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Mathematics Teachers' Perception of Students' Cognitive Ability, Resiliency and Anxiety in Ekiti State Secondary Schools

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ABSTRACT

This study investigated mathematics teachers' perception of students' cognitive ability, resiliency, and anxiety in Ekiti State Secondary Schools, Nigeria. The study adopted a descriptive survey research design. The population of the study consisted of 701 Mathematics teachers in 205 public secondary schools in Ekiti State, Nigeria. The sample for this study consisted of 150 mathematics teachers selected from 54 public secondary schools using simple random and purposive sampling techniques. The instrument used for this study was "Teachers' perception of students' cognitive ability, resiliency and anxiety questionnaire" (TPSCARAQ). The instrument was validated by experts and was subjected to Cronbach alpha method of reliability, which yielded a reliability coefficient of 0.82. The data were analyzed using descriptive and inferential statistics. The descriptive statistics of frequency counts, percentages, mean and standard deviation were used to answer the research questions while the inferential statistics involving Pearson's Product Moment Correlation analysis and multiple regression analysis were used to test the hypotheses. All the hypotheses were tested at 0.05 level of significance. The study revealed that there was a significant relationship between teacher perception of students' cognitive ability and anxiety in Mathematics. It was found out that there was a significant relationship between teachers' perception of students' cognitive ability and resiliency in Mathematics. Based on the findings of the study, it was recommended that teachers should use teachers 'insights into students' cognitive abilities to tailor instruction and provide differentiated support to meet individual needs, which could help reduce anxiety and build resiliency.

Keywords: Teachers' perception, cognitive ability, resiliency, mathematics anxiety

INTRODUCTION

Mathematics has become a part of students' everyday lives. Students learn mathematical knowledge and skills both formally and informally at school through the subject and out of school through the application of the subject. Mathematics is a subject that requires specific knowledge of numbers, symbols, and rules. It is a creative and highly interconnected discipline that has been developed over centuries, providing solutions to human intriguing problems. Mathematics is the foundation of science and technology, which is the essential requirement for the development of a nation (Oginni, 2013).

Students develop mathematical literacy and ability to engage with Mathematics language, knowledge, and skills in their lives when confronted with simple and complex situations. Mathematical knowledge opens a particular way of thinking and reasoning logically for students in order to interpret their world. Students' abilities could be measured through their capabilities to solve mathematical problems at different stages in their educational journey. It has become necessary to identify factors that may be responsible for such dread among the learners of Mathematics and proffer possible solutions

to this problem as it seems to have an overwhelming effect on the performance of students in the subject. Many students are still not finding their feet in the subject as a result of their inactiveness and fear of the subject. The performance of students keeps fluctuating and refuses to be stable in most Senior School Certificate Examination (SSCE).

Table 1 shows that students' performance in Mathematics improved in 2018, 2019 and 2020 as 62.37%, 69.56% and 90.43% of the students who sat for Mathematics in Ekiti State in those years passed at credit level and above. However, those of 2021 and 2022 dropped the progressive improvement slightly to 88.21%, and 67.42% respectively. This could be attributed to the manner through which mathematics teacher addresses student's phobia, inconsistent practices on the part of students among others. To prevent further decline in the performance and also to make room for improvement in the performance of students in Mathematics in the State, there is the need to put into consideration the students' cognitive ability, resiliency and anxiety of students.

Year	Total number of candidates	Credit (A1-C6)	%	D7-E8	%	F9	%
2018	13,683	8526	62.37	3284	24	1865	13.63
2019	11,351	7,880	69.56	2,561	23	910	7.44
2020	11,660	10544	90.43	479	4.11	637	5.463
2021	10,980	9686	88.21	603	5.49	694	6.32
2022	11,901	8024	67.42	2229	18.73	1648	13.85
3.7 . 4	11 5.4	1 5 4	1 91 9			FO 0.11	

 Table 1. Students' performance in May/June Senior School Certificate Examinations (SSCE) 2018

 2022 in Elviti state (Ministry of Education, 2023)

Note: A1 = excellent, B2 = very good, B3 = good, C4, C5, C6 = average, D7, E8 = pass, F9 = fail

Teachers assess students' understanding of mathematical concepts through classroom discussions, observations, and assessments. Students who demonstrate a deep understanding of mathematical concepts and can apply them flexibly are often perceived as having a higher ability in Mathematics, while those who struggle to grasp concepts or apply them effectively may be perceived as having a lower ability. The formation of individuals' beliefs about Mathematics is influenced by their previous encounters, encompassing both cognitive and affective aspects (Aguilar et al., 2012). Perception, when examined via a cognitive lens, encompasses an individual's cognitive representations, knowledge, and beliefs. Conversely, when approached from an affective perspective, perception pertains to an individual's attitudes, emotions, and sentiments towards the domain of Mathematics. Teachers' perception of students' ability in Mathematics can also be influenced by their confidence levels and engagement in mathematical activities. Students who demonstrate confidence in their mathematical abilities and actively participate in class discussions may be perceived as having a higher ability. Conversely, students who lack confidence, exhibit disengagement, or demonstrate Mathematics anxiety may be perceived as having a lower ability. Mathematics teachers will have different perceptions about students' cognitive ability, resilience and anxiety.

The cognitive capacity of students in Mathematics plays a crucial role in their acquisition of mathematical knowledge and development of problem-solving abilities. The comprehension of students' cognitive capacities in the field of Mathematics holds substantial ramifications for the domain of Mathematics education. According to a recent study conducted by Oginni (2024), there is evidence to show that customizing education based on students' cognitive profiles can lead to improved learning results. Educators have the capacity to integrate instructional approaches that are congruent with the cognitive capacities of students, such as employing scaffolding techniques for problem-solving activities.

Resiliency refers to students' ability to bounce back from setbacks, persevere through challenges, and maintain a positive attitude towards learning Mathematics. Teachers may perceive students' resiliency based on their responses to difficult mathematical problems, their willingness to seek help and learn from mistakes, their motivation and determination to improve, and their overall perseverance in the face of mathematical challenges. Teachers often value students who demonstrate resilience as it indicates a growth mindset and a willingness to take on difficult tasks.

Resilience focuses on students' ability to manage their environments. Therefore, a better understanding of student academic resilience may not only lead to significant implications for educational practice to boost student performance in Mathematics, but can also provide new perspectives for solutions to educational equity issues. Mathematical resilience serves as a protective attitude to reduce the effect of Mathematics anxiety, and so developing resilience puts educators in the position of building student assets in the classroom. Mathematical resilience as a latent affective construct is an emerging topic of research in Mathematics education, building upon well-established theoretical bases of psychological and educational research (Ricketts, 2017). Yeager and Dweck (2012) define resilience as any behavioral, attributional, or emotional response to an academic or social challenge that is positive or beneficial for development. Translated into the classroom setting, resilience comes into view as students productively struggle and develop adaptive strategies to confront the acquisition of challenging subject content or to master skills which demonstrate capacity for problem-solving.

The notion of resilience in the field of Mathematics holds considerable ramifications for the domain of Mathematics pedagogy. According to a recent study conducted by Blackwell et al. (2017), there is evidence to show that the cultivation of resilience can have a positive impact on Mathematics achievement and enhance student engagement. Resilience can be fostered by educators through the provision of constructive feedback that places emphasis on effort rather than inherent ability (Yeager & Dweck, 2012). Furthermore, the integration of problem-solving and critical thinking skills within the context of Mathematics education has the potential to foster the cultivation of adaptability and tenacity, which are seen as key components of resilience (Selter & Harrison, 2017). It is imperative to acknowledge that the resilience of pupils in Mathematics can be impacted by cultural and socioeconomic variables. In recent scholarly investigations, the influence of cultural values and familial expectations on students' attitudes towards Mathematics has been examined (Steele, 2017).

Johnston-Wilder et al. (2021) propose the construct of mathematical resilience as identifiably distinct from resilience as a general psychological construct, noting that the subject of Mathematics presents unique challenges for students. Within the context of Mathematics, students develop mathematical resilience by gaining understanding of challenging curricular materials, developing increased confidence in mathematical abilities, and pursuing challenging Mathematics when given the opportunity to do so. Set within the context of seeking solutions to inequities in Mathematics education, centering mathematical resilience is a useful perspective in helping to identify solutions.

Mathematics anxiety is a common phenomenon among students, and teachers may be keenly aware of its impact on students' learning experiences. Teachers may observe signs of anxiety, such as avoidance of Mathematics-related tasks, nervousness during Mathematics assessments, or negative selfperception regarding their mathematical abilities. Mathematics teachers may perceive students' anxiety levels based on their participation in class, their confidence in solving Mathematics problems, their body language, and their verbal expressions of anxiety or discomfort.

The antecedents of student success in Mathematics, as in any other academic subject, include both cognitive and affective factors. While cognitive factors are naturally important for student success, the role of academic emotions is also important. Students who develop positive emotions toward a subject may find enjoyment in the doing of the work as well as pride in their success. Similarly, students who develop negative emotions may experience frustration in the work and anxiety when approaching outcomes.

Anxiety is defined as an emotional reaction experienced by individuals in response to a perceived threat, which could be described as a personality trait or a transitory state (Dowker, 2016). Mathematical anxiety is an emotional reaction that influences mathematical performance of students. The relationship between Mathematics self-perception and performance has traditionally been explored in terms of "Mathematics anxiety" and "Mathematics self-concept" (Fitzgerald, 2012). Mathematics anxiety is derived from a person's self-perception of Mathematics skills. One's self-perception of ability in Mathematics may influence Mathematics anxiety and performance levels. Mathematics self-perception refers to a person's confidence level in Mathematics abilities and efficacy. People who suffer from Mathematics anxiety often have a low opinion of their abilities, contributing to poor performance and attitudes about Mathematics.

The cognitive ability of individual student will go a long way in determining their resilience in Mathematics. The assumption and expectation of teacher is high on students during the teaching-learning process. If students appear not to build up their resilience capacity in mathematics, demystify anxiety and improve their cognitive ability, there is a need for teachers to notice and come up with a

workable plan to change the narrative. The study therefore examined mathematics teachers' perception of students' cognitive ability, resiliency and anxiety in Ekiti state secondary schools.

Conceptual Framework

The model suggests a complex interplay where strong cognitive abilities and resilience create a protective buffer against mathematics anxiety, ultimately leading to better mathematics achievement. Conversely, high mathematics anxiety can impair cognitive function, leading to poorer mathematics performance. Interventions that focus on building cognitive skills and ability, fostering resilience, and reducing mathematics anxiety are the reliable and effective panacea that could bring about improving learning outcomes.

The model anchored and adopted by Block and Block's (1980) (see Figure 1) demonstrated that ego-resilient children show greater spatial reasoning and critical thinking that could lead to mathematics achievement and lower anxiety levels in the subject. This model emphasizes the importance of cognitive ability in relation to visuo-spatial working memory specifically within the context of resiliency. Teacher facilitates learner in adapting to situations where mathematics that seem to be difficult and challenging become better through resilient and perseverance, thereby leading to reduced anxiety and better academic performance (Putwain et al., 2013). Specifically, mathematics anxiety (MA), referring to feelings of fear, tension, nervousness, or discomfort that interferes with one's ability to perform math tasks, and apprehension in mathematics-related situations could impede learning to count, acquiring number skills, performing arithmetical operations, and solving complex mathematics problems. This constitutes an important part of children's daily activities and remain important throughout adulthood. Mathematics anxiety also has a detrimental effect on students' achievement.



Figure 1: Mathematics anxiety, resiliency, cognitive ability, and achievement

Resilience is vital in recovering from mathematical anxiety since it gives motivation in pursuing despite obstacles and challenges. Ariyanto et al. (2017) stated that resilience is a way to progress a positive behavior in learning mathematics that will enable students to continue despite the challenge. This model practically investigates the role of resilience in students' anxiety in learning mathematics. In fact, several studies in the literature have dealt with the positive stance of mathematical resilience to overcome anxiety in learning (Muntazhimah & Ulfah, 2020).

Research Questions

The following research questions were raised to guide the study:

- 1) What is the perception of Mathematics teachers on students' cognitive ability in Mathematics?
- 2) What is the perception of Mathematics teachers on students' resiliency in Mathematics?
- 3) What is the perception of Mathematics teachers on students' anxiety in Mathematics?

Research Hypotheses

The following null hypotheses were postulated for this study.

- i. There is no significant relationship between teachers' perception of students' cognitive ability and anxiety in Mathematics.
- ii. There is no significant relationship between teachers' perception of students' cognitive ability and resiliency in Mathematics.
- iii. There is no significant relationship between teachers' perception of students' anxiety and resiliency in Mathematics.

METHODOLOGY

The descriptive research design of the survey was adopted in the study. The population consisted of Mathematics teachers in public secondary schools in Ekiti State, Nigeria. There were 701 Mathematics teachers in 205 public secondary schools presently in Ekiti State, Nigeria as at the time of carrying out this study (Ministry of Education, 2023). The sample for this study consisted of 150 Mathematics teachers which were selected from 54 public secondary schools in Ekiti State, Nigeria through a multi stage sampling procedure.

The first stage involved the selection of three Local Government areas from each of the three senatorial districts using simple random sampling technique. In stage two, six public secondary schools were selected from each of the Local Government Areas through simple random sampling technique. In stage three, 150 Mathematics teachers were selected using purposive and random sampling techniques. The selection of teachers was purposively done taking into consideration the mathematics teacher taking certificate classes. The instrument tagged "Teachers' Perception of Students' Cognitive Ability, Resiliency and Anxiety Questionnaire" (TPSCARAQ). The face and content validity of the instrument was ensured by specialists, such as experts in psychology, guidance and counsellor and mathematics education. The instrument was administered on 20 Mathematics teachers outside the sampled schools. The data collected were analyzed using Cronbach alpha formula which yielded reliability coefficient of 0.82, this value was considered high enough to adjudge the instrument reliable and usable for the collection of data.

FINDINGS

Question 1: What is the perception of Mathematics teachers on students' cognitive ability in Mathematics?

Table 2 presents the perception of Mathematics teachers on students' cognitive ability in Mathematics. The table showed that Teachers' perception of students' cognitive ability in Mathematics plays a crucial role in shaping the educational experience and outcomes for learners as 82.0% of the teachers perceived that students has strong fundamental understanding of mathematical concepts while 18.0% disagreed, 73.3% of the teachers perceived that students has confidence in solving mathematical problems while 26.7 disagreed, 81.3% of the teachers perceived that students can apply mathematical principles while 18.7 disagreed, 31.4% of the teachers perceived that students grasped abstract mathematical concepts while 68.6% disagreed, 81.3% of the teachers perceived that students effectively interpreting mathematical data and 18.7% disagreed, on students having high level of mathematical reasoning; 70.7% of the teachers agreed and 29.3% disagreed. 74% of the teachers perceived that students are persistent and resilient in tackling mathematical challenges while 26% disagreed, on students having an effective communication of mathematical ideas; 73.3% perceived while 26.7% disagreed, 84% of the teacher perceived that students displayed interest in exploring mathematical topics while 26% disagreed, 82% of the teacher perceived that students consistently perform well on mathematical proficiency assessment while, 18% disagreed, it can be deduced that, teachers perception is related with students cognitive ability. It indicates that customizing education based on students' cognitive profiles can lead to improved learning results in Mathematics.

C/DI				$\frac{1}{2}$	-130) CD		<u> </u>
S/N	The perception of Mathematics	SA	A (%)	D (%)	SD	Mean	Standard
	teachers on students' cognitive	(%)			(%)		Deviation
	ability in Mathematics						
1	Students demonstrate a strong	72	51	19	8	3.25	0.87
	understanding of fundamental	(48.0)	(34.0)	(12.7)	(5.3)		
	mathematical concepts.						
2	Students exhibit confidence in	32	78	32	8	2.89	0.79
	problem-solving tasks related to	(21.3)	(52.0)	(21.3)	(5.4)		
	Mathematics						
3	Students apply mathematical	27	95	20	8	2.94	0.72
	principles creatively to solve	(18.0)	(63.3)	(13.3)	(5.4)		
	complex problems						
4	Students grasp abstract	19	28	71	32	2.22	0.92
	mathematical concepts with ease	(12.7)	(18.7)	(47.3)	(21.3)		
5	Students effectively analyze and	56	66	20	8	2.13	0.84
	interpret mathematical data	(37.3)	(44.0)	(13.3)	(5.3)		
6	Students demonstrate a high level	16	90	36	8	2.76	0.71
	of mathematical reasoning and	(10.7)	(60.0)	(24.0)	(5.3)		
	critical thinking skills						
7	Students show persistence and	48	63	27	12	2.98	0.90
	resilience when faced with	(32.0)	(42.0)	(18.0)	(8.0)		
	challenging mathematical						
	problems						
8	Students effectively communicate	32	78	32	8	2.89	0.79
	mathematical ideas and solutions	(21.3)	(52.0)	(21.3)	(5.3)		
9	Students display a keen interest in	44	82	16	8	3.08	0.78
	exploring advanced mathematical	(29.3)	(54.7)	(10.7)	(5.3)		
	topics						
10	Students consistently perform	64	59	19	8	3.19	0.85
	well on assessments measuring	(42.7)	(39.3)	(12.7)	(5.3)		
	mathematical proficiency						

 Table 2. Frequency count and percentage response to teachers' perception of the students' cognitive ability in Mathematics (N=150)

Note: Cut-Off Mean: 2.50

Question 2: What is the perception of Mathematics teachers on students' resiliency in Mathematics?

Table 3 presents the perception of Mathematics teachers on students' resiliency in Mathematics. Using a cut-off mean of 2.50 for the rating scale. 70.7% of the teachers perceived that students are persistent when faced with mathematical problems while 29.3% disagreed, 76% of the teachers perceived that students bouncing back from mathematical setbacks while 24% disagreed, 87.4% teacher perceived and 22.6% disagreed that students possess positive attitude difficulties in learning Mathematics, 89.4% of the teacher perceived while 10.6% disagreed that students freely seek help for mathematical problems or challenges, 84% of the teachers perceived that students stays focused and engaged in learning Mathematics while, 16% disagreed, on active participation of students in class discussion 81.4% perceived while 18.6 disagreed. 84% of the teacher agreed that students persist in trying different problem solving strategy before giving up while 16% disagreed, 79.4% of the teacher perceived that students possess confidence in improving their mathematical skills while, 20.6% disagreed, on students viewing mistakes in Mathematics as learning and growth opportunity; 78.7% perceived while, 21.3% disagreed, 74.4% of the teachers perceived that students has willingness to take on mathematical intelligence while 21.3% disagreed. It indicates that resilience of students in the domain of Mathematics is a fundamental psychological concept that holds significant importance in their capacity to surmount obstacles, setbacks, and problems encountered during the process of acquiring mathematical knowledge. Students that demonstrate resilience possess a heightened ability to recover from setbacks, persevere in their endeavors, and cultivate a constructive mindset in relation to the acquisition of mathematical knowledge.

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S/N	The perception of Mathematics	SA	A (%)	D (%)	SD	Mean	Standard
	teachers on students' resiliency in	(%)			(%)		Deviation
	Mathematics						0.04
1	Students demonstrate persistence	36	70	32	12	2.34	0.94
	when faced with challenging	(24.0)	(46.7)	(21.3)	(8.0)		
	Mathematics problems.						
2	Students bounce back quickly from	50	64	28	8	2.87	0.87
	mathematical setbacks or mistakes	(33.3)	(42.7)	(18.7)	(5.3)		
3	Students exhibit a positive attitude	52	79	11		3.04	0.85
	towards overcoming difficulties in	(34.7)	(52.7)	(7.3)			
	learning Mathematics		. ,	. ,			
4	Students are willing to seek help	79	55	8	8	3.17	0.78
	and clarification when they	(52.7)	(36.7)	(5.3)	(5.3)		
	encounter math-related challenges						
5	Students stay focused and engaged	68	58	16	8	3.37	0.81
	in learning Mathematics, even	(45.3)	(38.7)	(10.7)	(5.3)		
	when the concepts are complex						
6	Students actively participate in	82	40	20	8	3.24	0.85
	class discussions and activities	(54.7)	(26.7)	(13.3)	(5.3)		
	related to Mathematics						
7	Students persist in trying different	46	80	16	8	3.31	0.89
	problem-solving strategies before	(30.7)	(53.3)	(10.7)	(5.3)		
	giving up						
8	Students express confidence in their	52	67	19	12	3.09	0,78
	ability to improve their	(34.7)	(44.7)	(12.7)	(8.0)		
	Mathematics skills over time.						
9	Students view mistakes in	46	72	20	12	3.06	0.89
	Mathematics as opportunities for	(30.7)	(48.0)	(13.3)	(8.0)		
	learning and growth						
10	Students demonstrate a willingness	52	66	20	12	3.01	0.87
	to take on Mathematics challenges	(34.7)	(44.0)	(13.3)	(8.0)		
	outside of regular classroom						
	assignments						

Table 3. Frequency count and percentage response to the teachers' perception of the resiliency of students in Mathematics (N=150)

Note: Cut-Off Mean: 2.50

Question 3: What is the perception of Mathematics teachers on students' anxiety in Mathematics?

Table 4 presents the perception of Mathematics teachers on students' anxiety in Mathematics. 32.3% of the teacher perceived that their students are confident when working on mathematical assignments and 65.7% disagreed, 71.4% of the teacher agreed that students experience anxiety while 28.6% disagreed, 79.4% perceived that their students are nervous or stressed during Mathematics assessment while 20.6% disagreed. 71.3% of the teachers perceived that students ask for help when having mathematical challenges while 28.7% disagreed. 82% of the teachers perceived that a positive and supportive classroom environment will alleviate students' anxiety in Mathematics while 18% disagreed, 86.7% of the teachers agreed that positive feedback improves their students' performance while 13.3% disagreed. 78.7% of the teachers agreed that external factors contribute to students' anxiety in Mathematics while 21.3% disagreed. 82% of the teachers agreed that the use of real and concrete examples reduces students' anxiety while, 18% disagreed, 77.6% of the teachers agreed that anxiety makes students skip classes while, 22.4% disagreed, 89.3% of the teachers agreed the provision of additional learning resources improves students' confident level while, 10.7% disagreed. It indicates that Mathematical anxiety is a psychological response that impacts the mathematical abilities and performance of individuals across different age groups, including children and adults.

Table 4. Frequency count and percentage response to the perception of Mather	matics teachers on
students' anxiety in Mathematics (N=150)	

S/N	The perception of Methometics			$\frac{103(11-13)}{D(04)}$	<u>sn</u>	Moon	Standard
5/11	teachers on students' envious in	(04)	A (70)	D (70)	(94)	wiean	Deviation
	Mathematics	(70)			(70)		Deviation
1	The majority of my students appear	16	35	75	24	3.05	0.80
1	confident when working on	(10, 0)	(23, 3)	(50.0)	(16.0)	5.05	0.09
	Mathematics assignments	(10.0)	(23.3)	(30.0)	(10.0)		
2	I believe that my students experience	55	52	21	12	3 21	0.80
2	any students experience	(26.7)	(24.7)	(20.7)	(2)	5.21	0.80
	mathematical problems	(30.7)	(34.7)	(20.7)	(0.0)		
		70	40	20	11	2.20	0.96
3	I observe signs of nervousness of	/9 (52.7)	40	20 (12.2)	(7.2)	2.29	0.86
	stress in my students during	(52.7)	(26.7)	(13.3)	(7.3)		
	Mathematics assessments	4.4	()	21	10	2.00	0.05
4	I think that students in my class feel	44	63	31	12	3.00	0.95
	comfortable asking for help when	(29.3)	(42.0)	(20.7)	(8.0)		
	they struggle with mathematical						
	concepts	- 1		10	0		0.05
5	I believe that creating a positive and	51	12	19	8	3.25	0.95
	supportive classroom environment	(34.0)	(48.0)	(12.7)	(5.3)		
	can alleviate students' anxiety in						
	Mathematics					• • •	0.01
6	I notice an improvement in students'	64	66	12	8	2.93	0.91
	performance when they receive	(42.7)	(44.0)	(8.0)	(5.3)		
	positive feedback on their						
	mathematical achievements						
7	I think that external factors (e.g.,	60	58	20	12	3.11	0.82
	parental pressure) contribute to		(a a -)		(0.0)		
	students' anxiety in learning	(40.0)	(38.7)	(13.3)	(8.0)		
	Mathematics						
8	I believe that incorporating real-	40	83	19	8	3.03	0.82
	world examples in mathematical	(26.7)	(55.3)	(12.7)	(5.3)		
	lessons can reduce students' anxiety				10		
9	I am aware of students who avoid	56	59	23	12	3.06	0.92
	participating in class activities due to	(37.3)	(39.3)	(15.3)	(8.0)		
	anxiety related to Mathematics		. ·		~		
10	I think that providing additional	54	80	8	8	3.20	0.78
	resources and support for struggling	(36.0)	(53.3)	(5.3)	(5.3)		
	students can positively impact their						
	confidence in Mathematics						

Note: Cut-Off Mean: 2.50

Testing of Hypotheses

Hypothesis 1: There is no significant relationship between teachers' perception of students' cognitive ability and anxiety in Mathematics

Table 5 showed that the Pearsons' correlation, r = 0.154 was significant at 0.05 level of significance because the P-value (0.001) < 0.05. The null hypothesis was rejected. This implies that there was a significant relationship between teachers' perception of students' cognitive ability and anxiety in Mathematics. From the researcher's experience some teachers always assume that some students should be capable of certain mathematical operation based on some body parameters such as; age, sex, previous exposure or location without taking time to observe the cognitive ability of each student therefore creating a barrier to students productive learning of mathematical concepts

ulen an	xiety in Ma	amematics				
Variables	Ν	Mean	Stand	r	р	
			Dev			
Teachers' Perception of Students'	150	29.35	2.94			
Cognitive Ability in Mathematics				0.154	0.001*	
Teachers' Perception of students'	150	30.21	2.76	0.134	0.001	
Anxiety in Mathematics						
Note: $*n < 0.05$						

Table 5. Pearsons' Correlation Analysis of teachers' Perception of students' cognitive ability and their anviety in Mathematics

Note: *p<0.05

Hypothesis 2: There is no significant relationship between teachers' perception of students' cognitive ability and resiliency in Mathematics.

Table 6 showed that the Pearsons' correlation, r = 0.165 was significant at 0.05 level of significance because the P-value (0.001) < 0.05. The null hypothesis was rejected. This implied that there was a significant relationship between teachers' perception of students' cognitive ability and resiliency in Mathematics.

Table 6. Pearsons' Correlation analysis of teachers' perception of students' cognitive ability and resiliency in Mathematics

Variables	N	Mean	Stand	R	р
			Dev		
Teachers' Perception of Students'	150	29.35	2.94		
Cognitive Ability in Mathematics				0.165	0.001*
Teachers' Perception of the resiliency in	150	31.21	2.80	0.165	0.001*
Mathematics					
N * 0.05					

Note: *p<0.05

Hypothesis 3: There is no significant relationship between teachers' perception of students' anxiety and resiliency in Mathematics.

Table 7 showed that the Pearsons' correlation, r = 0.015 was significant at 0.05 level of significance because the P-value (0.001) < 0.05. The null hypothesis was rejected. This implied that there was a significant relationship between teachers' perception of students' anxiety and resiliency in Mathematics.

	perception of the resilienc	y in Mathem	atics	J	
Variables	Ν	Mean	Stand Dev	r	р

Table 7. Pearsons	' correlation an	alysis of teacher	s' perception	of students'	' anxiety ar	nd teachers'
	percepti	on of the resilier	cy in Mather	natics		

Variables	N	Mean	Stand	r	р
			Dev		
Teachers' Perception of Students'	150	30.26	2.75		
anxiety in Mathematics				0.015	0.001*
Teachers' Perception of the resiliency in	150	31.21	2.80	0.015	0.001
Mathematics					
Notes \$12,005					

Note: *p<0.05

DISCUSSION

The findings of the study revealed that students have strong fundamental understanding of Mathematical concepts, have confidence in solving mathematical problems, can apply mathematical principles, show persistence and resilience when faced with challenging mathematical problems and show an interest in exploring advanced mathematical topics. This indicates that customizing education based on students' cognitive profiles can lead to improved learning results in Mathematics. The study also revealed that students bounce back quickly from mathematical setbacks or mistakes, students are willing to seek help and clarification when they encounter Mathematics related challenges and students stay focused and engaged in learning Mathematics, even when the concepts are complex. This indicates that resilience of students in the domain of Mathematics is a fundamental psychological concept that holds significant importance in their capacity to surmount obstacles, setbacks, and problems encountered during the process of acquiring mathematical knowledge. The study revealed that Mathematics teachers believe that students experience anxiety when faced with mathematical problems, noticed an improvement in students' performance when they receive positive feedback on their mathematical achievements, think that providing additional resources and support for struggling students can positively impact their confidence in Mathematics and teachers are aware of students who avoid participating in class activities due to anxiety related to Mathematical abilities and performance of individuals across different age groups, including children and adults. It was observed that teachers' perception of students' cognitive ability impacts students' performance in Mathematics, students' performance in their comportment and ability to surmount any challenge or difficulty in Mathematics and generally in other facets of life.

Additionally, the findings revealed that there was a significant relationship between teachers' perception of students' cognitive ability and anxiety in Mathematics. This is consistent with what was claimed by Kabeera (2019) who investigated the impact of students' perceptions on their Mathematics performance within a sample of three secondary schools in Rwanda, in which they indicated a significant correlation between the support provided by teachers, learning materials, and school administrators, and the self-confidence of students across various demographics, such as age, gender, beliefs, and attitudes. The finding of this study is not consistent with the opinion of Oginni (2024), who observed that there exists a widespread prevalence of negative attitudes and misconceptions among students towards the subject of Mathematics. Nonetheless, the finding is in tender with that of a study conducted by Rini and Prabawanto (2021), who examined the perspectives of high school Mathematics educators regarding the instructional approaches that are linked to the development of students' critical thinking abilities, and found that educators teaching Mathematics at the high school level exhibited recognition of several creative instructional approaches. Furthermore, the educators exhibited a favourable attitude of the integration of critical thinking into the learning process.

The findings of this study revealed that there was a significant relationship between teachers' perception of students' cognitive ability and resiliency in Mathematics. This finding is consistent with the submission of Duru and Obasi (2023) who investigated factors linked to academic performance in Mathematics, and found that it is imperative to take into account students' levels of confidence in Mathematics. The anxiety levels of children may differ depending on their grade level, nevertheless, it is evident that there is a correlation between irritation and diminished confidence among students who experience Mathematics fear.

The findings of this study further revealed that there was a significant relationship between teachers' perception of students' anxiety and resiliency in Mathematics. The finding was consistent with that of Doruk et al. (2016) who sought to examine the anxiety, attitude, and self-efficacy views of middle school pupils in relation to Mathematics. The primary objective of their study was to uncover the interrelationships among these three emotional variables. The findings indicate that students exhibit a low level of mathematical fear, while demonstrating a high level of attitude and self-efficacy perception towards the subject of Mathematics

Therefore, based on the findings of this study, the following recommendations were made:

- i. Teachers should use their insights to improve students' cognitive abilities by tailoring instruction and provide differential supports that could meet individual needs, help reduce anxiety and build resiliency.
- ii. Teachers should regularly monitor and provide feedback on students' progress in Mathematics. This can help teachers adjust their perceptions and strategies based on students' evolving needs and improve their overall experience.
- Further researchers should conduct comparable research across different regions or states in Nigeria to identify if there are regional differences in teachers' perceptions and their impact on student's performance and well-being
- iv. During this study, some teachers declined on the ground that they were newly transferred to the school and don't have the knowledge about the student's cognitive ability, resiliency and anxiety which made the researcher to change location to seek the cooperation of other teachers

who has full knowledge of student's cognitive ability, resiliency and anxiety in Mathematics. It is therefore necessary that teachers should not transfer intermittently in order to study the differences in their learners.

CONCLUSION

Based on the findings of this study, it could be concluded that there is a significant relationship exist between teachers' perception of students' cognitive ability and anxiety in Mathematics, teachers' perception of students' cognitive ability and resiliency, between teachers' perception of students' anxiety and resiliency in Mathematics respectively.

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