

# Grade 9 Learner Perceptions on Teacher-learner Relationship Influencing their Mathematics Performance in Tshwane

**Bamidele S. D. Odeyemi**

<https://orcid.org/0000-0002-4834-414X>

National Teachers Institute

Lagos, Nigeria

[bsd102002@yahoo.com](mailto:bsd102002@yahoo.com)

**R. Chireshe**

Great Zimbabwe University

[chireshe@yahoo.co.uk](mailto:chireshe@yahoo.co.uk)

## Abstract

The study that directed this article explored the perceptions of Grade 9 learners on teacher-learner relationship as a factor influencing their mathematics performance in Tshwane municipality public secondary schools, South Africa. The study applied a quantitative research approach, following a descriptive survey design. The sample comprised 400 learners (280 females and 120 males). A self-designed questionnaire was employed for data collection, and the data were further analysed using the 24.0 version of the Statistical Package for the Social Sciences (SPSS). One hypothesis was tested and it was accepted. The study revealed that the perceptions of Grade 9 learners on teacher-learner relationship was a major factor influencing their performance in mathematics.

**Keywords:** academic performance; mathematics; perceptions; teacher-learner relationship; learners

## Introduction

Mathematics is a subject of highly rated value; it is also a subject of universal recognition. In the present technological-based world environment, learners' performance in mathematics education has consistently remained a major subject in global competition (Kaiser 2020, 7). Yenmez et al. (2017, 320) argue that the need for mathematics has become hugely important in solving human problems and at the same time performing astounding scientific and technological achievements.

Many nations have various reasons for considering mathematics as important, and one of the reasons is due to its extreme value and significance in work places (Odeyemi-Bsd 2020, 1). The achievements of many nations are also anchored on the successes of their youths in mathematics, especially in the United States of America (Wright and Ellis 2019, 34). Studies (Naidoo and Ranchod 2018, 20; Simkins 2010, 1) have established that mathematics and science at schools in South Africa are compulsory subjects that are crucial to higher education and national economic growth. Studies (Budinski and Milinkovic 2017, 56; Dejarnette and Gonzales 2016, 36; Sawatzki and Sullivan 2018, 1360) have also established that there is a paucity of personnel in industries and businesses due to a lack of people with basic mathematical skills.

Learners' poor performance in mathematics has become worrisome in schools, and it has been a global concern for some time (Arends, Winnaar, and Mosimege 2017, 1; PISA 2018, 3). Mathematics performances of learners in Malaysia have been highly discouraging. The National Assessment of Learning Outcomes (NALO) done in 2019 revealed a very poor and discouraging result. These results have also been woeful from the previous years (Ministry of Education 2019, 100).

Due to these unfavourable outcomes of learners' results in mathematics, researchers have made it a concern to find out the major cause of the Malaysian learners' poor outcome in the subject. In a similar vein, learners in the United States of America, who participated in the 2008 Programme for International Student Assessment (PISA) involving 56 different countries, also performed woefully. The learners could not attain the international benchmark (Hanushek, Peterson, and Woessmann 2009, 115). Furthermore, American learners have remained below the average benchmark (OECD, 2020, 2). A similar report was obtained in the 2018 PISA evaluation and the international global test for learners in the 2019 Trends in International Maths and Science Study (TIMSS). However, a low percentage of the learners scored slightly above average. These results respectively have placed the United States of America among the nations with poor mathematical skills (Reddy 2019, 7). Namibian learners' mathematics performance has also remained discouraging, as well as results within the southern African region (Mateya, Utete, and Ilukena 2016, 158).

Following the trend of failure among South African learners' mathematics performance from the year 2013 to 2015, as reported by the Human Sciences Research Council (HSRC 2011), it states that there is no noticeable improvement, especially among the

Grade 9 learners (DoE 2014, 34). In the 2018 PISA, South African learners were among the poorly rated learners from 80 different countries represented in the evaluation (PISA 2018, 3). In a similar vein, the report from the World Economic Forum (WEF 2018) revealed the poor performance of South African learners, which was ranked at 2.6% level of achievement; this was actually a major disappointment (WEF 2018, 5). It is disturbing that a large number of South African secondary school learners did not measure up to the proficiency level in mathematics and science; when compared with other learners globally, South African Grade 9 learners scored the lowest grade globally (DBE 2017, 18; TIMSS 2019, 7).

South African learners' mathematics performance has attracted serious attention from different educational quarters, and much concern has been geared towards achieving better academic performance from learners in mathematics. The majority of South African secondary school learners have failed to reach reasonable and acceptable proficiency levels in mathematics and science in comparison with other nations in the global tests, especially the Grade 9 learners who scored the poorest grade globally (TIMSS 2019, 7; DBE 2017, 18). Mathematics is a core subject towards achieving success in the quest for fitting into the new technological move in South Africa. Mathematics will remain an indispensable subject for all if this feat is to be achieved (Department of Education 2008, 10; Jojo 2019, 2). It is in view of this goal that every learner will need to take either mathematics or mathematics literacy so as to get them equipped for work-place challenges after school in an ever-developing scientific and technological-driven global society. Having pointed out the global necessity of mathematics as a subject, it is problematic that learners have continuously failed mathematics as a subject (Arends et al. 2017, 1; PISA 2018, 3). It has been established that the poor performance of learners in South Africa is capable of inhibiting the potential needed for achieving the goals of the South African technological age (Odeyemi-Bsd 2020, 4). The 2014 report of the Department of Basic Education indicates that Grade 9 learners' level of achievement in mathematics was 12%, while the following year's result was in a similar direction (DBE 2014, 31). The TIMSS revealed that South African Grade 9 learners are just at the base level position of 38 from the 39 nations that were ranked, which was an appalling situation in the trend of global mathematics performance (Reddy et al. 2016, 41).

Mathematics education is of significant importance and a vital tool for nation building; many nations understand this, and they have set the ball in motion to achieve this at all costs (Odeyemi-Bsd 2020, 4). The United States of America has come to the realisation that any country that must take up the leadership role of other nations globally—and of the global economy—must possess the skills and ability to create wealth and quality levels of employment. The quality of employment should be capable of global transformation through a vibrant education system to develop learners with excellent mathematical and scientific skills needed for global competition in the scientific world of today. Therefore, mathematical and scientific skills acquisition through education has become essential to Americans (Hoeg and Bencze 2017, 279). Mathematics has been

termed as a subject that involves human activity through scientific ways of observing, representing, investigating trends of events and evaluating existing relationships in concrete and social events. At the same time, mathematics has remained crucial and essential among the subjects of study at school, and it is mathematics that has the ability to develop educated minds. As far as improving and enhancing the human mind and developing human personality, mathematics is an essential key (Chowdhury 2016, 3).

There are several implications resulting from learners' achievement in mathematics that will influence their college days and future endeavours. The ability of learners to develop and have a thorough background in mathematics can build advanced and experienced orientations, thereby offering more career options (Wang and Degol 2017, 123). The contrast in learners' mathematics performance (compared with their general performance) has raised some serious academic concern from stakeholders of education, despite introducing a variety of approaches in learning and instruction (Odeyemi-Bsd 2020, 5). This contrast is evident from the performances of learners in the classroom situation. Possible factors may be traced to aspects including the self-esteem of learners; self-efficacy of learners; motivational orientation of learners; learners' study habits; learners' emotional problems; teachers' consultation; and unhealthy interpersonal relationships among learners (Wang and Degol 2017, 122). It has been discovered that a countless number of factors may also be responsible for learners' poor performances in mathematics. Some of these factors responsible for learners' academic performance in mathematics could be internal and external factors. When these factors are put together, the gap in learners' academic performance may become very wide, especially when society has failed by not helping the learners to exert the needed effort for academic success (Acharya 2017, 9; Ugwuanyi, Okeke, and Asomugha 2020, 494).

Statistics from 2010 to 2015 report on South African education, and these statistics reveal a number of facts specifically on South African mathematics education. These facts expose the truth that, indeed, South African secondary school learners' performance in mathematics has been very discouraging (DBE 2012, 31:). It is in view of this report that the government and major stakeholders in education have taken it up as a major task to step up educational standards within the South African education structure. Considering the appalling level of South African learners' poor mathematics performance, it becomes imperative that the perceived factors causing the perpetual failure must be unravelled as a matter of urgency (Hajovsky et al. 2020, 111).

## Statement of the Problem

The background to the study has clearly revealed that mathematics is a fundamental subject in the South African course of study and almost every other country on the globe, but learners have regarded it as difficult and cumbersome to comprehend (Naidoo and Ranchod 2018, 20; Yenmez et al. 2017, 320). It has equally been realised that many South African learners have been unable to reach a proficiency level in mathematics and science (DOE 2014, 3; Mullis et al. 2012, 255; Reddy et al. 2016, 5; Spaul 2012, 4; Tachie and Chireshe 2013, 67). The background to the study indicates that there are

existing studies on factors influencing learners' performance in mathematics (Mkgato and Mji 2006, 255; Tachie and Chireshe 2013, 67). However, these studies were conducted in the other provinces of South Africa, and their findings did not focus on the Grade 9 learners of Tshwane municipality secondary schools.

The focus of this study was to find out the factors perceived by Grade 9 learners in Tshwane, South Africa, as affecting their mathematics performance. The purpose of the study is presented under the stated objective.

### **Objective**

To establish the perceptions of Grade 9 learners in Tshwane, South Africa, on the existing relationship or correlation between teacher-learner relationship and their mathematics performance.

### **Sub-research Question**

What is the extent of perceptions of Grade 9 learners on a correlation between teacher-learner relationship and their mathematics performance in Tshwane municipality?

### **Hypothesis of the study**

In the study, the hypothesis below was quantitatively tested at  $P < 0.05$ :

**Ho1.** There is no significant relationship between the perceptions of Grade 9 learners and the teacher-learner relationship on their mathematics performance in Tshwane municipality.

### **Review of Related Literature**

The study was premised on the Social Cognitive Theory of Learning as its theoretical framework. The Social Cognitive Theory (SCT) relates to the role of the environment, the influence of role models, self-efficacy, beliefs and perceptions in learning. In addition, the theory regards individuals as having the possibility of being self-organised, proactive, self-reflecting, and self-regulating. This also points to the relatedness of factors within the social frame on learning and how learners respond to their studies as a result of these factors (especially the learners' immediate environment), with the teacher as a major factor. The SCT considers the teacher as a model to learners' learning patterns. Teachers have been considered as being responsible for learners' academic skills and self-regulatory engagements needed for better academic improvement and making classroom learning interesting and effective by eliminating learning impediments in the classroom through SCT. This may make room for quality interactive processes and cordiality in the teacher-learner relationship, thereby yielding positive responses from learners towards their studies and further academic engagements (Odeyemi-Bsd 2020, 14).

Teachers are the major drivers of learners' development and academic growth, the access to information that brings knowledge, and agents of transformation (Murphy, Redding, and Twyman 2016, 11; Wallace 2011, 19). Several American studies (Jia, Konold, and Cornell 2016, 298; Ruzek et al. 2016, 95; Stevenson et al. 2016, 820) have presented strong evidence that the teacher-learner relationship is viewed as crucially fundamental to learners' academic health and development at school. Cantor et al. (2018, 5) also confirm that for American learners to achieve a better academic performance, this will be solely dependent on the teachers' ability in consideration of the learners' background, emotional needs and relationships. A positive teacher-learner relationship in the school is also observed as a recipe for safety for vulnerable learners on the verge of failure (Odeyemi-Bsd 2020, 31).

Most often, teacher-learner relationships develop and change over time. As learners increase in age and maturity, the bond between teachers and learners continues to be strong throughout the preschool stage up to the end of their school years (Stevenson et al. 2016, 820). Some middle school learners, who do not have strong links with teachers, often discontinue their schooling, perhaps because they feel a sense of being isolated or lonely (Gehlbach et al. 2016, 346).

In Europe, the perceptions of mathematics teachers' relationship and support are key pointers to learners' performance. This has also been seen as a source of influence on learners' motivation for performance in mathematics (Levpusek and Zupanic, 2009, 543). Learners have perceived their teachers as their mentors and role models in whatever they do, and as a result, the learners easily emulate their teachers' behaviour (Odeyemi-Bsd 2020, 32). When learners like or dislike their teachers, it poses a strong effect on their studies. However, many teachers have failed to recognise that their behaviour and interactions with the learners are more important than the subjects taught (Carter and Darling-Hammond 2016, 595). This imposes a high degree of responsibility on teachers to be wary about their relationship with learners so as to enhance a positive interest of learners towards mathematics.

Some Singaporean studies in Asia (Kaur et al. 2018, 105; Sfard 2016, 53) have also established that the teacher-learner relationship has a strong influence on Asian learners' academic performance. From the studies conducted about teachers' competencies, certain characteristics were identified to constitute a competent teacher. A major point (in these characteristics) includes teachers' relationship with the secondary school learners in Singapore. It was established in the study that Singaporean learners who had teachers who value and accord them respectfully, showed a high degree of interest, commitment and relentless effort needed to excel academically. Similarly, Chinese learners whose teachers were caring, improved tremendously in their academic performances (Lei, Cui, and Chiu 2018, 1; Longobardi et al. 2016, 994).

Adu and Oladuntun (2007, 59) have established that teachers' relationships in Nigerian schools occupy a strong position in the influence of learners' academic performance.

Yara (2009, 365) also posits that a cordial relationship between teachers and learners in Nigeria is essential for helping learners in developing acceptable behaviour towards mathematics achievement. A positive teacher-learner relationship has been established as an enhancer of learners' academic performance, especially in mathematics (Odeyemi-Bsd 2020, 32). Following the above discussion, evidence has also been established from the present study that a quality teacher-learner relationship may be a catalyst for outstanding levels of academic performance. The present study sought to find out if the Nigerian situation above is similar to the perceptions of the Grade 9 learners in Tshwane.

These studies in Kenya (Ochieng, Kiplagat, and Nyongesa 2017, 45; Waseka and Simatwa 2016, 73) also revealed that the existing teacher-learner relationship among the Kenyan learners had been a source of influence on learners' mathematics performance. In a similar vein, it was also established that it is a necessity for teachers in Botswana schools to come up with a generation of teachers who will take teaching beyond the classroom situation. Botswana teachers are encumbered with developing an atmosphere of cordiality in their relationships with learners, which can build up learners' academic independence, building a life-long interest and courage capable of making them autonomous learners in future (Maniraho and Mugabo 2019, 18). The studies above agree with the SCT that informed the present study. The theory affirms that cordiality in a teacher-learner relationship is inevitable for effective learning. The theory further establishes that better academic performance among learners can be achieved when teachers believe in collective efficacy to motivate and educate learners through cordial teacher-learner relationships (Bandura 1997, 59).

Teacher-learner relationships have remained an essential catalyst for boosting academic growth among learners in South African schools (George and Adu 2018, 140). Furthermore, in the South African context, teachers are educational "midwives" who take safe delivery of the educational system (Woolfolk 2010, 76). Similarly, teachers in South Africa need to be a motivating factor for learners who do not have the required home support. It was established that learners could be easily motivated during elementary class levels because learners at this stage have little or no concrete attitudes, unlike learners at the middle and high school level (Maniraho and Mugabo 2019, 18; Manzo 2008, 23, Wolhuter and Van Staden 2008, 110). In line with the above statement, the present study sought to establish the perceptions of Grade 9 learners in Tshwane, South Africa, on the influence of teacher-learner relationships on their academic performance in mathematics.

Teachers may frequently find themselves taking the position of parents as soon as learners arrive at school, and this has created room for increased teacher-learner relationships in schools. This situation has been termed "loco parentis," owing to the fact that learners spend more time in school than at home, and the teachers "stand in" for the parents (Roos, Oosthuizen, and Smit 2009, 126). Some American studies (Currin 2019, 25; Davis 2020, 164), European studies (Rushidi and Rushidi-Rexhepi 2015,

115), an Asian study (Hamad 2018, 40), and Nigerian studies (Mafukata 2016, 33; Nakpodia 2009, 12) have shown that the loco parentis status of teachers has been recognised in academic environments. It has also been seen as an opportunity to enable increased teacher-learner relationships, which in turn influences learners' performance. Regarding the teacher-learner relationship, South African teachers are encumbered with the task of discharging their responsibilities towards the learners—when they are in school—in the same way the parents would do when the learners are at home (Potgieter 2007, 857; Tshatshu 2016, 56). Rapeta and Magano (2017, 248) established that South African teachers should be responsible and caring towards learners in their classes. The loco parentis status of teachers emphasises several important areas of teacher-learner relationships. It means that teachers should help learners to find their footing in their own world within the society. Teachers should also take time to guide learners appropriately by exposing them to fresh ideas and preparing them for worthwhile academic accomplishment into adulthood (Chirinda and Barmby 2018, 117; Ekdahl et al. 2018, 5). This study sought to establish the perceptions of Grade 9 learners on the influence of teachers' loco parentis status in teacher-learner relationships on their mathematics performance in South Africa.

Regarding the teacher-learner relationship, it is generally believed in America (Pianta, Hamre, and Allen 2012, 375; Ruzek et al. 2016, 95), in Europe (Juvonen, Espinoza, and Knifsend 2012, 393; Ladd, Herald-Brown, and Kochel 2009, 330), in Nigeria (Mafukata 2016, 32 Yara 2009, 365) and in South Africa (Cherrington and De Lange 2016, 375; Higgs 2016, 95) that in relationships where trust is considered, positive teaching and learning experiences can be derived. In relationships where trust is not established between teachers and learners, the essence of the relationship would have been defeated from the beginning. Hence, it is crucial for a positive teacher-learner relationship to be formed in the school setting. Learners have been noticed as exercising an increased sense of belongingness at school when teachers are receptive and supportive towards learners' academic pursuits (Onyia 2010, 121; Orlando 2013, 213). The optimal structure requires teachers to be able to trust learners' abilities, also helping them to make room for higher levels of comprehension and performance in their studies (Dweck 2017, 132; Osher et al. 2016, 646). The present study sought to find out the perceptions of Grade 9 learners in Tshwane, South Africa, on the influence of trust in teacher-learner relationships on their mathematics performance in South Africa.

There is, however, some literature that sees the correlation between the teacher-learner relationship and academic performance as having a weak significance, hence it cannot be taken seriously. Examples are Kim, Dar-Nimrod, and MacCann (2018, 4); Rivkin, Hanushek, and Kain (2005, 12) in America. In addition, the results of these studies on teacher-learner relationship revealed that no concrete agreement had been reached regarding the precise teacher-learner indicator influencing learners' academic performance.



## Methodology

Within the positivism paradigm, the study followed a descriptive survey design. Forty participants, who were Grade 9 learners, were randomly selected from a total population of 143 175 learners (Cooper and Schindler 2014, 337). With the identification of 10 clusters, 40 learners were systematically selected after consideration of their classes and sexes. The areas of study were based on proximity to the researcher. The researcher compiled a six-item questionnaire named: Questionnaire on Student Academic Performance (QSAP), which was employed to get information from respondents. The questionnaire has two sections, namely A and B, where section A consists of respondents’ demographic data (age, sex and class), while section B consists of items for generating data from the learners on their perceptions of factors that have influenced their mathematics performance. The response pattern for the items was a 4-point Likert scale consisting of strongly agree, agree, disagree and strongly disagree. These were scored 4, 3, 2 and 1 under each item when positive items were scored, while the scoring of negative items was made in a reverse direction. The research instrument was personally administered to respondents by the researcher, while the validity of the research instrument was carried out through expert judgement. Reliability was ensured through a pilot test at schools in a different region from schools within the study area. With the test-retest method, the reliability was empirically ascertained using four weeks’ interval, which produced a coefficient value of 0.65. The rating of the items was obtained through the calculation of a frequency table and ratios. The relationship of the variable on learners’ mathematics performance was established through a Chi-square test. The data for the study were collected quantitatively with the use of a questionnaire, while its analysis was done using SPSS, thereby giving room to the normality of the instrument, the reliability, validity and correlation of results from the data.

## Results and Discussion

### Hypothesis Analysis

The null hypothesis formulated for this study was made to undergo statistical testing for the purpose of accepting or rejecting it. T-test statistics were used to test the hypothesis, which tested at a 0.05 level of significance.

**Hypothesis 1:** There is no significant relationship between the perceptions of Grade 9 learners in Tshwane, South Africa, on teacher-learner relationship on their mathematics performance.

### Data Analysis

**Table 1:** Teacher-learner relationship and Grade 9 learners’ academic performance in mathematics in Tshwane Municipality (N=400)

Respondents	Items	Responses				Total	Ratio
		SA	A	D	SD		

Grade 9 learners	My mathematics teacher believes I can perform well in mathematics	260(13%)	80(4%)	40(2%)	20(1%)	400(20%)	5.6
	My mathematics teacher's method of teaching is very difficult	80(4%)	50(2.5%)	90(4.5%)	180(9%)	400(20%)	0.5
	My teacher encourages my performance in mathematics through group assignment	230(11.5%)	90(4.5%)	60(3%)	20(1%)	400(20%)	4.0
	My mathematics teacher helps in solving difficult questions	190(9.5%)	95(4.8%)	82(4.1%)	33(1.6%)	400(20%)	1.2
	My mathematics teacher gives me extra attention in mathematics lesson	210(10.5%)	80(4%)	50(2.5%)	60(3%)	400(20%)	2.6
	<b>TOTAL</b>	970(48.5%)	395(19.8%)	322(16.1%)	313(15.6%)	2000(100%)	2.1

$X^2$  calculated= 29.68,  $X^2$  critical= 21.03, df= 12

## Result

**Table 2:** Teacher-learner relationship and mathematics performance

Variable	mean	Sd	n	df	r-cal	r-crit	Sig. Level
Teacher-learner relationship	15.18	2.14	400	398	0.54	0.20	0.05
Performance	54.96	13.51					

## Significance

Evidence from table 2 shows a calculated r-value of 0.54 as the teacher-learner relationship and mathematics performance of Grade 9 learners in Tshwane Municipality. This calculated r-value is significant because it is higher than the critical r-value of .20, considering 398 degrees of freedom at a .05 significant level. This means that there is a significant correlation between the teacher-learner relationship and the mathematics performance of Grade 9 learners in Tshwane Municipality.

## Discussion of Findings

### Perceptions of Grade 9 Learners in Tshwane Municipality on the Relationship between Teacher-learner Relationship and their Mathematics Performance

The study discusses the perceptions of Grade 9 learners in Tshwane, South Africa, on the relationship and correlation between teacher-learner relationship and their mathematics performance, as revealed from the results of the study. This sub-section addressed the sub-research question, which reads: What is the extent of perceptions of the Grade 9 learners in Tshwane, South Africa, on the teacher-learner relationship on their mathematics performance?

It became evident from the study findings that learners perceived that there is a significant relationship between perceptions of Grade 9 learners in Tshwane on the correlation between the teacher-learner relationship and their mathematics performance. Grade 9 learners in Tshwane positively appraised their satisfaction with teacher-learner relationships. In addition, it was revealed from the study that learners perceived that cordiality in the teacher-learner relationship is essential to learners' academic success. This was perceived as having influenced the mathematics performance of Grade 9 learners. The study also reflects that Grade 9 learners who enjoyed the cordiality of the teacher-learner relationship at school were seen as having better performances. Furthermore, cordiality in the teacher-learner relationship serves as a motivating factor to the learners in their academic exploits. The finding on teacher-learner relationship is in agreement with the following studies within the American context (Cantor et al. 2018, 5; Gehlbach et al. 2016, 346; Jia et al. 2016, 298; Ruzek et al. 2016, 95), within the European context (Levpuscek and Zupanic 2009, 543; Murphy et al. 2016, 11; Stevenson et al. 2016, 820; Wallace 2011, 19), and within the Asian context (Carter et al. 2016, 595). These studies revealed that a strong link of cordiality in the teacher-learner relationship was established as an impetus for learners' academic success.

It was further established that the Grade 9 learners perceived that a teacher-learner relationship in the positive direction would make learners perform well in their academic pursuits. In addition, the study revealed that when a teacher-learner relationship was positively observed, it was perceived that this would present an opportunity for bridging any existing gap between teachers and learners. It was also revealed that a positive teacher-learner relationship would promote a closer relationship between learners and teachers, and this would, in turn, positively enhance the academic performance of learners.

The finding of the present study on teacher-learner relationship is similar to the views of Cantor et al. (2018, 5), who emphasised that for better academic performance to be achieved, teachers would have to consider many things about the learners, ranging from home background and their psychosocial needs. This agrees with Bandura's SCT, which informed this study, and states that when positive interaction is exerted within an environment, learners will develop a strengthened self-concept, which is a necessary ingredient for the success of every child. Learners who have unhealthy interactions with teachers often find it challenging to make headway in mathematics, frequently as a result of poor relationships (Odeyemi-Bsd 2020, 31).

The present study further established that learners observed that the development and academic growth of learners are products of teachers who have been identified as the activators of knowledge. The finding of the present study is similar to several American studies (Ruzek et al. 2016, 95; Stevenson et al. 2016, 822), European studies (Juvonen et al. 2012, 393; Murphy et al. 2016, 11; Srinivas and Venkatkrishnan 2016, 49; Wallace, 2011, 19), Asian study (Hamad 2018, 40), Kenyan studies (Ochieng et al. 2017, 45; Waseka and Simatwa 2016, 73; Yara 2009, 366), Nigerian studies (Adu and

Oladuntun 2007, 59) and South African studies (Chirinda and Barmby 2018, 117; Ekdahl et al. 2018, 5; George and Adu 2018, 140; Woolfolk 2010, 76). All of these studies confirm that a positive teacher-learner relationship is capable of bringing out the best in learners. Teacher-learner relationship is fundamental to the academic growth of learners, which also promotes a quality performance of learners.

The present study further showed that learners observed that Tshwane teachers' social quality was a great influence on their mathematics performance. It was also identified by the learners in this study that teachers with good social qualities are essential to a quality teaching and learning experience, which in turn aids performance. These findings on teacher-learner relationship are in agreement with the American studies of Ruzek et al. (2016, 95), and the European studies of Srinivas and Venkatkrishnan (2016, 49), establishing that teachers who are liked can be approached. Most of the time, such teachers make room for learners to ask questions during classwork when the work is not clear or the work is difficult, which has impacted learners' performance. Teachers who do not influence their learners' mathematics performance positively have also been responsible for their failure, as indicated by the learners in this study. Modelling positive academic interest by teachers also enhances improved academic performance in the learners. The result on teacher-learner relationship in this study is similar to the SCT that informed the study. It opines that teachers' mentorship and positive role modelling are essential for learners' academic success when emulated. Learners without mentors, or those who had bad mentors, end up performing poorly in mathematics due to the gap created by a poor teacher-learner relationship.

It was also revealed from the present study that learners perceived that their performance in mathematics gets better with teachers who are patient enough with learners during classwork. In addition, it was reported in the study that learners held the perception that their performances improved when they were with passionate teachers who provided them with additional assistance during classwork. The ability of teachers to expatiate more on difficult work during classwork made room for learners' improved performance. The result on teacher-learner relationship in this study corroborates the point made by Srinivas and Venkatkrishnan (2016, 49) that when learners do not comprehend concepts or topics, teachers should take their time to explain further until the learners are able to comprehend the topics better.

The study further established that learners perceived that teachers who show a sense of self-worth to their learners were seen as being confident in themselves, and this was also impactful for better performance. The result of this study is in line with some studies in Asia (Carter et al. 2016, 595; Lei et al. 2018, 1; Longobardi et al. 2016, 994; Sfar 2016, 53), Kenya (Ochieng et al. 2017, 45; Waseka and Simatwa 2016, 73) and Botswana (Maniraho and Mugabo 2019, 18), stating that learners are highly motivated each time their teachers believe in them. The result on teacher-learner relationship is in accordance with Bandura's SCT that informed the study. It states that better academic performance of learners can be recorded when teachers' beliefs are tuned towards a

collective efficacy to motivate and educate learners. Learners who have teachers that believe in them find it easier to perform well in mathematics due to positive teachers' belief in learners' efficacy.

The present study further shows how inadequate and old-fashioned teachers' methodologies and strategies have been perceived by learners to have influenced learners' mathematics performance. The study findings established the need for teachers to come up with new and effective teaching strategies capable of motivating the learners in their mathematics performance. It is also a known fact that improved teaching methodology will improve learners' performance in mathematics. The result of the present study on teacher-learner relationship is also in tandem with the studies of Radhika (2019, 15) in India, and Chirinda and Barmby (2018, 117); Ekdahl et al. (2018, 5); Manzo (2008, 23); Wolhuter and Van Staden (2008, 110); and Woolfolk (2010, 76) in South Africa. These studies have established that teacher-learner relationships are sources of motivating learners to learn. It also helps teachers to render the necessary help to learners in order to perform well academically.

## Conclusion and Recommendations

The study confirmed that learners' perceptions of the teacher-learner relationship had a strong rating and was perceived as a major factor that negatively influenced Grade 9 learners' performance in mathematics. Some recommendations were made that may improve Grade 9 learners' performance in mathematics in line with the findings of the study:

- It was recommended that teachers should consider partaking in in-service training that is capable of improving teachers' teaching methodology and improving the existing relationship between teachers and learners.
- Teachers should also understand the reality of individual differences among learners, thereby creating time and attention for the slow learners.
- Teachers should regard and treat the learners as their own children (*loco parentis*). In doing this, learners will love their teachers, and it may translate into a love of mathematics from the learners.

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