Mathematics Teacher's Autonomy in Students' Performance

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Abstract: *This study aims to investigate the perceptions of mathematics teachers' autonomy in students' performance. I applied quantitative research design, and positivist paradigm. In Kathmandu district's 40 public secondary schools, 80 respondents in the basic level teachers, 40 male and 40 females-were randomly selected for the sample. Data collection was carried out using a self-created questionnaire that had 50 statements and five Likert-type response alternatives. The self-developed questionnaire's validity was verified by the opinions of experts, and reliability was established Cronbach's alpha, 0 .89. I prepared five factors according to loading components. According to research, teacher's autonomous teaching makes high performance of students in mathematics classroom practices.*
Keywords: *Autonomy, Cronbach's alpha, Students' Performance, Components, Effective Teaching*

Introduction

Teachers' autonomy in the mathematics classroom refers to their ability to choose what and how they teach without being limited by particular limitations or orders from outside sources. Whereas teachers with a high degree of autonomy in the classroom can adjust their teaching methods and instructional materials to the requirements of their students, resulting in better learning outcomes (Arkin, 2010). Teachers are more likely to engage students in the learning process and create an enjoyable learning atmosphere when they are given the freedom to use a variety of teaching methods and instructional resources (Kadel, 2020). In this regard, Sehrawat, (2014) views that students may be more motivated, have a better knowledge of mathematical ideas, and reach higher levels of success. However, it is vital to stress that autonomy should not be confused with a lack of accountability. In the mathematics classroom, the relationship between teacher autonomy and student learning is complex and varied (Han, 2015). Teachers must still be held accountable for ensuring that their students fulfill the proper learning requirements and exhibit mastery of the material. However, Seda (2008) argues that autonomy should be tempered with effective educational practices, continued professional development, and collaboration with other educators.

Moreover, teacher autonomy in the mathematics classroom can have a favorable impact on students' performance or outcomes. By allowing teachers to employ a range of instructional methods and materials, we can create a more engaging and effective learning environment for students (Castle, 2006). Several elements, including the teacher's level of knowledge, the quality of instructional resources, and the teaching tactics utilized by the teacher, have been demonstrated to influence the relationship between teachers' autonomy and students' performance (Shalem, Clercq, Steinberg, & Koornhof, 2018). Teachers with a high degree of autonomy in the mathematics classroom can adjust their teaching techniques and instructional resources to their students' unique requirements (Joshi, 2011). This can

result in more engaging and effective learning experiences for students, leading for higher outcomes. A teacher with a high level of autonomy, for example, may opt to employ real-world examples or hands-on activities to assist students learn mathematical ideas (Daher, 2012). It is crucial to stress, however, that teachers' autonomy should not be confused with a lack of accountability. Teachers must continue to hold students accountable for meeting the relevant performance requirements and demonstrating mastery of the material (Elena, & Sanchez, 2012). Autonomy must be tempered with effective educational practices, continued professional growth, and collaboration with colleagues. In conclusion, when combined with good teaching practices and high-quality instructional materials, instructors' autonomy in the mathematics classroom can have a favourable impact on students' outcomes. To ensure that students have the better performance, teachers must combine autonomy with accountability and continual professional development (Paradis, Lutovac, & Kaasila, 2015).

Differentiated instruction can be achieved by teachers using a variety of teaching methods and instructional materials that are suited to the needs and skills of individual students (Duong, 2014). This method allows teachers to focus on the exact areas where each student requires assistance, which can lead to improve understanding and mastery of mathematical subjects (Raaen, 2011). Therefore, actual-world applications can be utilized by teachers to assist students comprehend how mathematical principles are applied in the actual world.

Formative assessment procedures can be used by teachers to monitor student progress and change instruction as needed. This technique assists teachers in identifying areas where students are underperforming and allows students to receive additional support and feedback (Paradis, Lutovac, & Kaasila, 2015). Teachers can utilize collaborative learning tactics like group work or peer tutoring to assist students learn from one another and improve their mathematical thinking and problem-solving abilities (Reeve, 2009). Teachers can use technology to provide students with additional practice and feedback on mathematical concepts, such as educational applications and teachers may foster a supportive and encouraging learning atmosphere (Yasmin, & Sohil, 2018). This technique can make students feel more at ease and secure in their mathematical ability, which can lead to better performance.

Methodology

I used a quantitative survey methodology with multiple-choice, five-point Likert scale items in this study. In quantitative research, survey research design is a method in which the researcher delivers a questionnaire to a sample of the population (Creswell, 2012). The sample consisted of 40 secondary level schools in Kathmandu district's where, 80 mathematics teachers were selected by applying random sampling. A self-created questionnaire with 50 statements was used to collect data. The validity of the self-developed questionnaire was confirmed by expert judgments, and reliability was established using Cronbach's alpha 0.889. The reliability coefficient in greater than 0.6 was highly reliable. The values of Cronbach' Alpha are given in following table 1.

Table 1. Cronbach's Alpha Value

	Reliability Statistics		
	Cronbach's Alpha	No of items	Sample Size
Teachers' respondents	0.889	50	80

Among the fifty items, four items were out layers and forty-six items were loaded in the following five dimensions which are categorized in the following structure for the further analysis.

Table 2. *Five components, its' item loaded and factor loading.*

Components	Items loaded	Rotated Factor Loading
Ownership of Teaching (Cronbach's alpha = 0.869)	Teachers 'autonomy and flexibility provides students' centred mobilization, creativity, and ownership in work.	.731
	Autonomous teachers need to consider when teaching students background and learning background.	.731
	Mathematics teachers 'assessment autonomy helps self-regulated learning.	.654
	Effective and autonomous teachers use a wide range of formal and informal assessments to monitor learning progress as well as diagnose learning issues.	.654
	Mathematics teachers' autonomy directly affects students' performance.	.637
	An autonomous teacher pays attention not only to whether an answer is correct or not, it means in profession	.637
	Teacher's autonomy can control the students' active participation for the better performance.	.583
	Nepal's educational policy has helped to decrease the students learning activities.	.583
	I can take ownership and conduct my teaching learning activities autonomously for students' better performance.	.581
	As a math teacher, I am autonomous in fair teaching in the mathematics classroom.	.581
	Teachers' autonomy cannot be static entity so it can be explained through technical, political and psychological issue for students' performance.	.534
	Teachers centred teaching methods encourage autonomy and self – responsibility or self-direction among the students	.534
Effective Instructional Strategies (Cronbach's alpha = 0.865)	Autonomy of mathematics teacher is expected to maintain the trust in classroom activities.	.651
	Autonomy of mathematics teacher does not help in upgrading the quality of students' achievement.	.651
	The democratic classroom is highly associated with motivated and pedagogical beliefs.	.629
	The teacher is not autonomous to prepare the questions paper even in the final exam of the basic level.	.629
	Moral autonomy of teachers helps to draw constructivist beliefs about teaching and encourage in teaching.	.578
	Job security with the permanency of the teacher position has no effect on practices in the teaching.	.578
	Professional autonomy reduces the teacher's anxiety about students' achievement and performance.	.556
	Regular monitoring of teachers in classroom practice decreases their autonomy in the teaching profession.	.556

	Almost all mathematics teachers are autonomous in choosing teaching materials and teaching methods according to the curriculum.	.477
	As a math teacher, I have to get more autonomy in solving mathematical problems.	.477
	Continuous and autonomous assessment (summative and formative) systems in the classroom help students' learning.	.444
	A teacher is a social mirror who transmits knowledge based on the groups through instruction.	.444
Teachers' Fairness. (Cronbach's alpha = 0.816)	Mathematics teachers' autonomy enforce the teachers' behavior reflects correlations between a teacher responsibility for fairness in evaluation.	.746
	Students centered teaching methods encourage autonomy and self-responsibility or self-direction among the students.	.746
	Mathematics teachers need to give continued feedback for the improvement of classroom teaching and learning activities.	.655
	As an autonomous math teacher, I engage students in collaborative dialogue in a democratic environment.	.655
	Apart from the recommended courses at the basic level, I should not also be autonomous in teaching other courses.	.541
	As an autonomous teacher I make provisions for individual differences in classroom instruction.	.541
	Government supports teachers' autonomy, transparency, and democratic control and increase students' performance.	.517
	Regular monitoring of teachers in classroom practice increases fairness in their autonomy for teaching profession.	.517
Professional Development. (Cronbach's alpha = 0.791)	Teachers' autonomy need not reduce the teachers' liability in mathematics classroom.	.715
	Student-friendly classrooms and the autonomy of mathematics teachers upgrade teachers' professionalism.	.715
	Mathematics teachers' autonomy does support the students' academic achievement and reduces students' anxiety and boredom.	.496
	The mathematics teacher alone draws the class rule that guide student's behavior for better performance of the students.	.496
	Teachers' instructional practices generally categorizes cognitive activation (instructional strategies, selection of teaching tasks), classroom management (efficient use of allocated classroom time, teachers' expectation of students' behaviors, and prevention of disorder in the classroom) and students support.	.492
	The government of Nepal has implemented a good evaluation of teachers and make professional for students' learning.	.492
Academic Classroom Behavior (Cronbach's alpha = 0.78)	Mathematics teacher empowerment, autonomy, and job satisfaction are academic classroom behavior.	.784
	Teachers' autonomous values have not developed a good relationship between teachers classroom practices and students performance.	.784
	Teacher's autonomy as a complex and multi dimension phenomenon towards decision making control to the relation in classroom context.	.651
	Permanency position of a teaching job has increased the students' performance.	.651
	Socio-cultural autonomy strengthens students' voice and it requires the distribution of power and the right to ask questions.	.577
	Autonomous mathematics teachers never give up students' voice and student's academic achievement.	.577
	Autonomy monitors in the classroom; institutions are reforming by improving efficiency, effectiveness, and quality.	.504
	As a math teacher, I am autonomous to create a student-friendly academic classroom environment.	.504

I examined internal reliability of each component with Cronbach Alpha. In first part twelve items were loaded in first component named as *Ownership of Teaching,* its Cronbach's Alpha was 0. 869. Next twelve items were loaded in second component named as *Effective Instructional Strategies* whose Cronbach Alpha was 0.865. Likewise, eight items were loaded in third component named as *Teachers' Fairness*. Its Cronbach Alpha was 0.819. Again the fourth component loaded six items whose Cronbach alpha was 0.791, whose name was *Professional Development.* The last component named as *Academic Classroom Behavior* whose Cronbach Alpha value is 0.78. The scree plot was observed and identified five potential number of components from five distinct elbows with eigenvalues greater than one. The scree plots are given below in Figure 2

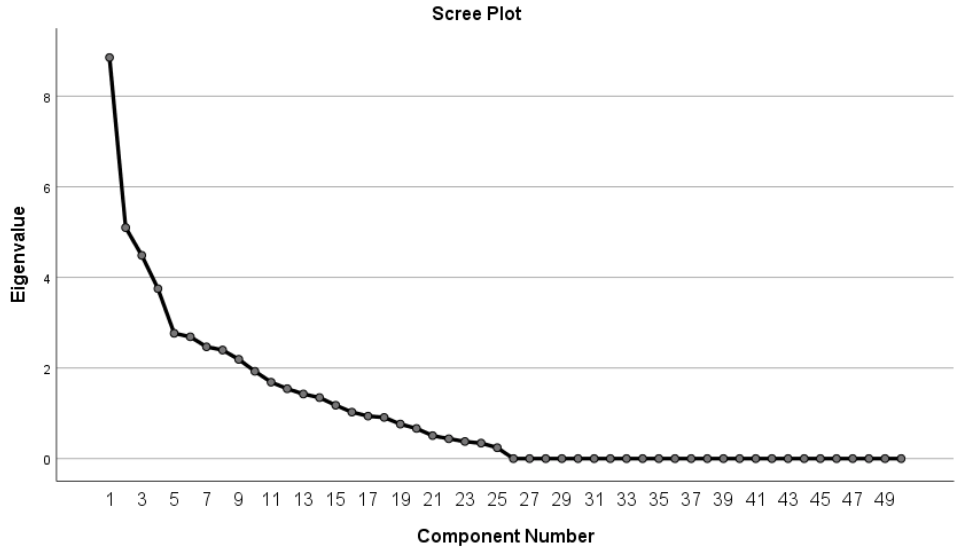

Figure 1. Scree plots of by component Perceptions of Mathematics Teacher's Autonomy in Students' Performance analysis with Varimax Kaiser Normalization

Results and Discussion

First of all, I computed descriptive statistics (mean and standard deviation) and One – sample t-Test to find the significant for each items of component. I computed Null Hypothesis test to examine if the teachers 'view had any significant different in Perceptions of Mathematics Teacher's Autonomy in Students' Performance. In this regard, I described factors separately with the help of table and figure.

Descriptive statistics (mean and standard deviation) were calculated for each of the six components to compare the neutral `value (test value= 3) which is based on the average value of five points Likert-scales. One- sample t-test was concluded to examine the differences of means if they were significant or not at the level of significance. The highest rated component was *Professional Development* (Mean=4.06, SD= 0.564 and t= 16.4). The difference between the sample means and ideal mean was significant ($p<0.05$). The lowest rated component was *Academic Classroom Behavior* (Mean=3.45, SD= 0.66137 and t=6.213). The difference between sample means and ideal mean was 0.45 which was

significant ($p<0.05$). The remaining two components were also rated higher than neutral value (test value= 3). (Table 3).

Table 3. Factor Wise Values of Components

Items	N	Mean	S.D.	M.D.	t-Value	Sig. (Two tailed)	Upper	Lower
Factor1	80	3.7604	.54401	.76042	12.502	.000	.6394	.8815
Factor2	80	3.9333	.50427	.93333	16.555	.000	.8211	1.0456
Factor3	80	4.3844	.39965	1.38438	30.983	.000	1.2954	1.4733
Factor4	80	4.0601	.564	1.062	16.8	.000	.93	1.18
Factor5	80	3.4594	.66137	.45938	6.213	.000	.3122	.6066

Ownership of Teaching

The Cronbach Alpha of this factor (Ownership of Teaching) was 0.869 which is reliable because its value is greater than 0.6. This factor included twelve items and they rated the highest value is 4.26 related to the item autonomous teachers need to consider when teaching students background and learning background and lowest value is 2.65 related to the item mathematics teachers assessment autonomy helps self-regulated learning. The average value of this factor is 3.7604 and its standard deviation is 0.544. The average value of this factor is greater than neutral value (test value=3). The participant's opinion in all items were significant difference at the level of significance 0.05 ($P< 0.05$). (See Table 4)

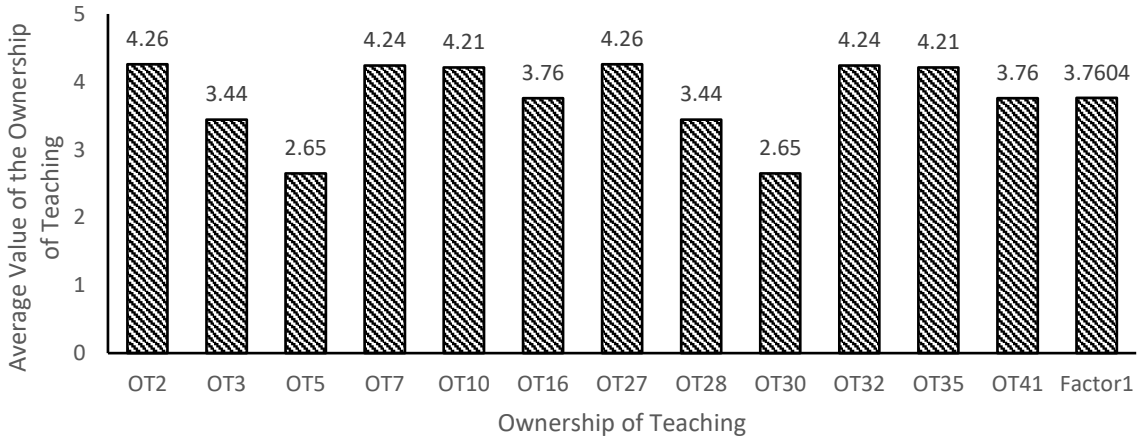

Figure 2. The average value on component Ownership of Teaching

Table 4. Descriptive statistics and one sample t-test for the component in Ownership in Teaching

One Sample Statistics (Test Value =3)								
							95% Confidence Interval of the Difference	
Items	N	Mean	S.D.	M.D.	t-Value	Sig. (Two tailed)	Upper	Lower
OT2	80	4.26	.775	1.263	14.565	.000	1.09	1.44
OT3	80	3.44	.979	.438	3.998	.000	.22	.66

OT5	80	2.65	1.092	-.350	-2.867	.005	-.59	-.11
OT7	80	4.24	.733	1.237	15.093	.000	1.07	1.40
OT10	80	4.21	.630	1.213	17.205	.000	1.07	1.35
OT16	80	3.76	.799	.763	8.531	.000	.58	.94
OT27	80	4.26	.775	1.263	14.565	.000	1.09	1.44
OT28	80	3.44	.979	.438	3.998	.000	.22	.66
OT30	80	2.66	1.092	-.350	-2.867	.005	-.59	-.11
OT32	80	4.24	.733	1.237	15.093	.000	1.07	1.40
OT35	80	4.21	.630	1.213	17.205	.000	1.07	1.35
OT41	80	3.76	.799	.763	8.531	.000	.58	.94
Factor1	80	3.7604	.54401	.76042	12.502	.000	.6394	.8815

Effective Instructional Strategies

The Cronbach Alpha of this factor (Effective instructional Strategies) was 0.865 which is reliable because its value is greater than 0.6. This factor included twelve items and they rated the highest value is 4.45 related to the mathematics teacher is expected to maintain the trust in classroom activities and lowest value is 3.29 related to the item permanency of the teacher position has no effect on practices in the teaching. The average value of this factor is 3.93 and its standard deviation is 0.504. The average value of this factor is greater than neutral value (test value=3). Here all statements are rated by participants higher than neutral value (Test value =3). The participant's opinion in all items were significant difference at the level of significance 0.05 (P< 0.05). (See Table 5)

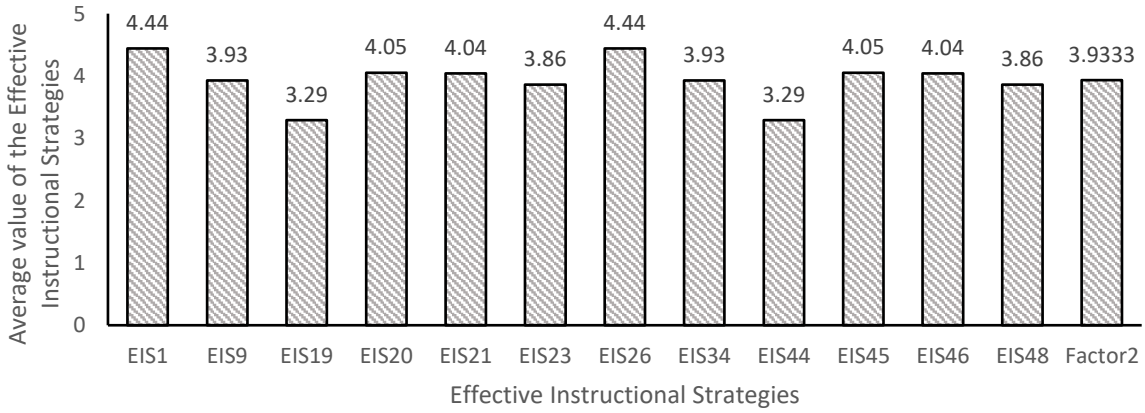

Figure 3. The average value on component Effective Instructional Strategies

Table *5. Descriptive statistics and one sample t-test for the component in Effective Instructional Strategies*

One Sample Statistics (Test Value =3)								
							95% Confidence Interval of the Difference	
Items	N	Mean	S.D.	M.D.	t-Value	Sig. (Two tailed)	Upper	Lower
EIS1	80	4.44	.570	1.438	22.548	.000	1.31	1.56
EIS9	80	3.93	.742	.925	11.143	.000	.76	1.09
EIS19	80	3.29	.944	.288	2.724	.008	.08	.50

EIS20	80	4.05	.761	1.050	12.334	.000	.88	1.22
EIS21	80	4.04	.834	1.047	11.133	.000	.85	1.22
EIS23	80	3.86	.868	.862	8.890	.000	.67	1.06
EIS26	80	4.44	.570	1.448	22.548	.000	1.31	1.56
EIS34	80	3.93	.742	.925	11.143	.000	.76	1.09
EIS44	80	3.29	.944	.288	2.724	.008	.08	.50
EIS45	80	4.05	.761	1.050	12.334	.000	.88	1.22
EIS46	80	4.04	.834	1.037	11.133	.000	.85	1.22
EIS48	80	3.86	.868	.862	8.890	.000	.67	1.06
Factor2	80	3.9333	.50427	.93333	16.555	.000	.8211	1.0456

Teacher's Fairness

The Cronbach Alpha of this factor (***Teacher's Fairness***) was 0.816 which is reliable because its value is greater than 0.6. This factor included eight items and they rated the highest value is 4.60 related to the mathematics teacher provisions for individual differences in classroom instruction and lowest value is 4.00 related to the item monitoring of teachers in classroom practice decreases their autonomy in the teaching profession. The average value of this factor is 4.38 and its standard deviation is 0.399. The average value of this factor is greater than neutral value (test value=3). Here all statements are rated by participants higher than neutral value (Test value =3). The participant's opinion in all items were significant difference at the level of significance 0.05 (P< 0.05). (See Table 6)

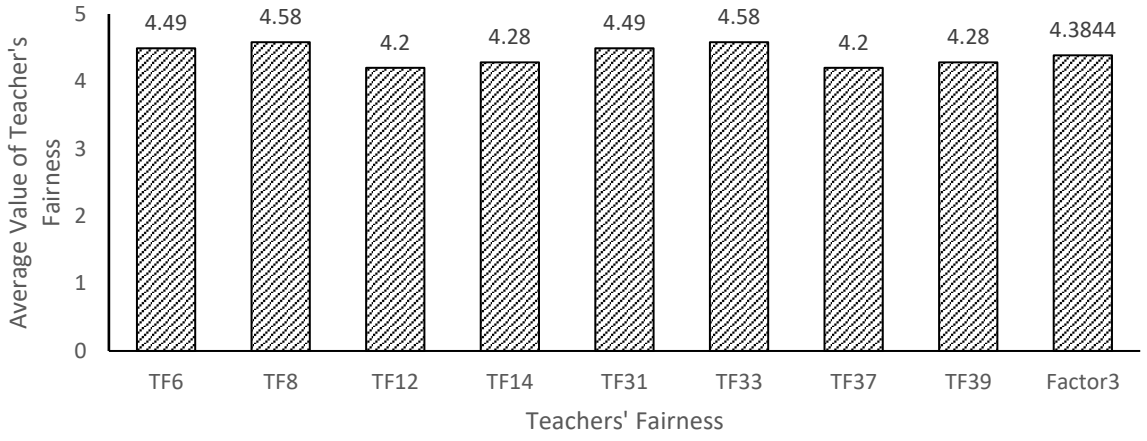

Figure 4. The average value on component Teachers' Fairness

Table 6. Descriptive statistics and one sample t-test for the component in Teachers' Fairness

One Sample Statistics (Test Value =3)								
							95% Confidence Interval of the Difference	
Items	N	Mean	S.D.	M.D.	t-Value	Sig. (Two tailed)	Upper	Lower
TF6	80	4.49	.574	1.487	23.197	.000	1.36	1.62
TF8	80	4.58	.522	1.575	26.972	.000	1.46	1.69
TF12	80	4.20	.624	1.200	17.190	.000	1.06	1.34

TF14	80	4.28	.675	1.275	16.905	.000	1.12	1.43
TF31	80	4.49	.574	1.487	23.197	.000	1.36	1.62
TF33	80	4.60	.522	1.600	26.972	.000	1.46	1.69
TF37	80	4.00	.624	1.000	17.190	.000	1.06	1.34
TF39	80	4.28	.675	1.275	16.905	.000	1.12	1.43
Factor3	80	4.3844	.39965	1.38438	30.983	.000	1.2954	1.4733

Professional Development

The reliability value Cronbach's Alpha = 0.791 which was significant because it was greater than 0.6 among the six items. All the rated values were more than neutral value (test value= 3). The highest rated teachers' autonomy does support the students' academic achievement and reduces students' anxiety and boredom.4.54 and lowest rated item good evaluation of teachers and make responsible for students' learning, whose value was 3.89. The average rated value is 4.06 and its standard deviation is 0.564. But there was significant difference over the all items at level of significance at 0.05(P<0.05) (See Table 7).

Table7. Descriptive statistics and one sample t-test for the component in Professional Development

One Sample Statistics (Test Value =3)								
							95% Confidence Interval of the Difference	
Items	N	Mean	S.D.	M.D.	t-Value	Sig. (Two tailed)	Upper	Lower
PD4	80	4.44	.728	1.44	16.429	.000	1.18	1.50
PD17	80	3.96	.787	.962	10.944	.000	.79	1.14
PD24	80	3.90	.914	.908	8.686	.000	.68	1.09
PD29	80	4.34	.728	1.338	16.429	.000	1.18	1.50
PD42	80	3.96	.787	.962	10.944	.000	.79	1.14
PD49	80	3.89	.914	.888	8.686	.000	.68	1.09
Factor4	80	4.06	.564	1.062	16.8	.000	.93	1.18

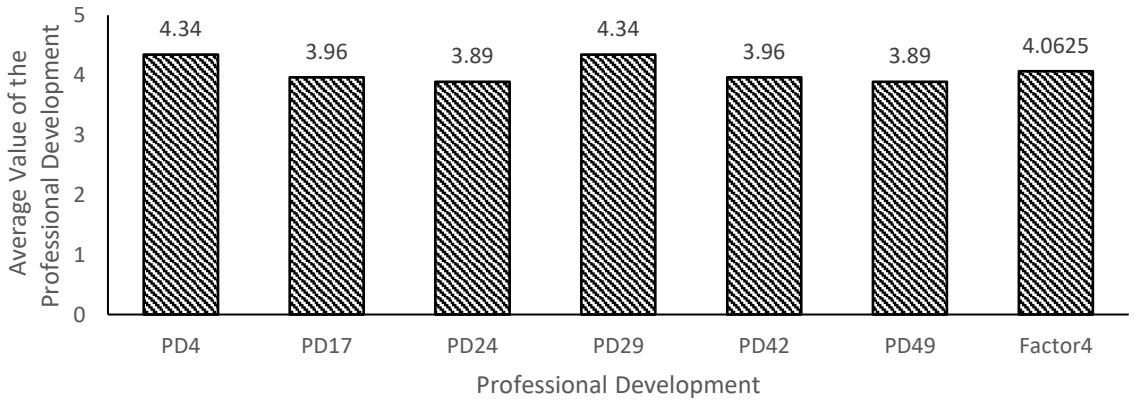

Figure 5. The average value on component Professional Development

Academic Classroom Behaviour

The reliability value Cronbach Alpha = 0.78 which is significant because its value is greater than 0.6 among the loaded eight items. The highest rated value was 3.65 whose standard deviation were 0.642). Likewise, the lowest rated value was 3.28 and corresponding standard deviation was 1.081. The average rated value of this component ***Academic Classroom Behaviour*** was 3.45, standard deviation was 0.66 and mean difference was 0.45. The participant's responses that the two items autonomy strengthens students' voice and it requires the distribution of power and the right to ask questions and mathematics teachers never give up students' voice and student's academic achievement were not significant difference at the level of significance at 0.05 and other remaining items were significant difference at level of significance($p<0.05$). (See Table 8).

Table 8. Descriptive statistics and one sample t-test for the component in Academic Classroom Behavior

One Sample Statistics (Test Value =3)								
							95% Confidence Interval of the Difference	
Items	N	Mean	S.D.	M.D.	t-Value	Sig. (Two tailed)	Upper	Lower
ACB13	80	3.65	.887	.650	6.552	.000	.45	.85
ACB15	80	3.40	.963	.400	3.717	.000	.19	.61
ACB22	80	3.50	.941	.500	4.751	.000	.29	.71
ACB25	80	3.29	1.081	.288	2.378	.020	.05	.53
ACB38	80	3.65	.887	.650	6.552	.000	.45	.85
ACB40	80	3.40	.963	.400	3.717	.000	.19	.61
ACB47	80	3.50	.941	.500	4.751	.000	.29	.71
ACB50	80	3.28	1.081	.288	2.378	.020	.05	.53
Factor5	80	3.4594	.66137	.45938	6.213	.000	.3122	.6066

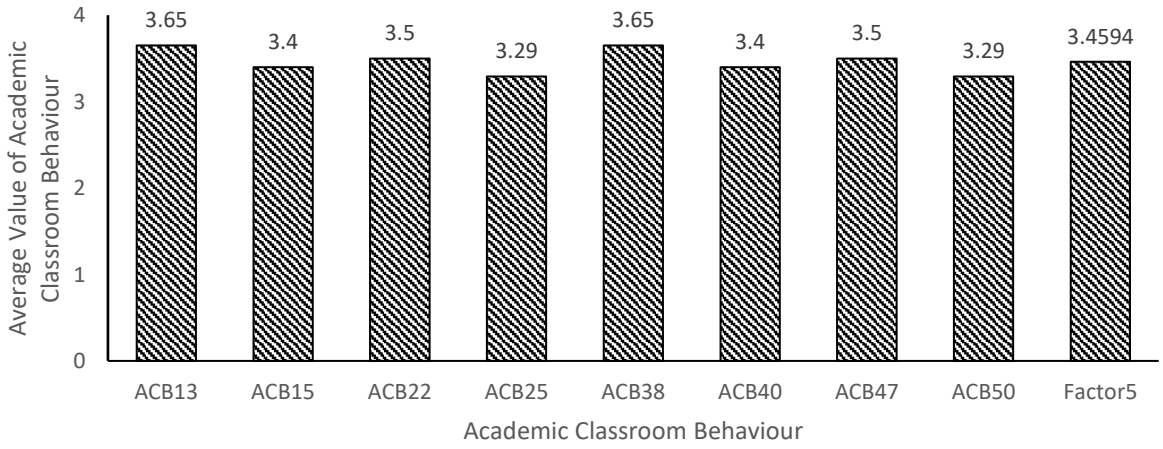

Figure 6. The average value on component Academic Classroom Behavior

Discussions

The present study analyzed the participant's responses about the Perceptions of Mathematics Teacher's Autonomy in Students' Performance. I had taken responses teachers over the statements. In this context, I prepared five components Ownership in Teaching, Effective Instructional Strategies, Teachers' Fairness, Professional Development, and Academic Classroom Behavior.

The degree to which students have ownership and agency over their own learning in the mathematics classroom is referred to as ownership in mathematics teaching. In this regard, Castle (2006) says that autonomy enforce and encourage students to participate actively in the learning process, allowing them to get a better comprehension of mathematical concepts and skills. Mathematics teachers' autonomy is demonstrated by the use of genuine examinations that allow students to demonstrate their mastery of mathematical ideas in real-world circumstances. This can include projects, presentations, or portfolios that demonstrate their quantitative thinking and problem-solving capacities (Lee, 2020). It means teachers encourage students to work in groups or pairs to solve issues, explain concepts to their peers, and provide feedback. So, Teachers who have a feeling of ownership become more involved in their teaching, which leads to increased motivation, deeper knowledge, and improved mathematical skills. Similarly, Effective instructional strategies mathematics teachers provide clear and direct explanations of mathematical concepts and methods, break down complicated ideas into smaller, easier to understand bits of information and assist students' learning with models, examples, and demonstrations. In this regard, Shalem, Clercq, Steinberg, and Koornhof, (2018) say that mathematics teachers give significant and hard mathematics problems to the students, which need critical thinking and problem-solving skills. They inspire students to try new tactics, articulate their ideas, and justify their decisions. Continuous formative evaluations are used by autonomous teachers to check student development and understanding (Yasmin, & Sohil, 2018). In this sense, they provide students with timely feedback, highlighting strengths and areas for progress. Adjust lessons based on assessment results to match the needs of individual students and to address misconceptions.

In the mathematics classroom, teachers' fairness refers to the equitable treatment of all students, regardless of their background, ability, or other individual qualities. In autonomous classroom, fairness ensures that all students have an equal chance to achieve and feel valued in their mathematical learning and avoid prejudice and partiality, and treat every child fairly (Sentuk, & Oyman, 2014). Teachers with autonomy must ensure that assessment and grading processes are fair and transparent. Furthermore, teachers examine students' comprehension of mathematical ideas and skills using a number of evaluation methods. Similarly, Silva, (2021) enforces mathematics teachers provide student's constructive comments that helps them realize their own strengths and places for growth. Therefore, teachers avoid grading prejudice by evaluating students on their individual growth and achievement.

Professional development is an ongoing process that continues throughout a teacher's career. It entails committing to constant learning and progress, embracing new ideas, and adapting to educational

changes. It means Thomas, Andrew, and Pereira, (2016) view that teachers should actively seek chances for professional development in order to stay current with the newest research, pedagogical practices, and technology innovations. Professional development is crucial for instructors to improve their teaching skills, stay current with current research and best practices, and meet the changing needs of students (Anderson, & Anderson, 2015). Professional development should encourage instructors to engage in reflective practice, in which they critically review their teaching techniques, assess the impact of their instructional decisions, and make required improvements based on evidence and feedback.

Academic classroom behavior refers to the actions and expectations associated with mathematics instruction and engagement. As a mathematics teacher, it is critical to promote academic classroom behavior in order to create a good and conducive learning atmosphere (Duong, 2014). Mathematics teachers may establish a good and productive learning environment that increases student involvement, participation, and accomplishment by promoting academic classroom behavior (Joshi, 2011). Academic behavior reinforcement that is consistent helps to develop a culture of respect, responsibility, and active learning in the mathematics classroom. Autonomous teachers should recognize that student's mathematical efforts, progress, and accomplishments. Additionally, teachers motivate and reinforce desired academic behaviors by using a variety of tactics such as vocal encouragement, written comments, and rewards (Seda, 2008). Autonomous teachers make mathematics classroom inclusive environment where all students feel appreciated and encouraged to contribute. Teachers encourage students to develop a sense of community and teamwork by emphasizing mutual support and shared responsibility for learning and upgrade performance.

Conclusion

In conclusion, perceptions of mathematics teachers' classroom autonomy can have significant effects on student performance. Teachers who feel empowered and have the freedom to make instructional decisions can establish engaging, student-centered learning environments. This, in turn, improves motivation, engagement, and customized attention, resulting in increased student performance in mathematics. It is critical for students to understand the significance of teacher autonomy and to give support in order to establish an ideal learning environment for students' performance. Ultimately, perceptions of mathematics teachers' autonomy have a direct impact on student performance. Likewise, Students perform better in mathematics when teachers have the autonomy to design engaging education, differentiate their teaching, develop motivation and confidence, manage the classroom efficiently, build close relationships with students, and pursue professional advancement. Developing a healthy classroom culture that recognizes and promotes teacher autonomy boosts these beneficial outcomes of students even more.

Policy Implications

My research contributes to the development of educational policies by focusing on "Mathematics Teacher Autonomy in Students' Performance." This research also assists the curriculum designer in

choosing acceptable teaching methods and evaluation methodologies. This research also assists the government in developing policies for classroom activities such as fair teaching, fostering open discussion, respecting diversity, and transparent teacher practices.

Further Ares of Research

This study focuses on mathematics teachers' classroom teaching (practices) and liability. It draws a small amount of attention from teachers in classroom practices in order for them to be autonomous through teachers' perception. Furthermore, the research will be broadened by include both the parents' and students' perspectives on student performance. Furthermore, the researcher will collect a huge number of samples and use various analytical approaches to assess Perceptions of Mathematics Teacher Autonomy in Students' Performance. Another area for further research can be defined by adding a comparative dimension to study.

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