discovered that exposure to ACEs was linked to a number of medical and psychosocial outcomes, with odds ratios for psychosocial effects such as mental health issues being greater than for physical diseases (Petrucellia, Davisb, & Bermana, 2019)

Learning strategies

The study examined the study methods of 250 dentistry university students in Palestine using R-SPQ-2F questionnaire. In this cross-sectional stud, curricular evaluation results were contrasted with an analysis of the student's surface and deep learning techniques. The result showed that deep learning improves academic performance as fifth year students had considerably higher deep learning scores and those with evaluation scores over 80% employed deep learning techniques more frequently than surface learning ones (Rabi, Arandi, Rabi, & Assaf, 2024)

The study investigated the learning approaches of 222 students in Saudi Arabia using the R-SPQ-2F questionnaire. It is a cross-sectional study. It showed that 4th and 5th year students showed deep learning approaches while early year students showed surface learning

approaches. Students with deep *learning strategies* achieved better academic outcomes than surface learning strategies (Alahmari, Basudan, & Shaheen, 2023).

The researchers created and validated a short form of the R-SPQ-2F questionnaire. The sample consisted of 889 undergraduate students in three testing sessions. The new 8 item questionnaire was found to be valid and reliable using psychometric assessments, which effectively assessed surface learning and deep learning approaches in academic setting (Zakariya & Massimiliano, 2022).

The researcher investigated the factors influencing medical students learning approaches in Qatar. 108 medical students participated in the study 44% male and 56% female. They used the R-SPQ-2F questionnaire and demographic surveys in this cross-sectional study. The result showed with increased in education they adopted deep learning approaches. The findings support the validity of the R-SPQ-2F tool in medical education and proposed that the program leaders use those insights to improve their practices (Qureshi, Larson, & Vishnumolakala, 2022).

The researchers examined the methods of student learning in two distinct subjects over the course of the same academic year. The sample consisted of 74 biotechnology students and the R-SPQ-2F questionnaire was utilized. The findings indicated that there was a notable distinction in the methods of learning between a course of business economics and genetics. The results support the notion that learning impacted by teaching situations by indicating that students adapt their *learning strategies* based on the subject and its requirements (Lajara, Castro, & Brondo, 2021)

METHODOLOGY

3.1 Aim

To explore how *ACEs* affect the way college students approach their learning strategies.

3.2 Objective

The objective of this research is to explore how *ACEs* affect the *learning strategies* of college students.

3.3 Hypothesis

- There will be significant impact of *ACEs* on *learning strategies*
- There will not be an impact of *ACEs* on *learning strategies*

3.5 Sampling

This study recruited 200 college students aged 18-25 from diverse academic backgrounds through social media and university campuses using convenience sampling. Data was collected via a survey questionnaire, with strict adherence to ethical considerations such as informed consent, privacy, and confidentiality. Participants were required to complete the ACE 10 and R-SPQ-2F questionnaires. Exclusion criteria included those with diagnosed cognitive impairments or currently receiving psychological treatment for childhood trauma.

3.6 Variables

- Dependent variable: *ACEs* (ACE)
- Independent variable: *learning strategies*

3.7 Tools details and description:

In this study two tools were used:

- *ACEs*: this questionnaire has 10 questions that help measure the level of negative experiences a person had during childhood and assess the impact of these early experiences on the individual.

- Revised Study Process Questionnaire (R-SPQ-2F): It has 20 questions that evaluate the different *learning strategies* students use whether they use deep or surface learning approaches.

3.8 Procedure

The participants were briefed about the study and were assured about the confidentiality of the data provided by them. Informed consent was taken before administration and demographic details were obtained. They were made comfortable in case they found any question uncomfortable.

3.9 Statistical Analysis

Pearson's correlation analysis

The data was analysed using SPSS (Statistical Package for Social Sciences)

3.10 Reliability and validity

Table 1

S. NO	Title	Author	Items	Reliability	Validity
1.	<i>ACEs</i>	(Felitti, Anda, & Nordenber, 1998)	10	Internal Consistency 0.70	Good concurrent criteria validity
2.	Revised Study Process Questionnaire (R-SPQ-2F)	(Biggs, Kember, & Leung, 2001)	20	Internal Consistency: 0.73 - 0.80	Good concurrent criteria validity

ANALYSIS OF RESULT

This study was conducted to examine the relationship between *ACEs* and *learning strategies* of college students from the age group 18-25. A sample of 200 participants was taken.

Results

Table 2: *Correlation between ACEs and learning strategies*

<i>ACEs</i>	Pearson Correlation	1	.996**
	Sig. (2-tailed)		<.001
	N	200	200
<i>Learning strategies</i>	Pearson Correlation	.996**	1
	Sig. (2-tailed)	<.001	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

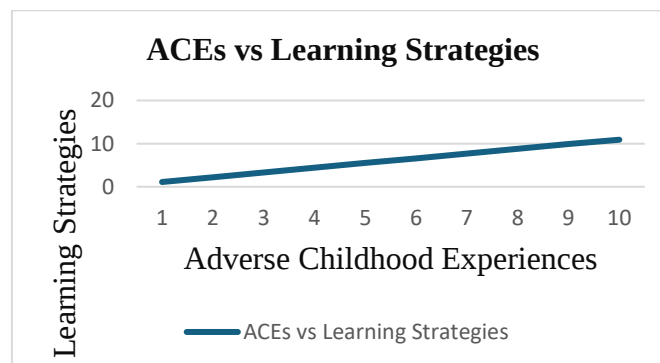


Figure 1: *The data shows a positive significant relationship between ACEs and learning strategies. The ascending slope represents a strong positive relationship between the ACEs and learning strategies*

DISCUSSION OF RESULTS

This study explores the relationship between Adverse Childhood Experiences (ACEs) and students' learning strategies, hypothesizing a significant connection. ACEs are traumatic events experienced before age 18, impacting both physical and mental health, potentially leading to conditions such as mental illness, chronic disease, and substance abuse (Centers for Disease Control, 2024). ACEs measure childhood adversity, including abuse, neglect, and family issues, and have been linked to negative health and social outcomes.

Learning strategies refer to techniques students use to understand and retain knowledge. The Revised Study Process Questionnaire (R-SPQ-2F) identifies two primary learning strategies: deep and surface learning (Biggs, Kember, & Leung, 2001). While ACEs are known for their health impacts, the link between ACEs and learning approaches had not been fully explored, highlighting the need for this research.

Using Pearson's correlation, this study analyzed data from 200 college students to assess the relationship between ACEs and learning strategies. Pearson's correlation measures the strength and direction of a linear relationship between variables, with coefficients ranging from -1 (perfect negative correlation) to +1 (perfect positive correlation) (Laerd Statistics, 2020). In this analysis, the correlation coefficient of 0.996 suggests a very strong positive relationship between ACEs and learning strategies, indicating that students with higher ACE scores tend to score higher in their learning strategies.

The findings reveal that students with higher ACEs may adapt specific learning strategies, possibly as coping mechanisms shaped by early adversity. This supports the idea that ACEs influence not only emotional and behavioral patterns but also learning approaches. The p-value <0.001 further underscores the significance of this relationship, making it unlikely that the observed correlation occurred by chance.

Although the study identifies a strong association, it does not imply causation. Childhood adversity can trigger coping mechanisms, and while some students might thrive and enhance skills such as critical thinking and emotional resilience, others might face challenges like anxiety and mood disorders. This suggests that trauma can have complex effects on learning—both adaptive and disruptive.

The study's results emphasize the need for educators and mental health professionals to understand the varied ways students with ACEs engage in learning. Tailored interventions and supportive learning environments could help these students overcome academic and psychological barriers, allowing them to harness their resilience in positive, constructive ways.

CONCLUSION

The purpose of this study was to investigate the connection between students' learning styles and *ACEs*. A very substantial positive connection (0.996) was found in the results, indicating that students who scored higher on the *ACEs* were more likely to use learning techniques.

This result highlights the significant relationship between kids' academic behaviors and their early experiences. While some students may find studying more difficult if their emotional and mental health are significantly harmed by *trauma*, others may utilize school as a way to survive, adapt, or reconstruct their lives after going through suffering.

The study also emphasizes how *trauma* can influence resilience, as some kids use deep learning techniques to make sense of their circumstances and succeed in spite of their setbacks. But not every student reacts to *trauma* in the same manner. *Trauma* can serve as a driving force for some people, encouraging them to achieve. Others may experience emotional or mental

health issues that hinder their ability to study and necessitate further assistance from educators, therapists, and mental health specialists.

Although these findings are significant, it is crucial to remember that correlation does not necessarily indicate causality. Learning techniques and *ACEs* are not causally related, even if they are correlated. To completely comprehend the many ways that childhood *trauma* interacts with kids' learning patterns, more research is required as there might be more elements at work impacting this link.

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