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The Mediating Role of Academic Self-Efficacy Perception in the Relationship Between Family Emotional Atmosphere and Family Flexibility With Academic Achievement and Academic Procrastination in Students With Learning Disabilities

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A B S T R A C T

Parental involvement at home is essential for adapting to the learning process in children with learning disabilities. Unfavorable attitudes and responses of parents toward learning disabilities can lead to adjustment problems, low self-efficacy, and poor academic performance in children. This study aimed to examine the effect of family emotional atmosphere and family flexibility on academic achievement and procrastination, considering the mediating role of academic self-efficacy perception in students with learning disabilities. The statistical population included third- and fourth-grade students in Dhi Qar Province during the 2024 academic year. Among them, 125 students were selected using a multi-stage cluster random sampling method. Data were collected using the Family Emotional Atmosphere Questionnaire (Hillburn, 1964), Family Flexibility Scale (Shakery, 2003), Academic Achievement Scale (Wells, 2010), Academic Procrastination Scale (Solomon & Rothblum, 1984), and Academic Self-Efficacy Scale (Jinks & Morgan, 1999). Data were analyzed through Pearson correlation and structural equation modeling using SPSS-21 and AMOS-23 software. Results indicated that the variables of family emotional atmosphere and family flexibility indirectly affect academic achievement and procrastination through the perception of academic self-efficacy ($p < .01$). Based on the findings, it can be concluded that families and caregivers of children with learning disabilities should participate in advanced educational programs to gain a comprehensive understanding of these disabilities. This approach can help them foster their children's academic skills, perception of academic self-efficacy, and emotional support.

Keywords: *Family emotional atmosphere, family flexibility, academic achievement, procrastination, academic self-efficacy perception, learning disabilities, students, Dhi Qar, Iraq.*

1. Introduction

Learning disabilities are a heterogeneous group of disorders that can affect the acquisition, organization, retention, understanding, or use of verbal or non-verbal information. Reading, writing, and mathematical skills can all be impacted by learning disabilities (Tiengsomboon & Luvira, 2024). According to research evidence, learning disabilities are neurodevelopmental disorders observed in 5% to 20% of children and adolescents aged 5 to 16 years (Martínez-Briones et al., 2021). Students with learning disabilities face challenges in areas such as listening and comprehension, verbal and written expression, mathematical calculations, problem-solving, visual/spatial processing, and short- and long-term memory (Finardi et al., 2022; Nelson & Harwood, 2011). These inconsistencies in abilities influence their perception of themselves as learners. Students with learning disabilities often attribute learning difficulties to personal deficiencies (Sideridis, 2009) and their academic achievements to external factors unrelated to their efforts (Martínez-Briones et al., 2021). Consequently, they are more likely to experience motivational issues that negatively impact their academic performance (Graham et al., 2017). A study by Al-Attabe (2020) found that Iraqi students face academic learning and behavioral problems across all domains, including speech-related issues (Al-Attabe, 2020).

The increasing number of students with learning disabilities underscores the need to understand and address the factors that influence their academic performance. One such factor is academic procrastination (Goroshit & Hen, 2021). Ferrari et al. (1995) describe procrastination in academic settings as a behavior in which individuals avoid school responsibilities, potentially leading to failure. Academic procrastination is considered a maladaptive behavioral habit that harms students' academic progress and is closely linked to anxiety and depression (Wang, 2020). Procrastinators often wait passively for a miracle without taking action, hoping for extraordinary inspiration. They tend to begin tasks without considering future consequences or having clear goals, expecting success to come naturally and suddenly without preparation (Saudale et al., 2023). Research findings indicate that academic procrastination negatively affects academic performance, with a more pronounced impact on students with learning disabilities. This highlights the detrimental effect of procrastination on their academic outcomes (Goroshit & Hen, 2021). Furthermore, research on family functioning has revealed significant differences between families of students with learning disabilities and families of typically successful students (Heiman et al., 2008). Raising a child with learning disabilities is a challenging experience that can increase parental stress, disrupt parental self-efficacy and psychological well-being, and hinder parent-child interactions (Finardi et al., 2022). Family emotional atmosphere, a variable often negatively impacted by learning disabilities, refers to how family members communicate and interact. The nature of family emotional atmosphere, including relationships between parents and children, siblings, and parents themselves, can facilitate or hinder a child or adolescent's adjustment. This highlights the importance of improving family relationships (Gupta et al., 2022).

Parenting a child with disabilities requires developing specific skills. Hartshorne and Schafer (2018) reported that parents of children with severe disabilities need essential skills in key areas such as establishing communication with the child, creating routines, seeking support, and learning acceptance and discipline (Hartshorne & Schafer, 2018). Parents often lack conceptual knowledge about learning disability symptoms and appropriate coping strategies. They may exhibit negative attitudes and reactions to their child's diagnosis, such as rejection, denial, overprotection, or hopelessness (Sahu et al., 2018), which exacerbate the child's difficulties and hinder their school performance. Research evidence indicates lower-quality parent-child relationships in these families (Ginieri-Coccossis et al., 2013). Mothers of such children may experience poor mental health and emotional disorders, and parents report feelings of fragility, guilt, shame, fear, and panic (Connor & Cavendish, 2018).

While some families are more susceptible to the negative impacts of stress, others demonstrate resilience. Family flexibility, an aspect of family systems theory, is defined as the degree of change in family roles, rules, control, and discipline (Olson, 2000). Greater parent-child conflict is associated with lower academic performance and higher depression levels (Wei et al., 2020). Deysolong (2023) examined the role of parental involvement in the learning process. Active parental involvement provides numerous benefits, including academic, emotional, and motivational support, reinforcement of discipline and responsibility, bridging home and school gaps, and enhancing academic performance (Deysolong, 2023).

According to qualitative research on family flexibility regarding children with learning disabilities, parents express concerns not only about their children's academic challenges

but also about the social and emotional issues they experience due to their disabilities. Parents report significant stress when observing their children's poor interactions with peers in and outside school (Pentyliuk, 2002). Both the stigma of having a child with a learning disability and parental involvement significantly influence the academic performance of these students (Karimi et al., 2022). Research by Kafi et al. (2024) among students in Diwaniyah, Iraq, found that secure parental attachment predicts procrastination and academic performance (Kafi et al., 2024).

Given the overall negative impact of academic procrastination on students' academic performance (Goroshit & Hen, 2021), underlying psychological variables such as academic self-efficacy perception can serve as moderators. Beliefs in self-regulation, self-concept, and self-control enable students to optimize their learning performance through psychological efforts, alongside family and teacher support in educational settings (Cheng, 2023).

Research evidence suggests that individuals with high academic self-efficacy employ more study tools and cognitive strategies, aiding better self-organization (Delgado et al., 2019). Students with learning disabilities, due to their personal histories of school-related frustration and internalized anxiety symptoms, are at risk of academic failure (Klassen et al., 2013; Nelson & Harwood, 2011). These students experience lower levels of academic self-efficacy, hope, and a sense of coherence (Ben-Naim et al., 2019). Social activity and support are crucial for learning among children and adolescents with disabilities (Gilmore et al., 2016).

Research evidence also highlights the mediating role of academic self-efficacy perception in academic achievement and family emotional atmosphere. Parent-child relationships indirectly predict children's learning engagement and academic vitality through learning motivation and academic self-efficacy (Keshtvarz Kandazi & Fooladchang, 2021; Shao & Kang, 2022). Family emotional atmosphere directly influences academic vitality (Samari Safa et al., 2021).

In conclusion, understanding and managing the emotional, behavioral, and learning needs of children with learning disabilities is a challenging task that places parents at risk for higher stress, anxiety, depression, and less effective parent-child interactions. The importance of parental involvement in understanding and addressing learning disabilities is critical (Gold & Richmond, 1979). Researchers and psychologists supporting family systems theory emphasize involving parents as educators or mentors for children with disabilities (Keshtvarz Kandazi & Fooladchang, 2021).

Research must ensure that students with learning disabilities receive high-quality education and necessary family support to reach their full potential. This study aims to address the challenges faced by students with learning disabilities and promote an inclusive, supportive educational ecosystem. This approach highlights the significant role of the family in fostering educational engagement and providing academic support, ultimately enhancing students' learning experiences and psychological well-being. Identifying key family characteristics that reorganize educational frameworks and improve students' academic approaches is essential. Furthermore, prior research has overlooked the mediating role of academic self-efficacy perception, which this study addresses as a moderator influencing the effects of other variables on dependent outcomes. Therefore, this study seeks to answer whether a relationship exists between family emotional atmosphere and family flexibility with academic achievement and procrastination, considering the mediating role of academic self-efficacy perception, among third- and fourth-grade students with learning disabilities in Dhi Qar Province.

2. Methods and Materials

2.1. Study Design and Participants

This study was an applied research project in terms of its purpose and a descriptive study in terms of data collection. Specifically, it employed a correlational design using structural equation modeling. The statistical population comprised all third- and fourth-grade students with learning disabilities in schools in Dhi Qar Province, Iraq, during the 2024 academic year. According to statistics provided by the Department of Education for the 2024 academic year, 9,756 students were enrolled in these grades. From this population, 125 students were selected through multi-stage cluster random sampling. Inclusion criteria included having a learning disability, no history of behavioral or psychological disorders based on clinical interviews, and consent to participate in the study. Exclusion criteria included failure to complete questionnaires and lack of motivation in responding to the questionnaire items.

2.2. Measures

2.2.1. Family Emotional Atmosphere

The Family Emotional Atmosphere Questionnaire by Hillburn (1964), a 16-item instrument, was used to assess family emotional atmosphere. This questionnaire evaluates eight dimensions: affection, nurturing, approval, shared experiences, gifting, encouragement, trust, and a sense of security. Items are rated on a 5-point Likert scale (1 = very low to 5 = very high), with total scores ranging from 16 to 80. Higher scores indicate a favorable family emotional atmosphere, while lower scores reflect a weaker atmosphere. Content validity was confirmed by experts, and reliability coefficients were reported as 0.87 (Cronbach's alpha) and 0.93 (test-retest) by Dinkelman and Buff (2016). In Asghari and Meshkani's (2023) study, Cronbach's alpha reliability was reported at 0.93 (Asghari & Meshkani, 2023). In this study, Cronbach's alpha reliability was calculated as 0.75.

2.2.2. Family Flexibility

Family flexibility was measured using Shakery's (2003) 16-item Family Flexibility Questionnaire, designed based on Olson's (2000) circular model. Items are rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with total scores ranging from 16 to 80. Higher scores indicate greater family flexibility. Shakery (2003) confirmed the reliability and validity of this instrument in a sample of 48 participants, reporting Cronbach's alpha at 0.89. Factor analysis identified a single general factor, flexibility. In Zare and Samani's (2008) study, test-retest reliability over a one-week interval with a sample of 30 participants was 0.76. Internal consistency for validity was reported as significant (Zarei & Samani, 2008). In this study, Cronbach's alpha reliability was calculated as 0.71.

2.2.3. Academic Achievement

Academic achievement was assessed using Wells' (2010) 39-item Academic Achievement Questionnaire, which includes ten components: general academic skills (items 1–7), teacher efficacy (items 8–11), career decision-making (items 12–14), external motivation for the future (items 15–18), trust (items 19–23), personal adaptation (item 24), self-regulation (items 25–27), socialization (items 28–31), intrinsic motivation or interest (items 32–36), and lack of anxiety (items 37–39). Items are rated on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree), with certain items reverse scored. Total scores range from 39 to 156, with higher scores indicating greater academic achievement. Adib-Hajbagheri et al. (2015) reported a Cronbach's alpha of 0.76 for this questionnaire (Barahmand et al., 2015). In this study, Cronbach's alpha reliability was calculated as 0.79.

2.2.4. Academic Procrastination

Academic procrastination was measured using the 27-item Academic Procrastination Questionnaire by Solomon and Rothblum (1984). This instrument assesses procrastination in three areas: completing assignments, preparing for exams, and writing semester reports. Items are rated on a 5-point Likert scale (1 = never to 5 = always), with certain items reverse scored. Total scores range from 27 to 108, with higher scores indicating higher levels of procrastination. Solomon and Rothblum (1984) reported internal consistency reliability at 0.64 and construct validity at 0.84. In Nikookar et al.'s (2022) study, Cronbach's alpha reliability was reported at 0.84 (Nikookar et al., 2021). In this study, Cronbach's alpha reliability was calculated as 0.84.

2.2.5. Academic Self-Efficacy

Academic self-efficacy was measured using the 30-item Academic Self-Efficacy Questionnaire by Jinks and Morgan (1999). This instrument includes three subscales: talent, effort, and context. Of the 30 items, 9 assess talent, 10 assess effort, and 11 assess context. Items are rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with certain items reverse scored. Total scores range from 26 to 130, with higher scores indicating higher academic self-efficacy. Jinks and Morgan (1999) reported overall reliability at 0.82, with subscale reliabilities of 0.78 (talent), 0.66 (effort), and 0.70 (context). Karimzadeh and Mohseni (2006) reported similar findings (KarimZade & Mohseni, 2006). In this study, Cronbach's alpha reliability was calculated as 0.70.

2.3. Data analysis

Data were analyzed using Pearson correlation, stepwise regression, and path analysis modeling with SPSS-21 and AMOS-18 software. Model fit indices for the final model were evaluated and compared with acceptable thresholds.

All questionnaires were translated from Persian to Arabic by a bilingual psychologist fluent in Arabic and then back-translated to Persian by an Arabic language specialist.

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Discrepancies between the translations were resolved before administration.

3. Findings and Results

This study included 63 female and 62 male students with learning disabilities. Among them, 64 students were 11 years old, and 61 students were 12 years old.

Table 1

Descriptive Statistics for Study Variables

Variables	Mean	Standard Deviation
Academic Self-Efficacy	86.84	7.41
Academic Procrastination	73.37	5.63
Academic Achievement	78.45	7.97
Family Emotional Atmosphere	65.79	8.38
Family Flexibility	38.62	5.43

Based on Table 1, the means of academic self-efficacy, academic procrastination, academic achievement, family emotional atmosphere, and family flexibility among students with learning disabilities were 86.84, 73.37, 78.45, 65.79, and 38.62, respectively.

Table 2

Model Fit Indices for the Final Model in Students With Learning Disabilities

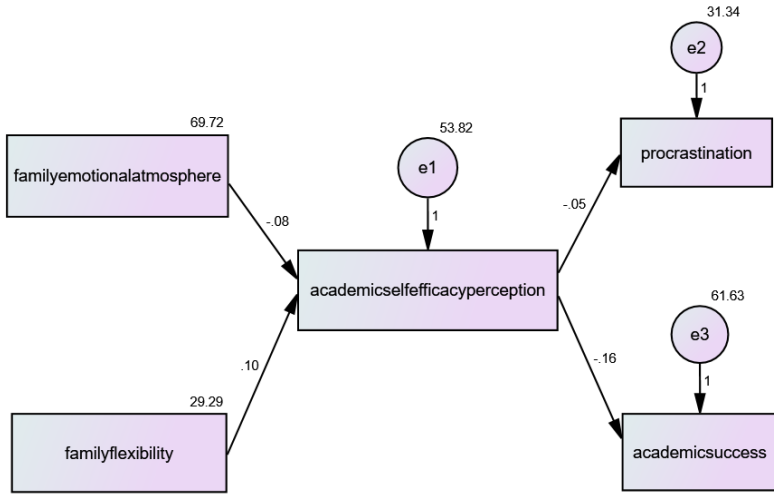
Index	CMIN/DF	CFI	GFI	TLI	IFI	RMSEA
Final Model	3.68	0.97	0.92	0.89	0.98	0.06

As shown in Table 2, the model fits the data well. The chi-square test indicates a good fit between the model and the variance-covariance matrix. Additionally, the GFI, TLI, IFI, and CFI values are all excellent, at or near 0.90, while the RMSEA value is below 0.10, all demonstrating excellent model fit.

A common measure to account for free parameters in model fit is the normalized or relative chi-square, calculated by dividing the chi-square value by the model's degrees of freedom. Values between 1 and 5 are generally acceptable. In this study, the chi-square value was approximately 4, indicating an acceptable fit. Overall, the results suggest that the proposed model is well-fitted, allowing for the calculation and examination of indirect effects. The final model is depicted in Figure 1.

Figure 1

Non-standardized Regression Coefficients in the Final Model



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As shown in Figure 1, the strongest relationship is between academic self-efficacy and academic achievement (0.16).

To examine correlations among the variables, Pearson correlation coefficients were calculated, as presented in Table 3.

Table 3

Pearson Correlation Matrix Among Variables in Students With Learning Disabilities

Variables	1	2	3	4	5
1. Academic Self-Efficacy	1				
2. Academic Procrastination	-0.60	1			
3. Academic Achievement	0.51	-0.54	1		
4. Family Emotional Atmosphere	0.49	*-0.41*	0.55	1	
5. Family Flexibility	0.38	-0.46	*0.42*	0.43	1

Results in Table 3 indicate significant relationships between academic self-efficacy and academic procrastination (-0.60), academic achievement (0.51), family emotional atmosphere (0.49), and family flexibility (0.38) among students with learning disabilities (P<0.01).

To predict the relationships between academic achievement and procrastination with family emotional atmosphere and flexibility, considering the mediating role of academic self-efficacy, bootstrapping was used. The results are shown in Table 4.

Table 4

Bootstrapping Results for Indirect Relationships in Students With Learning Disabilities

Pathway	Indirect Effect	P (Indirect)	Total Effect	P (Total)
Family Emotional Atmosphere → Academic Self-Efficacy → Academic Achievement	0.09	0.03	0.12	0.04
Family Emotional Atmosphere → Academic Self-Efficacy → Academic Procrastination	-0.16	0.003	-0.15	0.002
Family Flexibility → Academic Self-Efficacy → Academic Achievement	0.22	0.001	0.18	0.001
Family Flexibility → Academic Self-Efficacy → Academic Procrastination	-0.19	0.001	-0.21	0.002

As shown in Table 4, using the bootstrapping method, family emotional atmosphere and flexibility significantly affect academic achievement and procrastination indirectly through academic self-efficacy (P<0.01).

4. Discussion and Conclusion

This study aimed to investigate the effects of family emotional atmosphere and family flexibility on academic achievement and procrastination, considering the mediating role of academic self-efficacy in students with learning disabilities. Results revealed that family emotional atmosphere indirectly negatively impacts academic achievement through academic self-efficacy in students with learning disabilities. No previous studies have specifically examined the mediating role of academic self-efficacy in students with learning disabilities; however, findings from research on typical students (Derakhshan et al., 2021; Keshtvarz Kandazi & Fooladchang, 2021; Shao & Kang, 2022) indicate that family flexibility, through self-efficacy, can influence academic performance and success.

Families with children with special conditions, such as learning disabilities, often exhibit higher levels of dysfunction, as these children may not follow parental or teacher instructions, complete household tasks, or perform well academically, and they often display more negative behaviors compared to peers. Such families tend to operate less effectively, with parents lacking self-efficacy and confidence. Parental self-efficacy is linked to parenting competence and psychological functioning, potentially influencing child adjustment directly or indirectly through parenting practices and behaviors (Barahmand et al., 2015). Children with learning disabilities are often challenging; the daily disruptions and difficulties faced by mothers caring for such children directly relate to reduced self-efficacy (Tiengsomboon & Luvira, 2024).

In addition to family challenges, these students face academic difficulties, such as attention deficits, self-regulation issues, and school-related frustrations, which often lead to anxiety, internalizing symptoms, and a history of perceived academic failure (Ben-Na'im et al., 2019).

Another significant finding confirmed the mediating role of academic self-efficacy in the relationship between family emotional atmosphere and academic procrastination. This aligns with the findings of Kafi et al. (2024). High levels of maternal anxiety, anger, and depression can affect the quality of caregiving, indirectly influencing child behavior (Kafi et al., 2024). Parents of students with learning disabilities often exhibit responses ranging from denial and reasoning to depression and eventual acceptance and adjustment. Children with neurodevelopmental disorders, such as specific learning disabilities, require continuous supervision and care, which can increase parental stress and decrease mental health.

Parental attitudes significantly differ from those of parents of typical children. These attitudes may manifest in three ways: (1) some parents reject or fail to accept their child's condition, leading to difficulties in adaptation and family relationships; (2) some parents overcompensate through excessive care, constant teaching, or supportive parenting practices, hoping to enhance their child's learning abilities; and (3) others accept their child and their disability while maintaining a normal family life and better addressing their child's primary needs. Supportive parenting can significantly mitigate the challenges faced by children with learning disabilities (Ryan et al., 2017; Ryan et al., 1994).

Another contributing factor to the lower academic success of children with learning disabilities is parental expectations. Parents of children with learning disabilities may have lower expectations, which can negatively impact their children's academic performance. Students who face low expectations often exhibit less motivation and care less about their education overall (Janikowski & Norvilitis, 2020).

Another key finding showed that family flexibility indirectly affects academic achievement through academic self-efficacy. When a family member faces significant challenges, it affects the entire family system, as family functioning is inherently interactive. Marital relationships, parental attitudes toward learning disabilities, parent-child interactions, and sibling relationships are all influenced (Padeliadou & Chideridou, 2013). Parents report high demands related to schoolwork and academic support, often spending long hours helping their children with homework or daily teaching (Dyson, 2010).

Parents of children with learning disabilities often alter their daily routines, dedicating more time to school-related issues, behavior management, and fostering self-esteem (Dyson, 2010; Wang, 2020; Wei et al., 2020). They frequently experience pressure in their interactions with their children and sometimes feel guilt due to negative communication (Lardieri et al., 2000). Characteristics associated with learning disabilities, such as information processing deficits, can strain parent-child relationships (Cheng & Lai, 2023).

The final finding indicated a relationship between family flexibility and academic procrastination, mediated by academic self-efficacy, in students with learning disabilities. This finding supports Karimi et al. (2022). Children with learning disabilities create a wide range of negative effects, including family stress, parental conflict, negative family reactions, and challenges in school communication (Karimi et al., 2022). Parent-child interactions are bidirectional, as per the interactional-ecological model, which posits that children both influence and are influenced by their environment.

Parents of children with learning disabilities often report lower personal coherence, higher anxiety, and less life satisfaction. These families tend to have a stricter, less supportive family atmosphere, with increased emphasis on organization and control while discouraging emotional expression and independence (Margalit & Al-Moggy, 1991). Negative parental attitudes, such as shame and frustration, can impede effective family-school communication. Students with secure parental support report greater school motivation and positive attitudes, whereas those lacking support often experience academic and social struggles (Ryan et al., 2017; Ryan et al., 1994).

In summary, parents play a critical role in enhancing their children's academic success. A nurturing and supportive home environment can positively influence learning behaviors in children with learning disabilities. Furthermore, parents must collaborate with teachers to develop strategies for understanding and fostering their children's growth. This study highlights the need for social support for parents of children with special needs, emphasizing the importance of awareness programs and interventions to improve parents' coping abilities and family interactions.

One limitation of this study is its cross-sectional design, which restricts causal inferences over time and across cultural and educational changes. Additionally, the sample was limited to students with learning disabilities in Dhi Qar Province, reducing the generalizability of the findings to other educational levels or settings. Future researchers are encouraged to investigate this topic in different contexts and compare the results with those of this study.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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