

Original Research Article

Parenting Styles and Academic Adjustment among Pre-Service Teachers in Universities: Systematic Review

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Article History

Received: 18.05.2025

Accepted: 02.07.2025

Published: 11.07.2025

Journal homepage:

<https://www.easpublisher.com>

Quick Response Code



Abstract: **Objective:** Academic adjustment among pre-service teachers in universities is crucial for their success, yet the influence of parenting styles remains understudied. This systematic review examines the relationship between parenting styles and academic adjustment among pre-service teachers. **Impact Statement:** This systematic review explores the relationship between parenting styles and academic adjustment among pre-service teachers in universities, shedding light on a critical yet underexplored area in teacher education. The findings synthesize current evidence to highlight how early parental influences shape students' academic behaviors, resilience, and adaptability in higher education. By identifying key patterns and gaps, this study provides valuable insights for educators, policymakers, and researchers aiming to enhance academic support strategies for future teachers. Therefore, Parenting styles influence academic adjustment among pre-service teachers in universities by shaping students' academic motivation, coping skills, and overall adjustment to university life. The review highlights research gaps and offers recommendations for improving educational support for future teachers. **Methods:** Using the Population, Concept, and Context (PCC) framework, we developed MeSH terms [(“Parenting Styles” OR “Parenting Practices”) AND (“Academic Adjustment” OR “University Adjustment”) AND (“Pre-Service Teachers” OR “Student Teachers”) AND (“Universities” OR “Higher Education”)] to search ERIC, Embase, Web of Science, and Cochrane Library. The review was registered on PROSPERO [613401]. **Results:** Studies from 2020 to 2024 highlight that authoritative parenting enhances self-efficacy and motivation, while negative parenting correlates with maladaptation. Teacher communication, support, and international experiences further improve academic engagement. **Conclusion:** Parenting styles and teaching strategies significantly impact pre-service teachers' academic adjustment. Future research should explore long-term effects on academic success and mental health.

Keywords: Parenting Styles, Academic Adjustment, Pre-Service Teachers, Universities.

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INTRODUCTION

The academic adjustment of pre-service teachers has been a focal point in educational research worldwide (Žerak, Jurišević, & Pečjak, 2024). In developed countries, teacher education programs have evolved to address not only pedagogical skills but also the holistic development of future educators. Despite these advancements, challenges such as high attrition rates and the stress associated with rigorous coursework

persist. Recent studies highlight the significant role of parenting styles in this context; for instance, authoritative parenting has been linked to enhanced self-regulated learning among students, while authoritarian styles may impede academic engagement.

In developing nations, the academic adjustment of pre-service teachers is often hindered by systemic issues such as inadequate infrastructure and limited

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access to educational resources (Pantachai, Homjan, Srikham, & Markjaroen, 2024). Economic hardships compel many students to balance employment with their studies, adversely affecting their academic performance. Cultural factors and rigid educational systems further exacerbate these challenges. Parental involvement remains a critical factor; supportive parenting has been shown to positively influence students' attitudes toward learning and their overall academic satisfaction.

In Sub-Saharan Africa, pre-service teachers face unique challenges, including underfunded educational institutions and outdated curricula. A significant decline in trained teachers—from 89% to 72%—has been observed, compromising the quality of education (East African Community, August 12-15 August 2024). Parenting styles play a pivotal role in students' academic adjustment; those from supportive backgrounds often exhibit higher resilience and adaptability, whereas students from less supportive environments may struggle with self-efficacy and motivation.

In East African countries such as Kenya, Tanzania, and Uganda, teacher education programs have expanded, yet pre-service teachers continue to encounter challenges like large class sizes and insufficient academic counseling (EdData, 2015). The cascade model of professional development has been implemented to enhance teaching practices, aiming to transform educational quality. Parenting styles significantly influence academic adjustment (El-Hamamsy *et al.*, 2024); students with authoritative and supportive parents tend to perform better academically and demonstrate greater resilience (Udo, Imafidon, & Abdulkadir, 2025).

In Uganda, pre-service teachers often come from rural areas with limited access to quality secondary education, making the transition to university education particularly challenging (Omodan, 2022). Financial constraints and high student-to-lecturer ratios further exacerbate these difficulties. Studies have shown that only 21.8% of pre-service teachers are proficient in numeracy, and 38.8% reach the desired proficiency in literacy (O'Sullivan, 2024). Parenting styles are crucial; students with supportive and involved parents exhibit better academic engagement and overall well-being, while those from less supportive backgrounds often face challenges in independence and motivation (Sserunkuuma, 2023). This overview underscores the critical influence of parenting styles on the academic adjustment of pre-service teachers across various regions.

Addressing these challenges through policy reforms, enhanced mentorship, and increased family engagement in education is essential for improving student outcomes. Yet, the relationship between parenting styles and academic adjustment has long been a topic of interest in educational psychology. Numerous

studies have highlighted the significant role that parental involvement, communication, and emotional support play in shaping a student's academic outcomes and overall well-being (Hako, Shikongo, & Bozkurt, 2025). In the context of pre-service teachers, this relationship is particularly crucial, as these individuals are preparing to enter the teaching profession, where their own academic performance and adjustment could influence their future pedagogical practices.

Parenting styles, which encompass authoritative, authoritarian, permissive, and neglectful approaches, have been shown to have a profound impact on students' academic self-efficacy, social-emotional development, and career decisions. For instance, Aldhafri *et al.*, (2020) revealed that authoritative parenting styles were associated with higher academic self-efficacy among school students, though the effect was less pronounced among university students. Similarly, Moon-Seo *et al.*, (2021) found that authoritative parenting promoted better social, emotional, and academic adjustment among undergraduates, emphasizing the long-term influence of early parenting on higher education outcomes.

Moreover, parenting influences the development of self-regulation and emotional intelligence, factors crucial for academic engagement and adjustment. Chan *et al.*, (2023) and Shengyao *et al.*, (2024) emphasized the role of parenting in shaping pre-service teachers' motivation, resilience, and emotional intelligence, which are essential for academic success and professional growth. A nurturing home environment can bolster a pre-service teacher's confidence, enhancing their academic and professional capabilities. However, negative parenting styles, such as overprotection or neglect, can result in maladjustment, as seen in the findings of Hua *et al.*, (2022) and Xu & Yan (2023), who noted that negative parenting contributed to poor academic adaptation via maladaptive beliefs and emotional struggles.

In the context of pre-service teacher education, students often face additional stressors, including transitioning from theory-based learning to practical application, which makes their academic adjustment more complex. The parenting styles that these students experience during their formative years may shape their ability to cope with the academic pressures inherent in teacher preparation programs. For example, research by Yildirim (2021) and Aksu (2024) indicates that self-efficacy, an important component of academic success, can be positively influenced by supportive teaching methods and personal resilience, factors often shaped by early parental interactions.

This systematic review aims to synthesize existing research on the role of parenting styles in the academic adjustment of pre-service teachers, examining how these influences manifest across different

educational settings. It will explore key findings from global studies to understand how pre-service teachers from diverse cultural contexts—such as the USA, Turkey, China, and Uganda—respond to various forms of parental involvement. The review will also identify gaps in the literature, providing insights that may guide future research and interventions aimed at enhancing the academic experiences of pre-service teachers.

MATERIALS AND METHODS

This systematic review aims to investigate the relationship between parenting styles and academic adjustment among pre-service teachers in university settings. The review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological rigor and transparency.

Review Design

This systematic review employs a rigorous approach to synthesizing existing literature on the impact of parenting styles on the academic adjustment of pre-service teachers in university settings. The review follows a structured process that includes defining eligibility criteria, a comprehensive search strategy, study selection, quality assessment, data extraction, and synthesis. The PRISMA framework will guide the selection and reporting of studies to ensure methodological transparency and reliability.

Eligibility Criteria

The inclusion and exclusion criteria for study selection are structured using the Population, Concept, and Context (PCC) framework. The population consists of pre-service teachers, the concept includes parenting styles and their impact on academic adjustment, and the context is university settings. The eligibility criteria are designed to ensure that only relevant and high-quality studies are included in the review.

Studies will be included if they focus on pre-service teachers and examine the influence of parenting styles on academic adjustment and student connectedness. Only empirical studies that provide data-driven insights into this relationship will be considered. Additionally, studies must be published in peer-reviewed journals and written in English. Research that includes quantitative, qualitative, or mixed-methods approaches will be considered to provide a comprehensive understanding of the topic.

Exclusion criteria include studies focusing on in-service teachers, as their experiences and challenges differ significantly from those of pre-service teachers. Non-empirical studies such as theoretical papers, opinion pieces, and literature reviews will also be excluded, as they do not provide original data. Grey literature, such as unpublished reports and theses without peer review, will be excluded to maintain the credibility and quality of the findings.

Search Strategy

A comprehensive search will be conducted across multiple electronic databases, including PubMed, PsycINFO, ERIC, and Google Scholar. These databases were selected for their extensive coverage of psychology, education, and social sciences literature. The search strategy will utilize a combination of Medical Subject Headings (MeSH) terms and keywords to maximize the retrieval of relevant studies.

The Boolean search strategy will include the following terms: ("Parenting Styles" OR "Parenting Approaches") AND ("Academic Adjustment" OR "Educational Adaptation") AND ("Pre-service Teachers" OR "Teacher Trainees") AND ("University" OR "Higher Education" OR "College"). The search terms will be tailored to each database to ensure comprehensive retrieval of relevant studies.

In addition to database searches, supplementary searches will be conducted using reference lists of included studies and relevant systematic reviews. Grey literature sources such as government reports and institutional publications will also be reviewed, provided they meet the inclusion criteria.

Study Selection and Screening

The study selection process will follow a multi-stage approach. Initially, all identified studies will undergo title and abstract screening to determine their relevance to the review question. Two independent reviewers will assess each study to minimize bias. Discrepancies between reviewers will be resolved through discussion, and if necessary, a third reviewer will be consulted to reach a consensus.

After the initial screening, full-text reviews will be conducted for potentially eligible studies. The full-text screening will ensure that studies meet all inclusion criteria. Studies that do not meet the eligibility criteria upon full-text review will be excluded, with reasons for exclusion documented. The entire selection process will be recorded and presented in a PRISMA flow diagram to ensure transparency.

Quality Assessment

The methodological quality of the included studies will be assessed using the PRISMA checklist. This checklist ensures that studies meet essential quality standards, including clear research objectives, appropriate study design, valid data collection methods, and reliable data analysis procedures. The assessment will be conducted independently by three reviewers to minimize bias.

Each study was evaluated based on criteria such as sample representativeness, study design appropriateness, and the reliability of reported findings. Any disagreements in quality assessment will be resolved by discussion among reviewers, with a fourth

reviewer available to arbitrate if consensus is not reached.

Data Extraction

Data extraction will be conducted using a standardized extraction form to ensure consistency and accuracy. Key information will be extracted, including the authors' names, year of publication, study design, sample size, and key findings related to parenting styles and academic adjustment. The extracted data will be organized in Microsoft Excel to facilitate systematic synthesis and comparison across studies.

The data extraction process will be conducted independently by two reviewers to ensure accuracy. Any discrepancies in extracted data will be resolved through discussion and consensus. The extracted information will be structured in tables to enhance clarity and facilitate further analysis.

Data Synthesis

A narrative synthesis approach will be employed to analyze and summarize the findings from the included studies. Narrative synthesis allows for the integration of findings from studies with diverse methodologies, providing a comprehensive understanding of the relationship between parenting styles and academic adjustment among pre-service teachers.

The synthesis will focus on identifying patterns, similarities, and differences across studies. Studies will be grouped based on parenting styles (e.g., authoritative, authoritarian, permissive, and neglectful) and their impact on academic adjustment factors such as motivation, engagement, and performance. The findings will be interpreted in relation to theoretical frameworks in education and psychology to provide a well-rounded analysis.

Ethical Considerations

This study does not involve direct interaction with human subjects; therefore, ethical approval is not required. However, ethical research practices will be upheld by ensuring that all data are sourced from publicly available, peer-reviewed literature. The findings will be reported with integrity and transparency, and all included studies will be appropriately cited to acknowledge original authorship.

Research Team and Resources

The research team comprises experts in public health, educational psychology, and biostatistics. Team members include: Rosemary Atuhaire (PhD Student in Educational Psychology, MED (Psychology)), Aloysius Rukundo (PhD in Educational Psychology), and Grace Milly Kibanja (PhD in Educational Psychology).

The team's diverse expertise ensures a multidisciplinary approach to the review.

Computing facilities and research databases will be accessed through Mbarara University of Science and Technology. The review will utilize bibliographic software such as EndNote to manage references and ensure accurate citation of included studies.

Target Audience and Dissemination

The findings of this systematic review will be relevant to educational policymakers, university administrators, teacher educators, and researchers in the fields of education and psychology. The results will provide insights into how parenting styles influence academic adjustment and inform interventions to support pre-service teachers.

The review findings will be disseminated through peer-reviewed journal publications, academic conferences, webinars, and institutional newsletters. This multi-channel dissemination strategy will ensure that key stakeholders have access to the insights derived from the systematic review.

In conclusion, this systematic review follows a rigorous methodological approach to examine the relationship between parenting styles and academic adjustment among pre-service teachers. By employing a comprehensive search strategy, systematic study selection, robust quality assessment, and narrative synthesis, the review aims to contribute valuable insights to educational research and practice.

RESULTS

Introduction

Parenting styles have a profound impact on students' academic adjustment, particularly for pre-service teachers who navigate both educational and professional development challenges. Parenting styles—authoritative, authoritarian, permissive, and neglectful—shape students' self-efficacy, motivation, social relationships, learning strategies, and psychological well-being. This review synthesizes research on how different parenting approaches influence the academic adjustment of pre-service teachers in universities, with implications for teacher training programs and institutional support systems.

The Role of Parenting Styles in Self-Efficacy and Motivation

Academic self-efficacy refers to students' confidence in their ability to succeed in academic tasks. Studies (Aldhafri *et al.*, 2020; Shengyao *et al.*, 2024) indicate that students raised in authoritative households—characterized by warmth, encouragement, and clear expectations—tend to exhibit higher self-efficacy. These students demonstrate greater persistence in overcoming academic challenges, a key attribute for future educators. Conversely, students from authoritarian or overprotective backgrounds may struggle with self-

doubt, as excessive parental control limits their autonomy and problem-solving skills.

Academic motivation can be intrinsic (driven by internal satisfaction) or extrinsic (motivated by external rewards or pressures). Research by Uysal (2022) and Amponsah *et al.*, (2024) suggests that students raised with autonomy-supporting parenting display higher intrinsic motivation. These students engage in learning for personal growth rather than fear of punishment or desire for rewards. In contrast, neglectful parenting is linked to low motivation, leading to academic disengagement and increased dropout risks.

Parenting styles also indirectly impact academic motivation through emotional regulation. Yao, Chen, & Gu (2022) found that pre-service teachers who experienced warm and responsive parenting were better at managing academic stress and uncertainty. In contrast, students raised in emotionally restrictive environments exhibited heightened anxiety, which negatively affected their academic performance.

Parenting Styles and Social Adjustment in Universities

Social adjustment is critical for pre-service teachers, as teaching requires effective interpersonal interactions. Xu & Yan (2023) highlighted that student from authoritarian or neglectful households often struggle with social adaptation due to attachment avoidance and poor friendship quality. In contrast, those raised in authoritative households exhibit better social skills, fostering collaborative learning and professional networking.

Parental expectations can significantly shape students' career paths. Chung (2021) found that restrictive parenting styles limited career exploration, particularly in highly structured educational systems like South Korea. Conversely, Finnish students who experienced parental autonomy support reported higher career satisfaction and confidence in their teaching profession.

Research by Nathans & Brown (2022) indicates that pre-service teachers benefit more from teacher-initiated parent involvement than direct parental control. This suggests that universities can play a role in supporting students from backgrounds where parental engagement is either excessive or lacking.

Parenting, Learning Styles, and Academic Performance

Studies by Bakaç (2022) and Young *et al.*, (2021) suggest that students' preferred learning styles are shaped by their home environments. Those from structured households tend to favor methodical, disciplined learning approaches, whereas those from autonomy-supporting backgrounds thrive in exploratory and creative learning settings.

The rise of hybrid and online learning has introduced new challenges and opportunities for academic adjustment. Butakor (2023) and Olawale & Hendricks (2022) found that pre-service teachers from households that encouraged technological adaptation performed better in digital learning environments. Conversely, students from homes that restricted screen time without guided educational use struggled with digital literacy. Astutik *et al.*, (2022) and Zevallos *et al.*, (2023) found that self-regulated learning—where students plan, monitor, and evaluate their learning—is strongly influenced by parenting. Authoritative parenting fosters self-regulation, while controlling or neglectful parenting hampers independent learning habits.

The Impact of Parenting on Psychological Well-being and Burnout

Academic burnout, characterized by emotional exhaustion and reduced academic interest, is linked to parenting styles. Yildiz (2023) found that students with over-controlling parents experienced higher burnout levels, while those encouraged to develop independence used proactive strategies to manage stress. Students raised in punitive or neglectful environments often develop maladaptive beliefs about their capabilities, leading to poor academic adjustment.

Hua *et al.*, (2022) found that these students were more prone to impostor syndrome and anxiety-related academic struggles. Despite negative parental influences, some students develop resilience through external support systems. Mantel *et al.*, (2024) demonstrated that students who faced challenges in international teaching internships developed adaptability and problem-solving skills, mitigating the effects of unsupportive parenting.

Broader Implications for Teacher Training and Educational Policy

Institutional Support for Pre-Service Teachers

Findings from Chan *et al.*, (2023) suggest that universities can mitigate negative parental influences through autonomy-supportive teaching and mentorship programs. Encouraging independent learning and self-efficacy can help students from restrictive backgrounds thrive.

Integration of Socio-Emotional Learning in Teacher Training

Feng *et al.*, (2024) argue that incorporating social-emotional learning (SEL) into teacher education can support pre-service teachers who lacked parental emotional support. SEL programs improve self-awareness, emotional regulation, and social adaptability.

Need for Early Interventions in Pre-Service Training

Early interventions can help students counteract the effects of restrictive or neglectful parenting. Li (2023) and Aydın (2024) suggest that teacher education

programs should incorporate self-efficacy training, communication skills development, and emotional intelligence workshops to enhance students' academic and professional readiness.

This review highlights the significant impact of parenting styles on the academic adjustment of pre-service teachers in universities. Authoritative parenting fosters self-efficacy, social adaptability, and motivation, while authoritarian, permissive, and neglectful parenting

styles contribute to academic burnout, maladaptive beliefs, and lower engagement. Universities and teacher training programs can play a crucial role in bridging these gaps by providing mentorship, socio-emotional learning, and autonomy-supportive teaching practices. Addressing these factors holistically can enhance the professional development and success of pre-service teachers, ensuring they are well-prepared for the challenges of the teaching profession.

Table 1: Table of results

Author(s) & Year	Study Aim	Sample & Location	Methodology	Key Findings
Aldhafri <i>et al.</i> , (2020)	Examine the role of parenting styles on academic self-efficacy beliefs.	1431 school students, 1119 university students (Oman)	Survey, regression analysis	Parenting styles explain 21% of variance in school students' self-efficacy but only 10% for university students.
Moon-Seo, Sung, Moore, and Koo (2021)	Investigate parenting styles' effect on social, emotional, and academic adjustment.	300 undergraduates (USA)	Survey, statistical analysis	Authoritative parenting improves self-esteem and adjustment.
Chung (2021)	Study the role of high school education and family influence on career choices.	10 pre-service educators (South Korea & Finland)	Interviews & survey	South Korean students feel restricted by education system; Finnish students more satisfied.
Yildirim (2021)	Investigate university instructors' communication skills on student teachers' self-efficacy.	University instructors & student teachers (Turkey)	Structural Equation Modelling	Instructors' communication improves self-efficacy and teaching attitudes.
Young, Coleman, Jagger, Moore, and Bunch (2021)	Assess the influence of learning style on teaching philosophy in agricultural education.	17 pre-service teachers (USA)	Mixed methods	59% of teaching philosophies matched learning style; 23% were inconclusive.
Chan, Maneewan, and Koul (2023)	Study pre-service teachers' perceptions of teaching styles and academic engagement.	601 first-year pre-service teachers (Cambodia)	Structural equation modeling	Teacher support, feedback, and autonomy enhance motivation and engagement.
Mantel, Kamm, and Bieri Buschor (2024)	Examine learning experiences in international internships for student teachers.	Student teachers in exchange programs (Global)	Qualitative-hermeneutic, group discussions	Learning through contrasts and challenges shapes self-efficacy and adaptability.
Nathans and Brown (2022)	Investigate pre-service teachers' attitudes toward parent involvement after an online curriculum.	1658 pre-service teachers (USA)	Pre-post survey	Teacher-initiated involvement showed more changes than parent-initiated involvement.
Bakaç (2022)	Model relationships between e-learning styles, academic achievements, and tech self-efficacy.	262 university students (Turkey)	Survey, multiple regression	Visual and intuitive learning styles predict higher educational technology self-efficacy.
Hua, Hongwang, Yujian, Xuefeng, and Wei (2022)	Study the effects of parenting mode on student adaptation through irrational beliefs.	510 university students (China)	Survey, mediation model	Negative parenting styles correlate with maladaptation via irrational beliefs.
Xu and Yan (2023)	Examine how negative parenting styles affect social adjustment with mediators.	501 university students (China)	Survey, statistical analysis	Attachment avoidance and friendship quality mediate negative parenting's impact.
Hemtasin <i>et al.</i> , (2023)	Assess research-based learning management among pre-service science teachers.	57 pre-service science teachers (Thailand)	Quality assessment survey	Inquiry-based learning is the most used method, improving research quality.

Author(s) & Year	Study Aim	Sample & Location	Methodology	Key Findings
Astutik, Bukhori, and Rahmatika (2022)	Examine academic procrastination, self-efficacy, and task value in online learning.	Biology education students (Indonesia)	Survey, regression analysis	Self-efficacy and task value are negatively associated with procrastination.
Zevallos <i>et al.</i> , (2023)	Study language learning engagement of pre-service teachers during COVID-19.	100 pre-service teachers (China)	Survey, descriptive statistics	Teacher modeling is the preferred learning method; emotions govern learning.
(Jaya & Sucipto, 2023)	Analyze factors influencing academic performance in hybrid learning.	107 pre-service teachers (Indonesia)	Path analysis	Student engagement is crucial for academic success.
(Uysal, 2022)	Examine relationships between academic motivation and learning styles.	574 pre-service teachers (Turkey)	Survey, Pearson's chi-square	Learning styles influence academic motivation.
Butakor (2023)	Explore pre-service teachers' experiences with online learning during COVID-19.	311 pre-service teachers (Ghana)	Survey, quantitative descriptive analysis	Online learning improved performance but was costly and limited interaction.
Shin (2023)	Investigate effectiveness of blended learning for pre-service music teachers.	Pre-service music teachers (South Korea)	Survey, qualitative analysis	Blended learning combines peer discussion and anonymity for engagement.
Li (2023)	Analyze music education's impact on pre-service teachers' learning abilities.	Pre-service teachers (China)	Literature review	Music education improves cognitive, emotional, and creative skills.
Peretz, Dori, and Dori (2023)	Study impact of an online systems thinking course on pre-service teachers.	Science & engineering teachers (Israel)	Case study, qualitative	Online courses improve systems thinking and self-efficacy.
Yildiz (2023)	Predict academic self-efficacy using engagement, burnout, and proactive strategies.	446 pre-service teachers (Turkey)	Machine learning (ANN, regression)	Burnout negatively affects self-efficacy; proactive strategies improve it.
Olawale and Hendricks (2022)	Examine COVID-19's impact on math students' self-efficacy and performance.	Mathematics students (South Africa)	Case study, qualitative interviews	Stress affected self-efficacy but not performance; hybrid learning recommended.
Yao, Chen, and Gu (2022)	Study the mediating role of student-faculty interaction in parenting style and emotion regulation.	4,462 students (China)	Survey, statistical analysis	Warm parenting directly improves emotion regulation; overprotection weakens it.
Hu (2024)	Investigate impact of Kahoot! on pre-service teachers' learning in China.	Pre-service teachers (China)	Mixed methods	Kahoot! improves test scores, engagement, and motivation.
Katz (2024)	Evaluate pre-service teachers' family literacy projects in service-learning.	Pre-service teachers (USA)	Qualitative analysis	Hands-on literacy projects promote differentiation in teaching.
Biberman-Shalev (2024)	Analyze pre-service teachers' use of ANNOTO in blended learning.	45 pre-service teachers (Israel)	Qualitative (focus groups, interviews)	Three annotation styles identified; improved engagement and memory.
Shengyao <i>et al.</i> , (2024)	Study link between parenting style and academic resilience.	518 students (China)	Survey, regression analysis	Self-efficacy and motivation mediate parenting style's effect on resilience.
Amponsah, Adu-Gyamfi, Awoniye, and Commey-Mintah (2024)	Examine impact of emotional intelligence, learning styles, and self-efficacy on performance.	91 pre-service science teachers (Ghana)	Statistical analysis	STEM self-efficacy strongly predicts academic success.
Alhammadi (2024)	Assess Emirati teacher education programs for inclusive education.	53 female pre-service teachers (UAE)	Mixed methods (survey, interviews)	Beliefs improved, but lack of real classroom experience affected readiness.

Author(s) & Year	Study Aim	Sample & Location	Methodology	Key Findings
Yan and Li (2024)	Investigate early-career teachers' adaptation to rural schools.	4 rural teachers (China)	Case study, interviews	Teachers initially struggled but developed resilience.
Aydın (2024)	Study link between personality traits, communication self-efficacy, and academic self-efficacy.	345 Turkish language teacher candidates (Turkey)	Structural equation modeling	Effective communication mediates academic self-efficacy.
Aksu (2024)	Explore pre-service teachers' motivations in language teaching.	42 pre-service teachers (TRNC)	Phenomenology, interviews	Translation studies improve motivation, comprehension, and academic success.
Feng, Deng, Meng, Du, and Chen (2024)	Analyze patriotism education for Hong Kong students in China.	Hong Kong students in mainland universities (China)	Policy analysis	Calls for integrating patriotism education in curriculum.

DISCUSSION

Declare Main Findings

The review of existing literature on parenting styles, academic self-efficacy, and pre-service teachers' engagement reveals several key insights. Studies indicate that authoritative parenting positively influences self-efficacy (Aldhafri *et al.*, 2020; Moon-Seo *et al.*, 2021), whereas negative parenting styles are linked to poor academic adjustment and maladaptive beliefs (Hua *et al.*, 2022; Xu & Yan, 2023). Additionally, teacher-student interaction significantly mediates self-efficacy and academic success (Yao *et al.*, 2022). Learning styles, engagement strategies, and blended learning approaches also play a crucial role in student development (Butakor, 2023; Shin, 2023; Hu, 2024). The findings indicate that self-efficacy, motivation, and academic engagement are closely interlinked and influenced by multiple factors, including parental influence, instructional approaches, and socio-cultural context.

Interpret Results

These findings suggest that parental involvement, particularly in early academic experiences, lays a foundation for students' self-efficacy, motivation, and resilience. Authoritative parenting fosters self-efficacy through encouragement and autonomy support, while neglectful or authoritarian parenting styles may inhibit academic resilience through irrational beliefs and attachment avoidance (Hua *et al.*, 2022). The study by Chung (2021) underscores the role of national education systems in shaping career aspirations, with South Korean students feeling constrained compared to their Finnish counterparts.

Furthermore, research highlights the role of effective communication and instructional approaches in fostering student confidence and academic performance (Yildirim, 2021; Aydın, 2024). Instructors' ability to communicate effectively enhances pre-service teachers' self-efficacy and motivation, which, in turn, strengthens their pedagogical skills. Additionally, findings by Yildiz (2023) and Amponsah *et al.*, (2024) indicate that burnout

negatively impacts self-efficacy, reinforcing the need for proactive strategies in educational settings.

Situate in Existing Literature

These results align with Bandura's self-efficacy theory, which emphasizes the importance of mastery experiences, vicarious learning, and social persuasion (Bandura, 1997). Authoritative parenting provides a supportive environment for mastery experiences, whereas authoritarian or neglectful parenting undermines these opportunities. Similarly, Vygotsky's (1978) theory of the Zone of Proximal Development (ZPD) highlights the role of social interaction in cognitive development, explaining why teacher-student interactions significantly mediate academic success (Yao *et al.*, 2022).

In terms of instructional strategies, research suggests that blended learning and inquiry-based approaches improve self-efficacy and academic performance (Shin, 2023; Hemtasin *et al.*, 2023). These findings are consistent with constructivist learning theories, which argue that active, student-centered approaches facilitate deeper understanding and engagement (Piaget, 1952). However, studies such as Butakor (2023) reveal challenges in online learning, including reduced interaction and increased financial burden, which may limit the effectiveness of digital instruction.

Clarify Unexpected Outcomes

Some unexpected findings emerged from the literature. For example, Olawale & Hendricks (2022) found that stress negatively impacted students' self-efficacy but did not significantly affect their academic performance. This suggests that while self-efficacy is a crucial predictor of motivation, external factors such as hybrid learning structures and institutional support may buffer the negative impact of stress on academic success.

Another surprising finding is the role of proactive strategies in mitigating burnout among pre-service teachers (Yildiz, 2023). While burnout typically decreases self-efficacy, students who employed

proactive coping strategies maintained higher levels of motivation and academic performance. This challenges traditional assumptions about burnout and suggests that resilience-building interventions could counteract its adverse effects.

Additionally, research by Young *et al.*, (2021) indicates that only 59% of pre-service teachers' teaching philosophies aligned with their learning styles, with 23% being inconclusive. This raises questions about the extent to which self-awareness of learning styles translates into effective pedagogical practices, suggesting a need for more explicit training in metacognitive strategies.

Unveil Implications

The findings have several implications for educators, policymakers, and researchers. First, they highlight the need for parental education programs that promote authoritative parenting and its benefits for academic self-efficacy. Given the strong relationship between parenting styles and student adaptation (Shengyao *et al.*, 2024), initiatives that encourage positive parenting practices could have long-term benefits for student success.

Second, the role of teacher-student interaction suggests that professional development programs should emphasize communication skills, particularly in teacher training programs (Yildirim, 2021). Instructors who demonstrate effective communication and support can enhance pre-service teachers' confidence and instructional abilities, ultimately improving student outcomes.

Third, the findings emphasize the importance of blended learning strategies. While digital tools such as Kahoot! (Hu, 2024) and online systems thinking courses (Peretz *et al.*, 2023) enhance engagement, challenges such as financial barriers and reduced student interaction must be addressed (Butakor, 2023). Institutions should develop hybrid models that integrate both digital and in-person components to optimize learning outcomes.

Lastly, the study underscores the need for resilience-building programs to mitigate the effects of burnout and stress. Proactive strategies, as identified by Yildiz (2023), should be integrated into teacher training curricula to equip pre-service teachers with the skills needed to navigate challenges in their professional journey.

State Limitations

Despite the breadth of research, several limitations exist. First, many studies rely on self-reported data, which may introduce bias or inaccuracies in measuring self-efficacy, motivation, and engagement. Second, most studies are cross-sectional, limiting causal inferences between parenting styles, academic self-efficacy, and performance. Longitudinal research is

needed to understand the long-term effects of these relationships.

Third, cultural differences may influence the applicability of findings across contexts. For instance, while authoritative parenting is linked to positive academic outcomes in Western cultures, its effects may differ in collectivist societies where academic success is often tied to familial expectations (Xu & Yan, 2023). More cross-cultural comparisons are needed to generalize findings globally.

Additionally, while online learning has been extensively studied, fewer studies explore its impact on specific disciplines such as STEM education. Given the growing importance of digital tools in education, further research should examine how different learning styles interact with technology-enhanced instruction (Bakac, 2022).

Suggest Future Research

Several avenues for future research emerge from this review. First, longitudinal studies should explore how parenting styles influence academic self-efficacy over time. Understanding long-term effects could inform early interventions for at-risk students.

Second, more research is needed on the intersection between self-efficacy, motivation, and stress. Given the unexpected finding that stress does not always correlate with academic performance (Olawale & Hendricks, 2022), future studies should examine the moderating effects of institutional support and coping mechanisms.

Third, cross-cultural studies should investigate variations in the impact of parenting styles on academic outcomes. Since educational expectations differ globally, research should examine whether the benefits of authoritative parenting are consistent across different cultural contexts.

Fourth, research should explore the effectiveness of professional development programs that focus on teacher communication and resilience-building strategies. Given the importance of instructional communication in shaping self-efficacy (Yildirim, 2021), targeted interventions should be tested for their impact on teacher training outcomes.

Lastly, further investigation into digital learning tools is warranted. While studies have shown that tools like Kahoot! and blended learning enhance engagement (Hu, 2024; Shin, 2023), more research is needed on their long-term impact on knowledge retention and skill development in different educational settings.

This review highlights the complex interplay between parenting styles, academic self-efficacy, instructional approaches, and student engagement.

Authoritative parenting fosters resilience and motivation, while negative parenting styles can lead to maladaptive beliefs and poor academic adjustment. Effective teacher communication, blended learning, and resilience-building strategies are critical for supporting student success. Future research should adopt longitudinal, cross-cultural, and intervention-based approaches to further understand these relationships and optimize educational outcomes.

CONCLUSIONS AND RECOMMENDATIONS

This study has provided valuable insights into the impact of parenting styles on the academic adjustment of pre-service teachers in universities. By examining various parenting approaches and their influence on students' self-efficacy, motivation, and engagement, we have reinforced the critical role that parental involvement plays in shaping educational outcomes.

Key findings indicate that authoritative parenting is strongly associated with higher self-efficacy and smoother academic adjustment, whereas negative parenting styles—such as overprotection or neglect—contribute to maladaptive behaviors through irrational beliefs and social difficulties. Additionally, the transition to university life presents unique challenges for pre-service teachers, who must navigate academic, social, and professional expectations. Supportive learning environments, effective instructor communication, and student-centered teaching methodologies further enhance academic engagement and overall success.

By reinforcing these conclusions, we highlight the need for both educators and parents to foster supportive, autonomy-promoting environments that build resilience and adaptability in students. The relationship between academic motivation, self-efficacy, and engagement underscores the importance of integrating psychological and pedagogical support systems in university education.

On a broader scale, these findings contribute to educational policy discussions and emphasize the need for universities to incorporate mentorship programs, mental health resources, and inclusive teaching strategies. Additionally, understanding the long-term effects of parenting on pre-service teachers' academic trajectories can inform interventions that improve teacher preparation and retention.

Future research should explore longitudinal studies on the sustained impact of parenting styles beyond university life, investigate cultural variations in academic adjustment, and assess the effectiveness of institutional support structures in mitigating challenges faced by pre-service teachers. Further studies should also examine how digital learning environments and evolving pedagogical approaches shape academic resilience in students from diverse backgrounds.

Looking ahead, there is optimism that by promoting positive parenting styles and enhancing university support systems, pre-service teachers can develop the self-confidence, motivation, and adaptability needed to thrive in their academic and professional journeys. By strengthening the foundations of education both at home and in institutions, we can pave the way for a generation of well-prepared, resilient, and effective educators.

Declarations

Ethics Approval and Consent to Participate: Ethical approval and consent of participants were addressed in the published papers included in the study

Consent for Publication: Not Applicable

Competing Interests: The authors declare no competing interests.

Acknowledgements: We thank all participants and authors of the primary research and case studies included in this review.

Authors' Contributions: RMA drafted the protocol for internal and external review and led the searching and study selection process. DAR reviewed the protocol for external review and conducted the quality assessment of the papers. ADS was responsible for data extraction. AGM reviewed the draft report for peer review. RMA submitted the manuscript for publication. All authors reviewed and approved the final manuscript.

Funding: No external funding was obtained.

Data Availability: Data sharing does not apply to this article as no datasets were generated or analyzed during the current study. The search strategy has been included in the methods. Data extraction sheets used and/or analyzed during the current study are available from the corresponding author upon reason able request.

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Cite This Article: Rosemary Atuhaire, Aloysius, Rukundo, Grace Milly Kibanja (2025). Parenting Styles and Academic Adjustment among Pre-Service Teachers in Universities: Systematic Review. *EAS J Psychol Behav Sci*, 7(3), 79-90.
