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ANALYSING THE INFLUENCE OF STUDENTS' RESILIENCE ON THEIR MATHEMATICS ACADEMIC PERFORMANCE IN MEZAM DIVISION, CAMEROON

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ABSTRACT: *The main objective of the study was to analyse the influence of students' resilience on their Mathematics academic performance in Mezam Division in Cameroon. The study adopted the causal comparative research design. The study was carried out using seven functional public secondary schools in Mezam Division for the 2023/2024 academic year, with first cycle students (Forms 1 to 5) constituting the population of the study. With the help of the Krejcie and Morgan Table, a sample of 368 students was drawn from an accessible population of 8813 first cycle students. The proportionate stratified random sampling technique was used to select this sample for the collection of data. Data was collected using a structured questionnaire. The questionnaire was vetted by three experts and its test-retest reliability index established as 0.87. The data collected were analysed using frequency counts, means, Pearson product-moment correlation, one sample t-test and regression analysis. The findings of the study revealed that students in Mezam Division exhibit significantly low resilient abilities in Mathematics. The findings also revealed that there is a moderate positive correlation (0.587) between students' resilience and their Mathematics academic performance. Furthermore, the regression analysis indicated that approximately 34.4% of the variations in students' Mathematics academic performance can be accounted for or predicted by their resilience. It was recommended that educators and policymakers need to focus on nurturing, developing and fostering students' resilient abilities through targeted interventions and teaching strategies.*

KEYWORDS: Resilience, Mathematics, Academic performance, Mezam Division.

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INTRODUCTION

Mathematics is a foundational subject that significantly influences students' academic trajectories and future opportunities. In Mezam Division, Cameroon, as in many educational contexts worldwide, students' performance in Mathematics can be a critical determinant of their academic success and overall educational experience. However, while various factors such as teaching methods, curriculum, and parental involvement have been extensively studied, the role of students' psychological traits, specifically resilience, has received comparatively less attention.

Resilience, often defined as the ability to recover from setbacks, adapt to change, and persist in the face of adversity, is a key psychological attribute that can influence academic performance. In the context of Mathematics, a subject frequently associated with high levels of difficulty and student anxiety, resilience may play a crucial role in how students approach learning challenges, manage stress, and ultimately perform academically.

In Mezam Division, a region characterised by its diverse educational landscape and varying levels of resources, understanding the impact of students' resilience on their Mathematics performance could provide valuable insights for educators, policymakers, and stakeholders. Despite the essential role of resilience in academic achievement, there is a noticeable gap in research specifically exploring how this trait affects students' performance in Mathematics within this region.

This study aims to fill this gap by analysing the influence of students' resilience on their academic performance in Mathematics in the Mezam Division. By employing a mixed-methods approach, the research seeks to uncover the relationship between students' resilience levels and their Mathematics scores, offering a comprehensive understanding of how psychological resilience can impact academic outcomes. The findings of this study could inform targeted strategies to enhance students' resilience and, by extension, improve their performance in Mathematics, contributing to more effective educational practices in the region.

Background to the Study

Mathematics education is a critical component of the academic curriculum that impacts students' cognitive development, problem-solving skills, and future opportunities. In many regions, including the Mezam Division in Cameroon, students' performance in Mathematics often reflects broader educational challenges and influences. While various factors such as instructional quality, socio-economic status, and curriculum design have been studied, the psychological trait of resilience has emerged as a significant yet underexplored factor affecting academic performance (Masten & Reed, 2002; Conner, 2009). This background explores the role of resilience in academic achievement, particularly in the context of Mathematics education in Mezam Division.

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The Concept of Resilience

Resilience is defined as the ability to withstand or recover quickly from difficulties (Luthar, Cicchetti & Becker, 2000). In educational settings, resilience can significantly impact students' ability to cope with academic challenges and persist in their studies despite obstacles (Zimmerman, 2000). Resilient students are typically characterised by their ability to maintain a positive outlook, manage stress effectively, and continue striving towards their academic goals even in adverse conditions (Masten, 2001).

The importance of resilience in academic achievement has been documented across various educational contexts. For instance, research has shown that resilient students are more likely to achieve higher academic performance and demonstrate greater academic perseverance (Martin & Marsh, 2006). This is particularly relevant in subjects like Mathematics, which are often perceived as challenging and stressful by students (Bandura, 1997).

Mathematics Performance and Resilience

Mathematics is a subject that demands not only cognitive skills but also emotional resilience due to its problem-solving nature and the frequent occurrence of failure and difficulty (Boaler, 2016). Students who struggle with Mathematics may experience heightened anxiety and frustration, which can negatively affect their performance (Ashcraft & Kirk, 2001). Resilience can mitigate these effects by helping students manage stress and remain motivated despite challenges (Carver, 1998).

In the context of Cameroon, and specifically Mezam Division, there is a growing recognition of the need to understand how psychological factors like resilience influence academic outcomes. While educational research in Cameroon has often focused on pedagogical and infrastructural issues (Bamgbose, 1991), the role of individual psychological attributes such as resilience has been less explored. This gap in the literature is significant, given the increasing emphasis on holistic approaches to education that consider both cognitive and emotional aspects of learning (Yeo, 2008).

Educational Context of Mezam Division

Mezam Division is a region with a diverse educational landscape, marked by varying levels of resources, infrastructure, and socio-economic conditions. Educational institutions in this region face unique challenges, including limited access to quality educational materials, inadequate teacher training, and socio-economic barriers that affect students' learning experiences (Muriungi & Macharia, 2014). These challenges can exacerbate academic stress and impact students' performance in subjects like Mathematics.

The educational system in Mezam Division reflects broader national trends in Cameroon, where the quality of education can vary significantly between urban and rural areas (Kouadio & Bouba, 2016). In this context, understanding how resilience impacts Mathematics performance can provide insights into how students cope with and overcome these challenges.

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Research on Resilience and Academic Performance

Studies on resilience and academic performance in various contexts have demonstrated that resilience is positively associated with academic achievement. For example, research conducted in different cultural settings has found that students with higher levels of resilience tend to have better academic outcomes and are more adept at handling academic stress (Gu & Day, 2007). This body of research underscores the potential benefits of fostering resilience in educational settings to improve student outcomes.

In the Cameroonian context, studies exploring the intersection of psychological traits and academic performance are limited. However, existing research highlights the importance of addressing psychological factors to enhance educational outcomes. For instance, investigations into the effects of socio-emotional learning programs have shown positive impacts on students' academic performance and overall well-being (Ndirangu & Sifuna, 2018).

THEORETICAL FOUNDATIONS

Resilience Theory of Ann Masten (2001)

Resilience theory, primarily developed by Ann Masten (2001), emphasises the capacity of individuals to adapt positively to adversity and stress. According to Masten (2001), resilience is a dynamic process involving positive adaptation despite adversity. Masten describes resilience as "ordinary magic," highlighting that it is not an extraordinary trait but rather a common process involving adaptive coping and recovery in the face of challenges. This theory underscores how people can maintain or regain functionality despite experiencing significant difficulties. Specifically, the resilience theory provides the foundation for understanding how students can succeed academically despite facing significant challenges. This theory suggests that individuals who demonstrate resilience are better equipped to handle stress and setbacks, which can be crucial in academic settings. In the context of Mathematics education, resilience can help students persist through difficulties and maintain performance despite challenges.

Self-Efficacy Theory of Bandura (1997)

Bandura’s (1997) Self-Efficacy Theory posits that individuals’ beliefs in their capabilities significantly affect their academic performance. Self-efficacy influences motivation, effort, and persistence, which are critical in overcoming academic challenges. For students in Mezam Division, a strong sense of self-efficacy can lead to improved resilience and better performance in Mathematics by fostering greater effort and adaptive strategies in the face of difficulties.

Stress and Coping Theory of Lazarus and Folkman’s (1984)

Lazarus and Folkman’s (1984) Stress and Coping Theory provides a framework for understanding how students manage academic stress, which directly impacts their performance. This theory distinguishes between problem-focused coping (addressing the source of stress) and emotion-focused coping (managing the emotional response). Resilient students employ effective coping mechanisms to mitigate the impact of stress, which can influence their performance in Mathematics by reducing anxiety and improving focus.

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Summarily, the study on resilience and its influence on Mathematics performance in Mezam Division, Cameroon, is grounded on the aforementioned theoretical frameworks. Resilience theory helps explain why some students excel despite challenges. Self-efficacy theory provides insight into how students' beliefs about their abilities impact their academic outcomes. Stress and coping theory offers a lens to understand how students manage academic stress and its effects on performance. All these theories therefore provide a comprehensive basis for analysing how resilience influences academic performance in Mathematics.

Conclusively, analysing the influence of students' resilience on their Mathematics academic performance offers valuable insights into an often-overlooked aspect of education. Resilience plays a critical role in helping students manage academic challenges and maintain motivation, particularly in demanding subjects like Mathematics. By examining this relationship, the study aims to contribute to a deeper understanding of how psychological resilience affects academic performance in the Cameroonian context, thereby informing strategies to support student success and well-being especially in Mathematics.

STATEMENT OF THE PROBLEM

Mathematics remains a cornerstone of the academic curriculum in Mezam Division, Cameroon, and its successful mastery is crucial for students' overall educational achievements and future opportunities. Despite its importance, many students in this region struggle with Mathematics, often exhibiting lower performance levels compared to other subjects. This challenge is compounded by various educational and socio-economic factors unique to the region, including disparities in resources, varying levels of instructional quality, and socio-cultural influences that impact students' learning experiences.

Recent discussions in educational research have highlighted the significance of psychological factors, such as resilience, in influencing academic performance. Resilience, defined as the capacity to recover from setbacks and persist in the face of challenges, has been identified as a critical attribute for overcoming academic difficulties and achieving success (Masten & Reed, 2002; Martin & Marsh, 2006). However, in the context of Mezam Division, there is a notable lack of empirical research exploring how resilience specifically impacts students' performance in Mathematics.

This gap in the literature is particularly significant given that Mathematics is often perceived as a challenging subject associated with high levels of anxiety and stress (Boaler, 2016; Ashcraft & Kirk, 2001). The ability of students to navigate these challenges and persist through difficulties may be closely related to their levels of resilience. Understanding this relationship is crucial for developing effective educational strategies and interventions aimed at improving students' mathematical outcomes.

The problem is further exacerbated by the diverse educational environment in Mezam Division, which includes both urban and rural schools with varying levels of resources and support. This diversity may influence the ways in which resilience impacts academic performance, making it essential to investigate how resilience operates within this specific educational context.

Therefore, the primary problem this study addresses is the lack of understanding of how students' resilience affects their academic performance in Mathematics in the Mezam Division. By investigating this relationship, the study seeks to provide insights into how psychological

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resilience influences students' abilities to cope with and excel in Mathematics, ultimately contributing to more informed and marked educational practices and policies in the Division.

Objectives of the Study

The objectives of the study are:

1. To determine the level of students' resilience in the Mezam Division;

2. To establish how students' resilience relates to their Mathematics academic performance; and

3. To determine the extent to which students' resilience predicts their Mathematics academic performance.

Research Questions

- What is the level of students' resilience in the Mezam Division?
- How does students' resilience relate to their Mathematics academic performance?
- To what extent does students' resilience predict their Mathematics academic performance?

Hypotheses

Ho_1: Students in Mezam Division do not exhibit significant levels of resilience.

Ha_1: Students in Mezam Division do exhibit significant levels of resilience.

Ho_2: Students' resilience does not significantly relate to their Mathematics academic performance.

Ha_2: Students' resilience significantly relates to their Mathematics academic performance.

Ho_3: Students' resilience does not significantly predict their Mathematics academic performance.

Ha_3: Students' resilience significantly predicts their Mathematics academic performance.

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METHODOLOGY

The study adopted the causal comparative research design to thoroughly examine how students' resilience impacts their Mathematics performance. Research was carried out in seven operational public secondary schools in Mezam Division, focusing on first cycle students (Forms 1 to 5).

A sample of 368 students was selected from a total population of 8,813 first cycle students, as determined by the Krejcie and Morgan Table (See details on Table 1). The selection was made using a proportionate stratified random sampling method to ensure diverse representation across various schools, classes, and genders in Mezam Division.

Table 1: Population and Sample Size of the Study

S/N	School	Accessible Population	Sample for Quantitative Data
1	Cameroon College of Arts Science and Technology Bambili	1324	55
2	Government Bilingual High School Atiela	826	35
3	Government Bilingual High School Bayele	895	37
4	Government Bilingual High School Bamenda	1726	72
5	Government Bilingual High School DownTown	1649	69
6	Government Bilingual High School Medankwe	1531	64
7	Government Bilingual High School Santa	862	36
Total		**8813**	**368**

Quantitative data was gathered using a custom-designed questionnaire (refer to Appendix A). The questionnaire comprised three sections: Section A collected demographic information; Section B featured a 10-item resilience scale using a 4-point Likert scale, with a cut-off score of 25 out of 40 (calculated as 10 items multiplied by the midpoint of 2.5). A score above 25 indicated higher resilience, while a score below 25 suggested lower resilience. Section C assessed students' Mathematics performance by analysing their average scores for the first and second terms of the 2023/2024 academic year. The instruments were reviewed by three experts: one in measurement and evaluation, one in educational psychology, and one in Mathematics education. Test-retest reliability for the questionnaire was established with 20 students, resulting in a Pearson product-moment correlation coefficient of 0.87, indicating strong reliability. Data were analysed using frequency counts, means, Pearson correlation, one sample t-test and regression analysis.

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The study adhered to ethical guidelines by ensuring informed consent, voluntary participation, and maintaining the confidentiality and anonymity of respondents, thereby upholding research standards for studies involving human subjects.

FINDINGS

Research Question 1: To determine the level of students' resilience in the Mezam Division.

Ho_1: Students in Mezam Division do not exhibit significant levels of resilience.

Ha_1: Students in Mezam Division do exhibit significant levels of resilience.

Table 2: Level of Students' Resilience in Mathematics (RM)

S/N	Statements	Number of Respondents				N	Mean	Level of students' RM
		SD	D	A	SA			
1	I am able to stay focused and motivated even when I find Mathematics problems difficult.	84	137	125	22	368	2.23	Low RM
2	When I make mistakes in Mathematics, I see them as opportunities to learn rather than as failures.	60	182	120	6	368	2.20	Low RM
3	I can maintain a positive attitude even when I am struggling with challenging Mathematics concepts.	76	133	153	6	368	2.24	Low RM
4	I persist in solving Mathematics problems even when I encounter obstacles or setbacks.	89	126	150	3	368	2.17	Low RM
5	When I am faced with a difficult Mathematics assignment, I believe that I can improve with effort and practice.	61	133	130	44	368	2.43	Low RM
6	I am able to manage my stress and anxiety related to Mathematics tests and assignments effectively.	84	136	125	23	368	2.24	Low RM
7	I quickly recover from frustration when I don't understand a Mathematics topic on the first try.	60	181	122	5	368	2.20	Low RM
8	I am confident in my ability to overcome challenges in Mathematics through hard work and perseverance.	73	138	152	5	368	2.24	Low RM
9	Even if I receive a low mark in a Mathematics test, I am always motivated to study harder and improve.	86	127	155	0	368	2.19	Low RM

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10	I actively seek help or resources when I am struggling with Mathematics , rather than giving up.	46	131	129	46	368	2.43	Low RM
Total Mean/40							22.56	Low RM

The results on Table 2 show that all items had means below 2.5, reflecting a low level of resilience for all items. Moreover, with an overall mean of 22.56, it indicates that, on average, students in Mezam Division have limited resilience in Mathematics, as this score falls below the cut-off score of 25.

Table 3: One Sample t-test to Test the Significance of the Level of Students' Resilience in Mathematics

	Test Value = 25						
	Mean	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
Students' Resilience in Mathematics	22.56	-10.608	367	.000	-2.438	-2.89	-1.99

A one-sample t-test was conducted to determine if there was a significant difference between the resiliency of secondary school students in Mathematics in Mezam Division and those of the general population. Table 3 reveals that the mean mathematical resilience for students in Mezam Division (M = 22.56) was significantly lower than that of the general population, [$t(367) = -10.608$, $P < .001$]. Thus, it can be concluded that students in Mezam Division display significantly low resilience in Mathematics.

Research Question 2: To establish how students' resilience relates to their Mathematics academic performance.

Ho_2: Students' resilience does not significantly relate to their Mathematics academic performance.

Ha_2: Students' resilience significantly relates to their Mathematics academic performance.

Table 4: Relationship between Students' Resilience and their Mathematics Academic Performance

		Students' Resilience in Mathematics	Students' Academic Performance
Students' Resilience in Mathematics	Pearson Correlation	1	.587**
	Sig. (2-tailed)		.000
	N	368	368
Students' Academic Performance	Pearson Correlation	.587**	1
	Sig. (2-tailed)	.000	
	N	368	368

**. Correlation is significant at the 0.01 level (2-tailed).

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Table 4 shows a moderate positive Pearson product moment correlation between students' resilience and their Mathematics academic performance of 0.587. This indicates that when students' resilience increases, their Mathematics academic performance also increases. This also means that when students' resilience decreases, their Mathematics academic performance also decreases. Going further, the correlation value of 0.587 is significant at the 1% level of significance as indicated by a *P*-value of 0.000. Thus Ho_2 is rejected and it can therefore be concluded that students' resilient abilities in Mezam Division have a significantly positive relationship with their Mathematics academic performance.

Research Question 3: To determine the extent to which students' resilience predicts their Mathematics academic performance.

Ho_3: Students' resilience does not significantly predict their Mathematics academic performance.

Ha_3: Students' resilience significantly predicts their Mathematics academic performance.

Table 5: Model Summary Table for Students' Resilience and Mathematics Academic Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.587[a]	.344	.342	3.889

a. Predictors: (Constant), Students' Resilience in Mathematics

The model summary on Table 5 suggests that the value of R^2 is .344. This means that 34.4% of students' variations in academic performance in Mathematics can be accounted for or predicted by their resilience.

Table 6: Regression Coefficients for Analytical Thinking Abilities and Mathematics Academic Performance

Model		Unstandardized Coefficients		Standardised Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-3.138	1.059		-2.964	.003	-5.220	-1.056
	Students' Resilience in Mathematics	.638	.046	.587	13.854	.000	.547	.729

a. Dependent Variable: Students' Performance in Mathematics

Table 6 suggests that the regression equation is given by

Students' Performance in Mathematics = *-3.138 + 0.638* x *Students' Resilience*

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Thus, when students' resilience is at zero, their academic performance is at -3.138. When students' resilience increases by one unit, their academic performance in Mathematics increases by 0.638. This increase is significant as indicated by a *P*-value of 0.000. This, again, indicates that students' resilience significantly predicts their Mathematics academic performance.

DISCUSSION OF FINDINGS

The findings reveal students in Mezam division display significantly low resilience in Mathematics, indicating an overall insufficient level of resilience in this subject. Meyer and Turner (2006) suggest that students with low resilience often experience increased anxiety and reduced motivation, particularly in challenging subjects like Mathematics. This aligns with the observation that students in Mezam Division may have lower confidence and diminished ability to cope with academic setbacks. Duckworth (2016) introduced the concept of grit, defined as a combination of passion and perseverance for long-term goals. Her research highlights that grit, a crucial component of resilience, is essential for achieving success in difficult academic areas. Duckworth's work suggests that resilience in Mathematics is closely linked to students' grit; those who exhibit grit are more likely to persist through difficulties and maintain motivation over time. The low resilience observed among students in Mezam Division may reflect a lack of grit, making it harder for them to sustain effort and interest in Mathematics. To address this issue, interventions could focus on programs designed to build mathematical confidence and persistence. For example, Bandura's (1997) research on self-efficacy indicates that enhancing students' confidence in their mathematical abilities can improve their resilience and overall performance.

The finding of the study further shows that students' resilience have a significantly positive relationship with their Mathematics academic performance. This agrees with Meyer and Turner (2006) who posit that students with high resilience often exhibit lower levels of anxiety and higher levels of motivation, both of which contribute to improved academic performance, especially in demanding subjects like Mathematics. Thus, resilience is associated with improved Mathematics performance, as confident and resilient students are likely to approach mathematical problems with a more positive and persistent attitude. To capitalise on this positive relationship between resilience and academic performance, educational programs could focus on building students' resilience. Strategies could include among other things, fostering a growth mindset, providing support systems, and creating opportunities for students to develop coping skills for dealing with academic challenges. Mathematics teachers can also play a crucial role in promoting resilience by creating supportive and challenging learning environments. This can involve offering constructive feedback, encouraging a positive attitude towards challenges, and providing resources that help students develop effective problem-solving skills. Again, implementing interventions that target resilience, such as resilience training programs or workshops, could help students improve their ability to cope with academic stress and challenges. These interventions could be designed to enhance students' self-efficacy and perseverance, thereby potentially boosting their performance in Mathematics.

Lastly, the regression equation provided from the finding: *Students' Performance in Mathematics = -3.138 + 0.638 x Students' Resilience*, demonstrates a significant relationship between resilience and academic performance in Mathematics. The intercept of -3.138 suggests that, theoretically, if students had zero resilience, their performance would be significantly

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below zero, indicating a potentially unrealistic baseline in practical terms. However, the key finding is that for each unit increase in students' resilience, their Mathematics performance improves by 0.638 units, a change deemed statistically significant given the P-value of 0.000. This significance underscores that resilience is a strong predictor of academic performance in Mathematics, with higher resilience correlating with better performance outcomes. This predictive relationship underscores the importance of resilience as a contributing factor to academic success. Pekrun et al. (2002) explore how emotional regulation impacts academic performance. Their findings indicate that students who manage their emotions effectively, an aspect of resilience, perform better academically. In Mathematics, this might involve managing frustration and anxiety, which can lead to or predict improved performance. Given that resilience predicts academic performance, educational strategies should include components that build students' resilience. Programs designed to improve resilience could focus on teaching students how to cope with setbacks, manage stress, and develop a positive attitude towards challenges. Furthermore, incorporating resilience training into the Mathematics curriculum or extracurricular activities can help students enhance their problem-solving skills and persistence. This could involve resilience workshops, mentoring programs, and activities that promote perseverance and adaptive coping strategies. Finally, providing support systems such as tutoring, counselling, and peer support can bolster students' resilience. These systems can help students develop effective strategies for overcoming academic challenges and improve their overall performance in Mathematics.

IMPLICATIONS FOR RESEARCH AND PRACTICE

The findings of the study have the following implications:

Implications for Practice

- Policy makers in education should integrate resilience and grit training into the Mathematics curriculum. This can include activities and lessons designed to build confidence, perseverance, and coping skills.
- Teacher training colleges and teacher development programmes should train teachers to recognize signs of low resilience and implement strategies to build students' resilience. This can involve creating supportive classroom environments and providing constructive feedback.
- Teachers should be equipped with tools and techniques to support students emotionally, helping them manage stress and frustration related to Mathematics challenges.
- Workshops should be organised or extracurricular programs focused on developing resilience skills, such as stress management, problem-solving, and adaptive coping strategies.
- Schools should provide access to counselling services to help students manage anxiety and build emotional resilience. This can be particularly important in divisions where students face significant academic pressure.

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Implications for Research

- Future research could delve deeper into which specific aspects of resilience (e.g., self-efficacy, emotional regulation) are most influential in Mathematics performance. This would help in designing targeted interventions.
- Future studies should be conducted to track changes in resilience and academic performance over time to better understand the long-term effects of resilience-building interventions.
- There is a need for other researchers to assess the effectiveness of different resilience-building programs and strategies, such as workshops, mentoring, and curriculum integration, in improving mathematical performance.
- There is also a need to study how resilience and grit manifest in different cultural or regional contexts, such as the Mezam Division, in order to tailor interventions appropriately.

CONCLUSION

The study highlights the critical role of resilience in shaping students' academic performance in Mathematics within Mezam Division, Cameroon. Mathematics, as a foundational subject with significant implications for future academic and professional opportunities, often presents substantial challenges that can affect students' performance. This research underscores that students' resilience, a key psychological attribute encompassing the ability to recover from setbacks, adapt to challenges, and maintain perseverance, is a significant predictor of their success in Mathematics.

The regression analysis reveals a notable relationship between resilience and Mathematics performance, with each unit increase in resilience corresponding to a meaningful improvement in academic outcomes. This finding aligns with broader research on resilience and academic achievement, which suggests that students who exhibit greater resilience tend to perform better academically, particularly in subjects perceived as difficult (Meyer & Turner, 2006; Duckworth, 2016). The study also confirms that resilience helps mitigate the negative impacts of academic stress and failure, thereby enhancing students' capacity to engage with and overcome mathematical challenges (Pekrun et al., 2002).

REFERENCES

Ashcraft, M. H., & Kirk, E. P. (2001). The relationships between maths anxiety and maths achievement in pre-service teachers. *Journal of Anxiety, Stress, and Coping, 14*(3), 223-239.

Bamgbose, A. (1991). *Language and the Nation: The Language Question in Sub-Saharan Africa.* University of Edinburgh Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* W.H. Freeman and Company.

Boaler, J. (2016). *Mathematical Mindsets: Unleashing Students' Potential through Creative Math, Inspiring Messages, and Innovative Teaching.* Jossey-Bass.

Article DOI: 10.52589/BJELDP-OLWICPZT
DOI URL: https://doi.org/10.52589/BJELDP-OLWICPZT

Carver, C. S. (1998). Resilience and thriving: Issues, models, and linkages. *Journal of Social Issues, 54*(2), 245-266.

Conner, C. M. (2009). Resilience in children and adolescents: A review of the literature. *Journal of Child and Adolescent Psychiatric Nursing, 22*(3), 124-131.

Duckworth, A. L. (2016). Grit: The power of passion and perseverance. Scribner.Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist, 37*(2), 91-105. https://doi.org/10.1207/S15326985EP3702_4

Gu, Q., & Day, C. (2007). Factors influencing the development of resilience: A study of international students in the UK. *Journal of Research in International Education, 6*(2), 1-22.

Kouadio, I. K., & Bouba, H. (2016). Educational inequality in Cameroon: The role of urban and rural disparities. *African Education Review, 13*(1), 121-139.

Martin, A. J., & Marsh, H. W. (2006). Academic resilience and the role of self-beliefs. *Australian Journal of Education & Developmental Psychology, 6*, 34-47.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227-238.

Masten, A. S., & Reed, M. G. J. (2002). Resilience in development. In C. R. Snyder & J. L. Sullivan (Eds.), *Handbook of Resilience: A Complete Guide for Practitioners* (pp. 74-88). Springer.

Meyer, D. K., & Turner, J. C. (2006). Re-conceptualizing emotion and motivation to learn in classroom contexts. *Educational Psychology Review, 18*(4), 377-390. https://doi.org/10.1007/s10648-006-9031-5

Muriungi, A., & Macharia, M. (2014). Challenges facing secondary school education in Cameroon: A case study of Mezam Division. *Journal of Education and Practice, 5*(30), 87-94.

Ndirangu, S., & Sifuna, D. N. (2018). Socio-emotional learning programs and their impact on academic performance: A review of literature. *International Journal of Educational Research, 91*, 121-130.

Yeo, L. (2008). Resilience and coping in the classroom: Addressing psychological needs. *Educational Psychology Review, 20*(4), 405-422.

Zimmerman, B. J. (2000). Self-regulatory cycles of learning and academic achievement. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of Competence and Motivation* (pp. 69-81). Guilford Press.

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Appendices: Instruments for Data Collection

Appendix A: Quantitative Survey Instrument

Students' Resilience and Mathematics Academic Performance

Dear Participant,

We humbly invite you to complete this questionnaire for this research study on "Analysing the Influence of Students' Resilience on their Mathematics Academic Performance in Mezam Division, Cameroon". We request that you respond to the questionnaire items as honestly as possible. Rest assured, your responses will remain confidential and will only be used for research purposes. Your name is not required.

Section A: Demographic Information:

a. Gender: Male / Female

b. Age: _____

c. Class: _____

d. School: _____

Section B: Resilient Abilities

Indicate your degree of agreement or disagreement with the following statements as they apply to you on a scale of 4, where 1 = Strongly Disagree, 2 = Disagree, 3 = Agree and 4 = Strongly Agree.

S/N	Statement	SD	D	A	SA
1	I am able to stay focused and motivated even when I find Mathematics problems difficult.				
2	When I make mistakes in Mathematics, I see them as opportunities to learn rather than as failures.				
3	I can maintain a positive attitude even when I am struggling with challenging Mathematics concepts.				
4	I persist in solving Mathematics problems even when I encounter obstacles or setbacks.				
5	When I am faced with a difficult Mathematics assignment, I believe that I can improve with effort and practice.				
6	I am able to manage my stress and anxiety related to Mathematics tests and assignments effectively.				
7	I quickly recover from frustration when I don't understand a Mathematics topic on the first try.				
8	I am confident in my ability to overcome challenges in Mathematics through hard work and perseverance.				
9	Even if I receive a low mark in a Mathematics test, I am always motivated to study harder and improve.				
10	I actively seek help or resources when I am struggling with Mathematics , rather than giving up.				

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Section C: Mathematics Academic Performance

My first term average in Mathematics was _____/ 20

My second term average in Mathematics was _____/ 20

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